BENTON LAKE

NATIONAL WILDLIFE REFUGE

AND

WETLAND MANAGEMENT DISTRICT

GREAT FALLS, MONTANA

ANNUAL NARRATIVE REPORT

CALENDAR YEAR 1995

U.S. DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

NATIONAL WILDLIFE REFUGE SYSTEM

REVIEW AND APPROVALS

BENTON LAKE NATIONAL WILDLIFE REFUGE

Great Falls, Montana

ANNUAL NARRATIVE REPORT

Calendar Year 1995

James E McCollum 2/18/97
Project Leader Date

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Associate Manager Review Date

Paul E Gatts 2/20/97
Regional Office Approval Date

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INTRODUCTION

Benton Lake is a 12,383 acre refuge located on the western edge of the northern Great Plains some 50 miles east of the Rocky Mountains and 12 miles north of Great Falls, Montana. Benton Lake proper is a 5,000 acre closed basin marsh, terminus of a 145 square mile watershed. Refuge terrain is gently rolling with short-grass native prairie being the predominant vegetative type. Four mountain ranges are readily visible from the refuge; the Highwood Mountains to the east, the Little Belt Mountains to the southeast, the Big Belt Mountains to the south and the Rockies to the west.

The climate is generally temperate with wide fluctuations in temperature and precipitation. Summer highs may soar to near 100 degrees F while winter lows may reach -50 degrees F. Rain and snow are erratic. Annual precipitation averages about 15 inches. Extremely windy conditions occur in the fall through spring, due to frequent Chinook winds blowing from the southwest over the Rocky Mountain front.

The lake basin has been diked into eight marsh units to provide better water control for the enhancement of submergent and emergent vegetation and to limit botulism outbreaks. Water management is generally by gravity flow, although an inter-unit pumping system allows for great flexibility, especially in the event of a botulism outbreak.

Refuge wildlife is dominated by water birds including most major species of ducks, snow and Canada geese, gulls, terns and various shorebirds. Gadwall, Northern Pintail, Blue-winged Teal, Northern Shoveler, Mallard and Lesser Scaup are the major nesting duck species. Other breeding birds include as many as 13,000 pairs of Franklin's Gull, Black Terns, White-faced Ibis and Eared Grebes. The refuge is a regional site of the Western Hemisphere Shorebird Reserve Network supporting 50,000+ shorebirds during migration. During spring and fall migration bird numbers may total 100,000 ducks, 5,000 tundra swans, 40,000 snow geese and 10,000 Canada geese. Bald eagles and peregrine falcons are frequent visitors in the spring and fall. Six birds of prey nest on the refuge including the Burrowing Owl and Swainson's Hawk.

Other refuge wildlife includes twenty species of mammals such as white-tailed jackrabbit, muskrat, mink, badger, striped skunk, long-tailed and least weasel, coyote, raccoon, white-tailed deer and a limited number of mule deer and pronghorn antelope. Only a handful of reptile and amphibian species are present. No sizeable fish occur due to the shallowness of the marshes.

Land use around the refuge is predominately cropland with wheat being the principal crop grown. The area from Great Falls north to the Canadian border is known as the "Golden Triangle" of Montana due to the monoculture of small grains. The fallow-crop system employed over much of the area is causing problems with refuge water quality by accelerating salinity and trace element accumulation in springs and seeps. Changing private land use practices in the watershed to benefit refuge water quality is a major challenge of the years ahead.

The Benton Lake Wetland Management District and the Montana Partners for Wildlife program are also administered from the refuge. Details of these programs are found in the District narrative following the refuge section.

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1995 NARRATIVE REPORT

A. HIGHLIGHTS

1. Vince Marko, EEO, retired after 32 years at BLNWR. Section E.1

2. Jacqueline Rea EOD as the new Administrative Assistant. Section E.1

3. Eight new refuge birds were sighted this year. Section G.7

4. No avian botulism occurred in 1995. Section G.17

Vince Marko retired this year after a 32+ year career at Benton Lake. Vince refused the traditional retirement party but the staff was able to show their appreciation by presenting him with an original watercolor painting of Rocky Mountain Elk.

GLS 1/96

B. CLIMATIC CONDITIONS

Weather data for the refuge is adopted from the Great Falls National Weather Service office located about 15 miles south of the refuge. The winter of 1995 was quite dry with temperatures averaging above normal. Only two-tenths of an inch of precipitation was recorded in January and February. The 68 degrees recorded on February 24 was a new record high for that date. Spring was cool and wet with temperatures averaging 3.5 degrees below normal and precipitation 1.07 inches above normal. The largest snowfall of the year occurred on April 8th when nine inches fell in 24 hours. Summer started out cool and wet with some record low morning temperatures in June. June thru August temperatures were 3.5 degrees below normal. The first 90+ degree day did not occur until July 8th. August thru December was quite dry with only three inches of precipitation, two inches below normal. The coldest day of the year occurred on December 8 when -26 was recorded.

Weather at the refuge was very similar to that recorded at Great Falls. An early June thunderstorm dropped pea to dime-sized hail and .33 inch of rain at the refuge office in about 10 minutes. Wind gusts over 60 mph on December 4 caused some soil erosion in unprotected farm fields around the refuge.

The following table summarizes weather data by month. Precipitation is recorded at the refuge using National Weather Service approved instruments.

TABLE I

WEATHER DATA - 1995

	GREAT FALLS				REFUGE	
	Temperature (F)		Precipitation		Precipitation	
	High	Low	Total	Depart	Snow	Total
January	56	-10	.05	- .86	0.2	.02
February	68	-18	.15	- .42	4.1	.14
March	64	-10	.82	- .28	12.9	.82
April	69	14	2.17	+ .76	11.0	.93
May	82	30	3.11	+ .59	1.4	3.49
June	82	34	2.92	+ .53	0	3.12
July	91	43	3.36	+2.12	0	2.42
August	96	36	.54	-1.00	0	.61
September	93	20	1.20	- .04	0	1.00
October	79	2	.78	.00	4.5	.65
November	62	-6	.35	- .31	6.3	.51
December	53	-26	.14	- .71	1.9	.21
Max/Min Temps	96	-26				
Precip Total/Departure from Avg.			15.59	+ .38	42.3	13.92

D. PLANNING

4. Compliance with Environmental and Cultural Resources Mandates

The annual Section 7 review of the refuge hunting program for effects on endangered species found no effects. There were no recommended changes in the refuge hunting program.

5. Research and Investigations

Calming Troubled Waters: Contaminants at Benton Lake National Wildlife Refuge. A Plan of Action. 1991. Benton Lake NWR, Black Eagle, Mt.

Former Refuge Manager Don Hultman wrote the Contaminant Action Plan as "a bridge between the necessary world of research and the practical, down-to-earth methods of land management to solve the contaminant problem". The plan provides an overview of the contaminant issues, research and accomplishments to date, and identifies future plans, funding needs and target dates. Two general contaminant problems exist including the salinization of the refuge marshes and the accumulation of trace elements such as selenium.

The goals of the Plan related to contaminant cleanup are:

1) Maintain or reduce levels of trace elements such as selenium, boron and mercury at levels which pose no threat to species using Benton Lake. For selenium, the objective is 2μg/L or less for all waters entering the lake (above this level selenium begins to bioaccumulate in a system).

2) Maintain a salinity level of no greater than 6,000 μS/L in any of the refuge marsh units, and no more than 5,000 μS/L for all units combined, when water is at planned management levels in any given year. Salinity above 5,000 μg/L begins to change the aquatic plant community thus affecting current marsh productivity and poses a risk to mallard duckling survival.

The Helena Field Office USFWS Ecological Services has the lead in refuge contaminant cleanup. This year $97,843 was spent. The following is an excerpt from the ES FY 1995 Progress Report On Benton Lake NWR Contaminant Cleanup.

FY 1995 ACCOMPLISHMENTS:

Nine actions were determined to be necessary to reach the goals and objectives of contaminant abatement at Benton Lake NWR. In 1992, the first progress report was written on each of these actions. Following is a discussion of progress made in 1995.

Action 1: Determine the refuge's water budget

The U.S. Geological Survey (USGS) has completed three years of work on a study to determine the fate of dissolved solids entering Benton Lake. The study has focused on determining the processes controlling dissolved solids, the rates of accumulation or loss

of salts in the wetland, and the potential for dissolved-solids concentrations to reach detrimental levels in the future. Annual findings have been summarized in past progress reports. Information gathered during the study will help management achieve refuge goals by increasing the understanding of water and contaminants in the pond system.

FY 1995 accomplishments include:
1) Continuous specific-conductance monitoring of Lake Creek, March-September 1995;
2) Periodic water-quality sampling of Lake Creek to update relations between specific conductance and concentrations of dissolved solids and selenium.
3) Collection of water quality samples from seeps and tributaries in the Benton Lake basin to help develop understanding of the evolution of water quality in the basin
4) Completion of a draft manuscript entitled "Hydrology and Water Chemistry of the Benton Lake Basin with Emphasis on the Management of Salinity and Selenium at Benton Lake National Wildlife Refuge, West-Central Montana". The report includes tabulated data collected during the project, describes hydrologic and geochemical processes that control salinity in the Benton Lake basin, and describes different management strategies that may be useful in reducing salinity levels in Benton Lake. The manuscript must go through the USGS review process before being released.

Prior to the end of FY 1994 funding was made available, through an intra-agency agreement, to complete the University of Montana's investigation of selenium distribution at Benton Lake. During the summer '94 we coordinated the University's sediment sampling with our macro-invertebrate sampling in an effort to determine the relationship between selenium concentrations in the two samples. In March 1995, the University of Montana Cooperative Research Unit completed a preliminary report entitled "Reducing Impact of Selenium on Wetland Systems through Pond Management: Field Experimentation and Modeling at Benton Lake National Wildlife Refuge, Montana". The purpose of the report is to summarize study results and propose additional work to clarify specific biogeochemical pathways that will refine their biogeochemical model of selenium cycling and volatilization. Refinements of the model should allow it to be used as a conceptual and predictive tool for management.

Action 2: Identify all seeps in refuge watershed

This action was completed in 1994.

Action 3: Institute systematic sampling plan

The Benton Lake NWR Contaminant Sampling/Monitoring Plan was completed in 1993 and has been in use since then. The plan has been revised to reflect any changes in equipment and monitoring techniques as well as to insure monitoring is done systematically.

Action 4: Watershed protection

No landowners in the watershed have as yet expressed interest in participating in Service-sponsored land management programs for watershed protection (wildlife extension agreements, wetland or grassland easements or fee acquisition). Progress on this action will be closely associated with that of Action 6.

Action 5: Add refuge biologist to Benton Lake Complex staff

Due to Ecological Services downsizing in the Helena office, the Assistant Environmental Contaminants Specialist hired in 1992 to coordinate contaminant cleanup at Benton Lake NWR left this position at the end of August to take a job in the Refuges and Wildlife Division. In May a biological technician was hired to work full time at the refuge for water monitoring and other contaminants related duties.

Action 6: Reclaim saline seeps in Lake Creek watershed

As noted in the 1994 Progress Report, we are pursuing funding through State and Federal incentive programs that promote partnerships with local agricultural producers. We hope to encourage landowners/producers to voluntarily implement land management systems that will enhance water quality. Two groups formed whose common goal is to improve the Lake Creek watershed - the Lake Creek Partnership and the Lake Creek Improvement Association. The former group is comprised of federal, state and local agencies while members of the latter group are landowners/producers in the watershed. Through the cooperative efforts of these two groups, two federal grants were obtained. A Clean Water Act section 319 (non-point source pollution) grant was approved by EPA for 1995-97. This money is being used to identify seep recharge areas in the watershed and develop site specific reclamation plans. A USDA Water Quality Incentive Program (WQIP) grant was also approved; this money will provide incentive payments to producers who try alternative cropping systems aimed at reclaiming watershed seeps while maintaining economically viable operations.

Drilling of new shallow wells for seep recharge area identification and ground water level monitoring began July 31, 1995. This activity is funded by the section 319 grant and performed by Montana Salinity Control Association. The 319 contract is expected to be focused on about 50,000 acres (roughly half of the total watershed). The first drilling emphasis is on land managed by WQIP applicants.

The first sign-up period for producers/landowners to apply for WQIP incentive payments ended June, 1995. The applications were ranked with priority given to areas impacting the Lake Creek drainage and Benton Lake, and where more than one producer is willing to work cooperatively with another. The Natural Resource Conservation Service staff from Great Falls and Choteau participated in the application review process, since they will be responsible for plan development once MT Salinity Control Association has identified the recharge areas. Twenty-two applications were accepted during this first sign-up period. A second WQIP sign-up period took place in August and September. The current WQIP allocation is not expected to address all the problems, so a second application will be submitted in the future. The long term goal is to find an expanded selection of crop choices that will be economically incorporated into the cropping system voluntarily and become sustainable.

The pilot reclamation project discussed in previous Progress Reports is on-going. Alfalfa is well established on the project acres and the landowner is still willingly participating. Water level data suggest the alfalfa is having the desired effect. Water levels have not gone down upgradient of the alfalfa, but they have gone down beneath and downgradient of the alfalfa. However, water levels started going down in 1991, before the alfalfa really got going, so there may be some other climatic effect being demonstrated here as well.

We are still measuring specific conductance of water in select wells on an intermittent basis to document any changes in ground water salinity as the pilot project progresses; it is too soon to draw conclusions from this data.

Action 7: Construct an outlet canal from Benton Lake to Missouri River

There is still no justification for initiating this action. Continued water quality monitoring will determine if it will be necessary to revisit this action in the future.

Action 8: Ensure a more stable supply of water for the refuge

We continued to investigate ways to ensure a more stable and economical supply of water to the refuge. A preliminary analysis was conducted to compare long-term pumping costs with the capital construction and estimated maintenance costs of an inverted siphon to deliver water to refuge wetlands by gravity flow. This analysis demonstrated that an inverted siphon would deliver a constant water supply to protect refuge wetlands in perpetuity with a payback period of 25-30 years compared to pumping costs fixed at 1995 electrical rates. Modest increases in electrical costs over time would shorten the payback period substantially. With existing electrical rates, the Refuge operating budget is able to support pumping only 20-30 percent of the water that could be delivered by gravity feed through an inverted siphon. Detailed engineering specifications will be needed to construct a siphon from Muddy Creek to the refuge, now that the feasibility and cost effectiveness of doing so have been confirmed.

Action 9: Address contaminant problems on Waterfowl Production Areas

A final report was completed on this action entitled, "Trace Element Concentrations in Sediment and Biota from the Benton Lake Wetland Management District, North-Central Montana". According to this report, there is no evidence indicating that significant contamination is occurring or that existing trace element contaminants at the sites pose an imminent threat to water birds using the areas. The report does recommend additional monitoring be performed to assess boron residues in aquatic plants at Danbrook, Sands, Savik, and Schrammeck WPAs; and selenium concentrations in aquatic invertebrates at Brumwell, Danbrook, and Savik WPAs. We also recommend only future periodic status and trend trace element monitoring of the aquatic food chains at the other WPAs to verify that wildlife resources are being adequately protected.

COOPERATORS: Benton Lake NWR and Wetland Management District, U.S. Geological Survey, Montana Salinity Control Association, U.S. Bureau of Reclamation, University of Montana, Montana State University, Greenfields Division of the Sun River Irrigation Project, Natural Resources Conservation Service (formally the SCS), Agricultural Stabilization and Conservation Service.

Butler, Michael A. and Jay J. Rotella. An evaluation of validity of the artificial nest technique. Department of Fish and Wildlife Management, Montana State University, Bozeman, MT 59717 USA.

Michael Butler conducted field work for ms thesis at Benton Lake from 1993-95. The following is a draft abstract from this thesis.

Artificial nests have been used in numerous studies of nest success because they can provide adequate sample sizes and be placed in accordance with experimental designs. However, concerns regarding the validity of using artificial nests to study avian nesting ecology have been raised. For artificial nests to continue to be used, the critical assumption that nest success for artificial and natural nest is strongly correlated must be shown to be true. Additionally, knowledge of factors that affect artificial-nest survival is useful. If these factors can be identified, further refinement of the technique may be possible; thus improving its performance. Therefore, I conducted research to evaluate the artificial nest technique by comparing rates of artificial and natural nest success, examining characteristics of artificial nest predation, and evaluating the effects of corvid abundance and nest vegetation on artificial-nest survival.

I estimated survival of artificial (n=1,210) and natural (n=1,318) nests of upland-nesting waterfowl at 16 sites across northern Montana, in a variety of habitats, and over 2 nesting seasons. Correlations between natural and artificial nest success estimates were highly variable by year and habitat type (e.g., all nests from 1993 and 1994: $R^2 = 0.20$, P=0.08; nests in planted nesting cover in 1994: R^2=0.87, P=0.02; nests in native grass cover in 1993 and 1994: R^2=0.01,P=0.86). Thus, artificial nest success does not appear to be a consistent index to natural nest success. Artificial nests were predated at a higher rate during daylight hours than at night (t=-4.93,P=<0.0001), were predated at a higher rate during the first 10 days of exposure, and were predated less as the nesting season progressed (Log-rank test, P=0.0007-0.07). Corvid abundance and nest vegetation were not good predictors of nest survival (logistic regression FIT=0.1127).

My results indicate that use of artificial nests will lead to wrong conclusions regarding avian nesting ecology in many situations. Thus, I conclude that, (1) the technique should not be used for upland-nesting ducks in the mid-continent and (2) researchers working in other areas/species should evaluate the usefulness of the technique over the range of areas and rates they wish to consider.

Benton Lake NWR Non-game Monitoring Program. 1995 Progress Report. Meghan J. Piercy and Stephen J. Martin

The refuge initiated point count monitoring of nongame prairie avifauna in 1994. The primary goal was to collect baseline data on passerine species to compliment existing knowledge of grassland nesting ducks and shorebirds for the eventual development of measurable habitat objectives. New habitat objectives will incorporate the concept of biological diversity while assuring management activities are compatible with the primary purpose of the refuge,..."as a refuge and breeding ground for birds".

Funding received in 1995 from the Region 6 non-game migratory bird program was used to continue refuge monitoring and initiate new monitoring in the Benton Lake Wetland Management District.(See WMD Narrative).

Bird monitoring was conducted at 53 point count stations on nine transects located in native prairie grasslands. Three observers conducted the counts twice from May 17-18 and June 12-13. Daily point count censuses began within ½ hour of sunrise and lasted 3-4 hours. During a ten minute period at each point a single observer recorded each bird detected including species, sex (if known), detection type(visual, singing, calling, flyby, etc), distance, time and weather conditions.

A total of 591 individuals and 22 species were detected during the first point count census at Benton Lake NWR. A total of 417 individuals and 14 species were detected within 100 m from point station center. During the second census, a total of 645 individuals and 28 species were detected. Of these, 372 individuals and 15 species were detected within 100 m of the station center.

Chestnut-collared Longspurs were the most abundant species, with 197 detections in May and 169 in June. Savannah Sparrows were the second most detected bird with 102 detections in both months. Other passerines, in order of abundance, included Western Meadowlark, Horned Lark, Grasshopper Sparrow, Baird's Sparrow (BAIS) and Sprague's Pipit (SPPI). BAIS and SPPI, although included on the refuge bird list, were detected by point counts for the first time this year. For more information on BAIS see G. 7. The remaining species detected as flybys included shorebirds, ducks, gallinaceous birds and passerines like the Barn Swallow that feeds in the air.

6. Other

Two Benton Lake Complex staff members, Stephen Martin and Jim Stutzman, continued to serve on the Upper Missouri/Yellowstone River Ecosystem Team. Work continued on on how to implement the Ecosystem Approach outlined in the plan developed by the team in 1994. The plan, entitled An Ecosystem Approach to Managing Trust Responsibilities of the Upper Missouri and Yellowstone River Ecosystem, was written in less than three months and consequently was generic in nature, especially the goals and objectives. Due to the mandated time frames for development of ecosystem plans, an essential component of the FWS Ecosystem Approach, input from Service personnel and our partners was not present. Unfortunately, new team assignments this year left little time to solicit outside input for the goals and objectives of the Ecosystem Plan.

Team activities focused on budget issues, development of WAG's, field station complexing and the use of GIS technology for ecosystem planning.

Ecosystem priorities in the 1994 Plan identified Biological Monitoring as the top priority. Ecosystem WAG's for 1995 provided field stations with additional guidance for Biological Monitoring. It included the following; "Project Leader's will initiate efforts to compile present and baseline data (present and historical information) on Threatened & Endangered Species, candidate and vertebrate Species of Special Concern as identified by the Montana Natural Heritage Program." Submit data collected to the MNHP.

Ecosystem activities for the Benton Lake Complex are described in Sections F.1 and G.1, 4-7.

E. ADMINISTRATION

1. Personnel

On January 4, refuge maintenance worker and heavy equipment operator **Vince Marko** took advantage of the "buy-out" program and retired after over 30 years of work at Benton Lake Refuge. He began in April 1962 as a seasonal laborer. Vince's impressive array of skills from heavy equipment operation to indoor finish carpentry was a great boon to the refuge program. Never one to remain at loose ends, within a few weeks of retirement, he had embarked on a new career in home construction and remodeling. Because of FTE and funding constraints his position was not refilled this year.

After remaining vacant for six months, the refuge administrative assistant position was filled on July 3 when **Jackie Rea** arrived. Jackie transferred from the Region 6 realty office in Denver.

Robert Jordan was hired March 6 on a seasonal temporary appointment as a biological technician. Bob worked on the full range of refuge activities including nest searches, predator trapping, duck banding, computer data entry, etc. **Meghan Piercy** began work on May 8 as a seasonal biological technician. Her primary duties were non-game migratory bird monitoring, establishing point count locations, vegetation sampling, and summarizing data for the non-game bird survey report. Both Bob's and Meghan's appointments expired at the end of September. **Melinda Meade** began a one-year temporary biological technician appointment on May 15 as the refuge contaminants specialist. Her primary duties were collecting biological and water samples and operating a Hydrolab unit, a remote data collection device.

Table II indicates the staffing level at the Benton Lake office since 1989 while Table III lists staff assigned to the Complex in 1995.

TABLE II

STAFFING LEVELS AT BENTON LAKE NATIONAL WILDLIFE REFUGE, BENTON LAKE WETLAND MANAGEMENT DISTRICT, AND MONTANA PARTNERS FOR WILDLIFE, 1990-1995

Fiscal Year	Permanent	Term, Temporary Or Seasonal	YCC	Total FTE's
1995	8	5	3	12.13
1994	9	4	2	12.2
1993	9	4	2	10.7
1992	9	1	2	9.3
1991	8	1	2	8.3
1990	6	2	1	7.2

Benton Lake Complex Staff: Front (L-R); Stutzman, Brewer, Martin, Johnson, Gazda, Neudecker, Sullivan. Back (L-R): McCollum, Colenzo, Petersen, Droz, Jordan, Meade, Rae.

RFJ **7/95**

TABLE III

PERSONNEL ASSIGNED TO BENTON LAKE NATIONAL WILDLIFE REFUGE, WETLAND MANAGEMENT DISTRICT AND MONTANA PARTNERS FOR WILDLIFE 1995

Name	Position	Grade	EOD	Depart
		Permanent Staff		
Gale F. Brewer	MaintWorke	WG-8	10/03/92	
Robert F. Johnson	RefOprSplst	GS-9	04/21/91	
Vincent J. Marko	EngEquipOpr	WG-10	04/30/62	01/04/95
Stephen J. Martin	AsstProjLdr	GS-11	01/29/89	
James E. McCollum	ProjLeader	GS-12	06/12/91	
Gregory A. Neudecker	WildlfBiol	GS-9	04/07/90	
Jacqueline Rea	AdminAsst	GS-6	06/25/95	
James Stutzman	WildlfBiol	GS-13	01/12/92	
Gary L. Sullivan	RefOprSplst	GS-11	02/01/87	
		Term & Temporary Staff		
Randall J. Gazda (Term)	BioTech	GS-5	10/04/94	
Robert Jordan (Temp)	BioTech	GS-5	03/06/95	09/30/95
Melinda Meade (Temp)	BioTech	GS-5	05/15/95	
Meghan Piercy (Temp)	BioTech	GS-5	05/08/95	09/30/95
Tim Tiplady (Term)	BioTech	GS-6	02/08/93	
Kathleen Colenso	YCC		06/26/95	08/20/95
Thomas Droz	YCC		06/26/95	08/18/95
Greg Petersen	YCC		07/03/95	08/18/95

2. Youth Programs

The refuge hosted three Youth Conservation Corps enrolles beginning June 26. They were Kate Colenso, Tom Droz, and Greg Petersen, all of Great Falls. They provided significant assistance during the summer on nest searches, duck banding, botulism patrol, weed control, and numerous other refuge and WMD projects.

4. Volunteer Programs

Eighteen volunteer's contributed 105 hrs to the refuge biological program during 1995. Jobs included banding of ducks and American White Pelicans, shorebird and waterfowl surveys, and collection of field data for the refuge contaminant program. Volunteers also contributed 400+ hours to the WMD. Seventy-five Montana Conservation Corp members spent a day removing trees and brush on the Blackfoot WPA.

5. Funding

One budget allocation to Benton Lake covers three activities at this Complex; funding for the Refuge, Wetland Management District, and Partners for Wildlife are consolidated into one distribution. Funding in 1995 was sufficient to accomplish the essential operations and maintenance programs of the Complex. The following tables provide a summary of overall funding levels for the past 5 years and how those funds were expended by subactivity in 1995.

Thomas Droz, one of three YCC's, assisting Mindy Meade with data collection for the refuge contaminant program.
SJM **8/95**

TABLE IV

ANNUAL FUNDING FOR THE BENTON LAKE REFUGE/WMD COMPLEX
1991 - 1995

Subactivity	1995	1994	1993	1992	1991
Refuge/WMD	536,994	674,775*	521,500@	564,570#	456,800
Partners for Wildlife	738,900	626,250	400,000	340,000	
Totals	1,275,894	1,301,025	921,500	904,570	456,800

* - includes $69,000 in funds controlled by Regional Office and expended by other stations.
@ - includes $55,000 in funds controlled by Regional Office and expended by other stations.
# - includes $108,200 in funds controlled by Regional Office and expended by other stations.

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TABLE V

FUNDS AVAILABLE BY SUBACTIVITY
IN FISCAL YEAR 1995

Subactivity	Fund Target
1121 PFW Private Lands (PFW)*	502,500
1230 Migratory Birds (PFW)	81,800
1261 Refuge Operations (Ref)	294,300
1261 Challenge Grant (PFW)	95,000
1262 Refuge Maintenance (Ref)	115,000
1262 Refuge MMS (Ref)	68,000
1902 F&W Enhancement (PFW)	4,400
2696 Drought Assistance (Ref)	37,190
4673 Wetland Reserve (PFW)	50,000
5840 Private Lands (PFW)	10,000
8610 Quarters (Ref)	13,000
9110 Fire Preparedness (Ref)	3,000
9120 Fire Management (Ref)	1,704
TOTALS	1,275,894

* PFW = Partners for Wildlife Program
Ref = Refuge Program

6. Safety

Safety meetings were held quarterly. One non-injury accident occurred during the year. Tim Tiplady was towing a trailer loaded with bridge timbers being used for a Partners for Wildlife Project in the Centennial Valley. The trailer began to swerve back and forth behind the truck, quickly going out of control, breaking away from the hitch, and overturning. Although the load was well within the load capacity of the trailer, apparently it was top heavy and the high center of gravity aggravated the problem when the trailer began swerving.

7. Technical Assistance

Most refuge related technical assistance was with the Natural Resources Conservation Service and Montana Salinity Control Association related to watershed water quality efforts. Inter-agency cooperation continued in dealing with contaminants in the Benton Lake, Lake Creek and Muddy Creek watersheds. Refuge staff also attended several meetings related to erosion control activities in Muddy Creek.

8. Other Items

Several refuge staff attended meetings of the Great Falls Conservation Council during the year. GFCC is a forum of representatives from over a dozen conservation organizations and agencies which meets weekly over lunch to discuss conservation topics and initiatives. It has become an excellent place to maintain contact with the whole spectrum of conservation interests in the Great Falls area. Refuge staff on two occasions presented programs to the group.

On September 23, the refuge hosted a waterfowl hunter workshop which was sponsored by Montana Department of Fish, Wildlife & Parks. The program featured shotgun patterning, distance estimation, shooting instruction, decoy selection and set-up, and waterfowl identification. Refuge staff supplied a waterfowl wing board and brought in a variety of live ducks from banding traps to give participants some experience in identifying birds in the hand. About 30 hunters attended the workshop.

F. HABITAT MANAGEMENT

1. General

Wetland and Upland habitat management for waterfowl has been the focus of management since the development of the refuge in the early 1960's. Wetland habitat enhancement included diking Benton Lake into eight marsh units and the development of a pumping system to provide supplemental water. An early theme of habitat management was to fill each marsh unit to capacity and maintain high water levels through the duck nesting season. Upland habitat management focused on establishing DNC (Dense Nesting Cover) for upland nesting ducks. DNC was expected to provide duck habitat with a high nest success rate.

Early managers later learned that habitat management was more than providing water and cover. Problems occurred with avian botulism when water levels were too high and if natural summer draw downs were not permitted. Botulism losses, suspected as blue-green algae poisoning, during the 1960's were as high as 20,000 birds/year. Managers also learn in the 1980's that DNC was not a safe place for ducks to nest. Nesting studies revealed that nearly 81% of the duck nests (19% Mayfield Success) in DNC were unsuccessful due to mammalian predation. An experimental trapping program for striped skunks and raccoons was implemented and nest success increased to over 70% during a three year study. An Operation Plan for Striped Skunk and Raccoon Management now allows annual trapping which provides duck nests with a greater opportunity to be successful.

The knowledge of the role of upland nesting habitat, mammalian nest predation and seasonal water level manipulations have contributed to a successful waterfowl management program. Benton Lake NWR is now recognized as one of, if not, the most productive (on a per-acre basis) waterfowl refuge in North America.

Other wildlife, especially wetland dependent species, benefit from waterfowl habitat management but our knowledge base of the seasonal habitat needs for non-waterfowl species is limited. A few species that are negatively impacted by current habitat management activities have been identified but for most species we lack the knowledge to access the impacts of our activities.

Future habitat management that address the following issues: the primary purpose of the refuge (ie, the enabling legislation), the compatibility of our activities, the role of NWR's in the FWS Ecosystem Approach to Management, and Comprehensive Management Planning will require a better understanding of refuge wildlife and their associated habitats. (See G.1 for wildlife efforts). Utilizing existing knowledge and expanding our knowledge will be essential in developing goals and measurable objectives for habitat management.

The development of measurable habitat objectives is contingent on the identification of habitat subtypes and mapping of refuge vegetation. Presently the refuge has limited habitat data and the refuge has never been adequately cover mapped. Wetland habitat data, for example, is limited to basin size but the cover types present are unknown.

Work continues on cover mapping wetland vegetation in marsh IVc using color and color

IR 35mm aerial photography of the refuge taken in 1994. Future plans include determining acreage and ground checking stands of cattail in the White-faced Ibis nesting colony.

2. Wetlands

Poor snowpack and the lack of spring rains resulted in little runoff to the refuge. Runoff based on the USGS gaging station on Lake Creek totaled 344 Acre Feet (AF) during March-July. This compares with 227, 2979, 21 and 943 AF in 1994, 1993, 1992 and 1991 respectively. Average annual runoff in the last 19 years is 3550 AF. An additional 55 AF of runoff was received from other refuge tributaries.

Pumping supplemental water from Muddy Creek/Greenfield Irrigation District began on April 6th and continued until June 14th. Low flow volumes on Muddy Creek resulted in only enough water for two of the three pumps during this period.

Pumping resumed in late August and continued until November 5th. Pump problems developed with the No.3 pump which was broken down from June 15th. Pumped water was distributed to seven of the eight marsh units. When completed a total of 5555 AF were pumped at a cost of $43,671 (electricity) or $7.86/AF.

At year's end the refuge marshes contained 337 AF more water than in January. Refuge water totaled 3571 Surface Acres (SA) (2752 AF) in December compared to 3637 SA (2415 AF) in January.

The following contains a brief description of water management and wildlife use for the eight refuge marshes. Species of Special Concern are underlined(See G.1)

Unit I receives all pumped water, most runoff and consequently water levels remained fairly constant throughout the year. March and April runoff and May and June pumped water was retained briefly and then transferred, via gravity, to Unit II and then to other units.

Spring habitat supported 1200 Tundra swans in early April and 400+ diving ducks, primarily Redhead, Canvasback and Ruddy Duck, in early May. High quality nesting habitat was available for species such as Ruddy Duck, Eared Grebe, Black-crowned Night-heron, Sora, Marsh Wren and Common Yellowthroat.

Water levels in August provided ideal shorebird foraging habitat. Long-billed dowitchers were the most abundant with 5000 on September 13th. Four-hundred AF of pumped water in September and October provided habitat for migrating waterfowl. White geese and Tundra swans peaked in late October with 20,000 and 2000 birds respectively. Record numbers of Canada geese (10,000 refuge wide) including 7,000 on Unit I were present in mid-November.

Unit II water management is similar to Unit I since it also receives nearly all water that enters the refuge. Water levels provided habitat for spring migrant waterfowl including 900 Tundra Swans and several thousand Northern Pintails in March and April. Foraging habitat was provided for American White Pelicans and White-faced Ibis and Black Terns and nesting habitat for Forster's Tern and Black-crowned Night-heron. Fall pumping provided nearly 300 AF for migrating waterfowl. Year end levels were 100+ AF greater

than planned due to sub-zero temperatures in late October which prevented the planned movement of water to other units.

Unit III received 30 AF of runoff\rain in early May and 300 AF of pumped water. An additional 400+ AF of pumped water in June provided habitat for migrating and nesting waterfowl. Natural drawdown during the summer eliminated the threat of botulism and provided adequate duck brood habitat and fall shorebird habitat. Fall pumping offset some of the loss but year end levels were 440+ AF less than planned.

Unit IVa received a trace of runoff and 49 AF transferred from Unit II in May and an additional 22 AF of runoff in June. Early spring levels provided pair habitat for Northern Pintails and a late April drawdown created habitat for migrant and breeding shorebirds. Species of Special Concern use was highlighted by 100+ foraging White-faced Ibis in mid-May.

Planned transfers from Unit II in late summer to provide habitat for migrating shorebirds were modified due to the loss of one 350 hp pump during most of the fall pumping season. Fall pumping delivered 200+ AF of water which provided ideal habitat for migrant waterfowl and shorebirds

Unit IVb plans were modified in mid-year with a decision to modify the two duck nesting islands that have been colonized by California and Ring-billed gulls. The nesting gull population has grown from 69 nests in 1988 to over 3000 in 1995. Gull predation on nesting birds and their young is believed to have increased significantly due to the expanding gull population. To discourage gull nesting the height of each island will be lowered to 18-24 inches allowing flooding of the islands in early spring prior to gull nest initiations. A summer drawdown dried the marsh basin to allow the use of heavy equipment. Force account work began in late summer with the removal and stockpiling of island rip-rap. Work is expected to continue through the fall of 1996.

Spring habitat, created by leaks from Unit IVc through the IVb outlet structure, supported migrant and breeding shorebirds including 500 American Avocets and 100 Black-necked Stilts in late April.

Unit IVc received 400 AF of water in the spring which provided wetland habitat that was conducive to Franklin's Gulls (N=2000) and Black Terns (N=???nests) that nested in alkali bulrush. Cattail stands provided nesting habitat for nesting Black-crowned Night-herons (N=10 nests) and White-Faced Ibis (N=38+ nests). Seventeen pairs of Black-necked Stilts nested in two locations.

Fall pumping delivered 600+ AF to help accommodate the fall waterfowl migration and hunting season. Year end levels were slightly below those planned.

Unit V received 200+ AF from March-May and 700+ AF in June. Shallow water habitat was conducive to shorebirds with peaks of 285 Marbled Godwits in late April and 500 Long-billed Dowitchers in early May. June water levels provided duck brood habitat and nesting habitat for Forster's, Common and Black Terns and Black-necked Stilts. Peregrine Falcons also frequently were sighted near this unit in pursuit of ducks and shorebirds.

September shorebird use was highlighted by 5000 Long-billed Dowitchers, 500 Greater Yellowlegs, 300 Sanderlings, 175 Western Sandpipers, 100 Stilt Sandpipers and 23 Long-

billed Curlews. Year end levels were 500+ AF less than those planned due to fall pump problems.

Unit VI received nearly 500 AF in April and May which provided nesting habitat for waterfowl, Franklin's Gulls(N=10,000 nests), Black-Necked Stilts and Forster's Terns. Franklin's Gulls, nested again this year in an alkali bulrush stand located at the north end of the marsh.

Pumped water in September and October provided nearly 600 AF for waterfowl migration and the refuge hunting program. No botulism was known to occur. End of year water levels were slightly less than planned.

8. Haying

Haying along the Bootlegger Trail, a county road that bisects the refuge, was conducted by refuge neighbor Ron Lee. Lee cut and baled four miles of the right-of-way beginning July 15. This haying is a routine highway maintenance activity to help prevent blowing and drifting snow accumulation on the road during the winter. Haying is delayed until mid July when nearly all ground nesting birds and finished nesting.

9. Fire Management

A refuge wildfire occurred on August 8th in native prairie east of the Bootlegger Trail. The fire was reported at 9:30 p.m. and burned approximately 3.5 acres. Although there was a 10 to 15 mph west wind, low temperatures and high humidity slowed the spread of the fire (see photo). Regrowth of vegetation in the burn was minimal before fall freeze-up.

A Human caused wildfire burned 3.5 acres of refuge native prairie in August.
MLM **9/95**

10. Pest Control

Non-chemical control employed included hand pulling of leafy spurge (Euphorbia esula) and the mowing of Canada thistle at scattered locations. Musk thistle scattered over three acres was also pulled by hand. Chemical control efforts are summarized below.

Location	Target Species	Acres	Chemical/Acre
Auto Tour Route	Leafy Spurge	.001	1 pint Tordon 1 quart 2,4-D
Refuge Headquarters	Canada Thistle	.5	2 quarts Curtail
Lake Creek	White Top	.5	1 oz Escort
Muddy Creek Pump Station	Musk Thistle	.2	2 quarts Curtail
Muddy Creek Pump Station	Spotted Knapweed	1.45	2 quarts Curtail

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Professor Douglas J. Futuyma, State University of New York at Stony Brook, was issued a Special Use Permit to collect leaf beetles(Ophraella and Neochlamisus) for his research on genetics and geographic variation. The following is from Prof. Futuyma letter of December 18, 1995. "I visited this Refuge on June 23, 1995. Although poverty weed(Iva axillaris) and golden-aster(Chrysopsis villosa) the hosts of two species of Ophraella, were noted, I failed to find any of the beetles that feed on these plants".

G. WILDLIFE

1. Wildlife Diversity

Implementing management practices that support the concept of species diversity requires baseline data for wildlife and their associated habitats (See F.1). Baseline data is also crucial to the FWS Ecosystem Approach to Management, Comprehensive Management Planning and assessment of refuge compatibility issues. Existing baseline data at Benton Lake is extensive for duck nesting including Mayfield success and densities in four major habitat types. Data for non-waterfowl species is less extensive although 6500 bird sighting records, from 1929-95, are stored in a computer database.

Efforts to expand baseline wildlife data were initiated in 1994 and continued this year. The focus of our efforts is on birds since the refuge enabling legislation identified the purpose of Benton Lake as a "refuge and breeding grounds for birds".

Baseline data collection also supported guidance from the Missouri River and Yellowstone Ecosystem team. The FY 95 General Ecosystem Guidance included the following; "Project leaders will initiate efforts to compile present and baseline data (present and historical information) on Threatened & Endangered (T&E), candidate, and vertebrate Species of Special Concern. Submit data to the Montana Natural Heritage Program or Wyoming Natural Diversity Database. Identify species status (e.g., migrants, breeding, unknown), seasonal habitats, numbers, etc. and develop plans for annual monitoring. Review existing inventory plans, eliminate unnecessary monitoring and replace with monitoring plans for T&E, candidate species, and species of special concern".

Work this year included the monitoring of non-game birds in native prairie (See D.5) and data collection on bird species identified by the Montana Natural Heritage Program (MNHP) as Species of Special Concern(SSC).

SSC include those protected by the ESA, candidate species and species that the MNHP considers at risk because of declining numbers, rarity or those with limited distribution in Montana. SSC data was collected this year on species that nest on the refuge including; Ferruginous Hawk (G.6), Burrowing Owl (G.6), Black-crowned Nightheron (G.4), White-faced Ibis (G.4), Franklin's Gull, Black, Common and Forster's terns (G.5), Black-necked Stilt (G.5), Loggerhead Shrike (G.7) and Baird's Sparrow (G.7). Non-nesting SSC include; Bald Eagle (G.2), Peregrine Falcon(G.2), Northern Goshawk (G.6) and American White Pelican (G.4)

2. Endangered and/or Threatened Species

Peregrine falcons were sighted twenty-six times during the year. Single birds were sighted monthly from April-September. Five to seven sightings during each month from May through August documented for the first time spring and summer residence of peregrines at the refuge. At least one and possibly two birds, one adult and one immature, were present.

Bald eagles were sighted on eleven occasions. Single adult birds were recorded twice in March, twice in October and five times in November(One sighting of 2 adults on the 13th). The only subadult eagle sighted this year was lone bird in late April.

3. Waterfowl

Ducks

Mallards and Northern Pintail began arriving in mid-February and peaked in late March with 7500 and 12000 respectively. Fall duck numbers peaked in late October with 30,000 mallards.

Dark Geese

Canada goose numbers in February and March totaled 600 birds. Nesting began in mid-March and the first brood was seen on May 1st. Goose production based on 300 pairs was an estimated 600 goslings to flight stage.

Fall migration was highlighted by record numbers of Canada geese on the refuge. Lesser Canada geese began arriving in late October and 10,000 birds were present from November 13th-21st. Twelve yellow neck collared geese banded in the Canadian Arctic were identified and the data sent to the Arctic Joint Venture Neck Collar Project.

White Geese

Snow geese began arriving in mid March and peaked at 1,700 on April 4th. Ross' geese were first sighted on March 30th and peaked at 200 birds on April 25th. A single neck collared Ross' was sighted in April and one in November. Fall migrants began arriving in early October and peaked at 29,000 on the 31st. Three snow geese trapped and neck collared on Wrangell Island, Russia, were sighted on the refuge on October 30th. Ross' began arriving in mid-October and reached a peak of 1120 birds on November 8th.

Swans

Tundra swans began arriving on February 20th and peaked at 900 birds on March 10th. Fall flights began on October 13th with peak numbers of 2000 on October 30th.

4. Marsh and Water Birds

Marsh and water birds known to nest on the refuge include Eared Grebe, Pied-billed Grebe, Western Grebe, Black-crowned Night-heron, Double-crested Cormorant, Sora and Virginia Rails (breeding suspected) and White-faced Ibis.

White-faced Ibis (WFIB): WFIB began arriving on April 25th. The average arrival date since 1987 is April 22. Nest searches on June 29th documented 32 nests, the most ever found on the refuge. The nests were located in 7-8 foot high cattail stands in marsh IVc. The majority of the nests (average 4eggs/yo per nest) had hatched by the time of the survey and to avoid nestling disturbance the entire colony was not searched. Future nest searches will be conducted no later than June 15th. Back dating on nests with piping eggs or young indicated egg laying began about June 7th.

Black-crowned Night-heron (BCNH): Nine BCNH nests were found during WFIB nest searches. The nests consisted of flattened, interwoven cattail reeds and were located one to two feet above the water. Nests contained an average of three eggs or nestlings.

American White Pelican (AWPE): AWPE's arrived this year on April 7th. Three to nine birds and 7-23 were present in April and May respectively. Most birds were in non-breeding plumage, although several breeding birds were sighted in mid-April. Pelican nesting has never been documented at the refuge but a large breeding colony nesting is located in the Wetland Management District at Arod Lake WPA (WMD Narrative G.16).

5. Shorebirds, Gulls, Terns, and Allied Species

Shorebirds

Benton Lake is one of two Region 6 refuges recognized as a regional site by the Wetlands For Americas, formally The Western Hemisphere Shorebird Reserve Network. Work continued this year to identify shorebird use by species, arrival dates, seasonal use and peak population estimates. Summarized data for breeding and non-breeding species are contained in the following tables. Shorebird use related to water management is contained in Section F.2.

BREEDING SHOREBIRD ARRIVAL DATES BY SPECIES, PEAK NUMBERS AND DATE, 1995

SPECIES	ARRIVAL DATE	PEAK NUMBER	DATE
Wilson's Phalarope	4/28	704	5/22
American Avocet	4/6	2400	4/25
Black-necked Stilt	4/14	100	4/25
Marbled Godwit	4/25	400	4/25
Willet	4/15	125	4/25
Killdeer	3/15	145	8/25
Upland Sandpiper	5/9	3	5/10
Spotted Sandpiper	5/8	?	
*Long-billed Curlew	5/15 (8/9)	24	8/11
**Common Snipe	4/4 (8/1)	47	8/23

*Nesting by Long-billed Curlews last documented on the refuge in 1983.
** Common Snipe nesting has been suspected but no nests have been documented.

Shorebird use included a diversity of species including Long-billed Dowitcher, Greater Yellowlegs and Sanderling show in this photo. Over 260 birds are visible in this October scene.

SJM **10/95**

NON-BREEDING SHOREBIRDS USE DATES AND PEAK NUMBERS DURING SPRING AND FALL MIGRATION, 1995

SPECIES	SPRING USE	PEAK	FALL USE	PEAK
Long-billed Dowitcher	05/04-26	820-May 15	08/01-10/17	7500-Sept 10
Greater Yellowlegs	04/09-6/19	20-Apr 25	08/11-10/24	500-Sept 20
Lesser Yellowlegs	04/12-6/19	11-June 19	06/30-10/24	735-Aug 25
Red-necked Phalarope	05/08-23	114-May 22	08/11-10/10	491-Aug 11
Baird's Sandpiper	03/31-4/25	20-April 25	08/11-09/21	350-Sept 21
Pectoral Sandpiper	--------	--------	08/11-10/10	13-Aug 11
Stilt Sandpiper	05/21-22	2-May 22	08/18-10/24	149-Aug 18
Solitary Sandpiper	-------	--------	06/30-08/18	9-Aug 11
Western Sandpiper	05/08-?	25-May 8	08/11-25	161-Aug 11
Semipalmated Sandpiper	05/15-20	20-May 20	08/24-?	2-Aug 24
Least Sandpiper	05/09-23	53-May 15	08/11-09/28	17-Aug 11
Sanderling	--------	--------	08/24-10/17	350-Sept 20
Whimbrel	06/02-?	1-June 2	--------	--------
Black-bellied Plover	05/15-23	7-May 21	08/08-10/05	27-Sept 25
Semipalmated Plover	05/07-23	25-May 7	08/08-25	11-Aug 25
Red Knot	--------	--------	08/08-11	1-Aug 8
Dunlin	05/21-27	2-May 21	--------	--------
UID Small Shorebirds	05/08-22	20-May 22	08/11-09/28	765-Aug 25
UID Large Shorebirds	05/22-?	1-May 22	08/11-10/10	350-Sept 21

Black-necked Stilt(BNST):BNST's average arrival date for 17 years is April 26. Stilts arrived, three days earlier than the average, on the 23rd of April. Formal nest searches were not conducted but nesting was thought to occur in six of eight refuge marshes. Stilt use is also included in discussions of water management and wildlife use(See F.2).

Gulls

An estimated 3000 pairs of California and Ring-billed gulls nested again on one of two duck nesting islands built by Ducks Unlimited in 1986. Formal surveys were not conducted but numbers appeared similar to last year's total of 2984 nests. Formal nest searches were conducted on three small islands in marsh VI. A total of 133 nests were examined on May 30th prior to hatching.

The impact of gull predation on young of the year migratory birds is unknown but incidental observations of gull predation is increasing. Records of gull predation include, two ducklings found in a CAGU nest(1990), adult CAGU killing and eating a gadwall duckling(1991), CAGU taking American Avocet chick, CAGU taking Gadwall duckling(1994). Observations in 1995 included a CAGU with a dead Canada Goose gosling and a CAGU attacking a fledgling willet.

To discourage future gull nesting the refuge began efforts to modify the two DU islands. (See F.2).

The Grasshopper Sparrow was one of 14 species of grassland birds detected during point counts for non-game migratory birds. See G.7 AGN

Terns

Black Tern(BLTE): BLTE's arrived on May 15th this year. The average arrival (ie earliest known) date for BLTE's since 1985 is May 17th. Formal nest searches were not conducted this year and a single flightless chick in Unit III was the only confirmation of nesting. Nesting was suspected in Unit II where 38 adults were sighted feeding over algae mats on August 9th. Nesting was also suspected in Unit V where 7 adults were sighted in late July and a single juvenile in flight was seen on August 11th.

Forster's Tern(FOTE): FOTE's arrived on May 7th. Formal nest searches were not conducted although three nests were found. A single nest, with three eggs, was found on June 29th in Unit IVc. Another nest with three eggs was found on July 5th in Unit III. FOTE also nested in Unit II on three muskrat houses but these nest were not visited and their contents and fate is unknown.

Common Tern(COTE): COTE's arrived on May 15th. Formal nest searches were not conducted this year. Nesting occurred on at least three islands in Unit V. Adult birds were sighted, on June 2nd, carrying small fish and landing on three islands.

6. Raptors

Raptors confirmed nesting on the refuge this year included American Kestrel, Swainson's Hawk, Northern Harrier, Burrowing Owl and Short-eared Owl.

Other raptors sighted included Bald Eagle and Peregrine Falcon (See G.2), Golden Eagle, Osprey, Prairie Falcon, Merlin, Northern Goshawk, Sharp-shinned Hawk, Ferruginous Hawk, Red-tailed Hawk, Rough-legged Hawk, Great-horned Owl and Snowy Owl. Noticeably absent this year were Gyrfalcons. No gyr's were sighted on the refuge this year for the first time since 1983.

Northern Goshawk(NOGO) occasionally visit the refuge during the fall or winter. Sightings this year included an adult pair on March 2nd and a adult female on March 22nd. Both goshawk sightings occurred in the headquarters shelterbelt.

Ferruginous Hawks(FEHA) nested on the refuge in 1984 on cliffs along the "breaks country" in the SE corner of the refuge. The refuge slide file contains photos of the nest with two downy young. FEHA arrived this year on April 6th and sightings of a single bird were made six times through May 6th. These sightings plus the observation of an immature fledgling in mid-June just south of the refuge indicate probable nesting in the vicinity. The historic nest site on the refuge was unoccupied in early June.

Burrowing Owls(BUOW) arrived on April 20th and a pair occupied a burrow along the west boundary where owls nested last year. The fate of this pair and whether or not nesting occurred is unknown. Three sites occupied by nesting pairs last year were not active this year.

A lone female Great-horned Owl wintering in the headquarter's shelterbelt was joined by a male in early January. The pair roosted together and their nighttime courtship calls were expected to result in breeding and the first refuge nest record for a GHOW.

But, the love affair was short-lived. The decapitated male was found on January 18th approximately 150 yards from the roosting female. Direct evidence linking the female to the males death, ie the head, were never recovered and the case remains open. Eleven months later, a large owl matching the description of the suspect, was observed striking and rolling a smaller GHOW(another male) off the roof of Quarters 81. Fortunately, this victim retained his head and was still present by the end of the year. Will this male be accepted by the hen? To be continued in the 1996 narrative.

SJM

1/95

7. Other Migratory Birds

New refuge sighting records included Common Raven, Western Wood-Pewee, Black-headed Grosbeak, Pine Grosbeak, Pomarine Jaeger, Blackpoll Warbler, Hermit Thrush and Swainson's Thrush.

An adult female Rusty Blackbird sighted on October 10th represents the second record for the refuge. The only other refuge record occurred on October 19, 1984, when 6 birds were sighted.

Baird's Sparrow(BAIS): BAIS, a C2 candidate for listing by the ESA, were detected on refuge point counts this year for the first time. A minimum of 7 singing males were detected on June 12th in native prairie east of the Bootlegger Trail. These 7 males exceed the total number of 6 BAIS documented on the refuge which includes 5 separate years. Efforts to document nesting were unsuccessful although a pair of birds was suspected near one of the point count stations.

Loggerhead Shrike(LOSH) nests were found at three location in the refuge shelterbelts. Two nests found on May 24th and 26th contained 6 and 7 eggs respectively and one nest had four young on June 30th. Nests were built in Russian Olive trees approximately 2.5 to 4 feet above ground.

Two Breeding Bird Surveys (BBS) were run again this year. Volunteer Karen Stutzman runs the Highwood Route and Manager Martin the Great Falls Route. Martin also was an area group leader for the Great Falls Christmas Bird Count.

8. Game Mammals

A Black Bear was observed on June 27th, only the second time a bear has been seen on the refuge. The bear was sighted by Bio Tech Piercy who was startled by the bruin when it walked within 50 yards. Piercy who was seated in tall grass jumped to her feet with a shout and the bear and birder ran off in opposite directions. The bear entered a shelterbelt tree grove adjacent to the refuge and was not seen again. The previous record was in September 1969 when a bear spent two weeks feeding on botulism killed ducks.

Pronghorn antelope were sighted infrequently this year. Single bucks were observed a few times along the Bootlegger Trail during the spring and fall. A single doe and fawn were sighted in June on private land west of the refuge.

Record numbers of White-tailed deer wintered on the refuge this year. A minimum of 50 deer occupied portions of marsh Units I, II and III. Most deer departed the refuge in early spring and returned in the fall. The increased deer population is likely related to extensive tracts of grassland cover on private lands enrolled in the CRP program of the 1985 Farm Bill. (See G.10)

A herd of 14 Mule Deer were observed throughout the year in the "breaks country" located in the southeast corner of the refuge.

The Baird's Sparrow, a candidate species and one of North Amercan's least understood birds, was detected in refuge grasslands during point count surveys for the refuge non-game bird monitoring project. (See G.7)
SJM 6/95

Sharptailed grouse populations continue to grow on the refuge. Two new "leks" were found in 1995 bringing the total number of dancing grounds on the refuge to four.
AGN 5/95

10. Other Resident Wildlife

Resident gamebirds on the refuge include Ring-necked Pheasant, Gray Partridge and Sharp-tailed Grouse. Formal surveys are not conducted for pheasant and partridge but incidental observations indicated an average nest/hatch year.

The Sharp-tailed Grouse dancing ground (Lek #1) located along the auto tour route was active for the seventh consecutive year. The number of displaying males has increased from eight in 1988 to 43 in 1995.

Lek # 2 located along the west boundary had 15 males on March 15th the most ever sighted since it's discovery in 1990.

Two new leks were found this spring. Lek #3 located along the Bootlegger Trail was found on March 29th and had 14 displaying males. Lek #4, south of Unit IVa marsh and 1 mile west of Lek #2, was detected during avian point counts on May 18th, had 10 males.

The expanding grouse population is believed to be a result of land use changes on private lands surrounding the refuge. Thousands of acres of former cropland have been taken out of production and placed in the Conservation Reserve Program (CRP). CRP tracts are seeded to permanent grass cover providing habitat for a variety of wildlife. Sharp-tailed Grouse were likely influenced by the increase in grassland cover which provided ideal nesting, brood and winter habitats.

11. Fishery Resources

The refuge has no known permanent fish population and it is suspected that a few minnows are pumped from Muddy Creek along with the water delivered for marsh management. Usually any fish present are killed each winter when the shallow wetlands freeze to the bottom. Apparently some of those minnows survived the winter this year as numerous minnow fry were observed early in the summer along shoreline of the Unit I dike. Only one species, the Fathead Minnow (Pimephales promelas) has been found on the refuge.

15. Animal Control

The refuge is authorized to use lethal control for striped skunk and raccoon management. The plan authorizes predator control if duck nest success is less than 60% Mayfield in each of the refuge upland habitat types.

Trapping began on March 8th and continued through July 12th. Removal methods included kill trapping with model 220 conibear traps in wooden cubby box sets and live trapping with cages. Live trapped animals were destroyed by shooting or euthanized with drugs administered with a jab-pole/syringe. Traps were inspected daily and all live trapped non-target animals released. Twelve raccoons were caught during March-July and five during August and September at duck banding sites. Five skunks were caught including three in May and two in June. Table VIII includes the number of animals captured, the month and number of trap nights.

TABLE VIII

NUMBER OF SKUNKS AND RACCOONS TRAPPED, MONTH AND TRAPNIGHTS AT BENTON LAKE NWR, 1995

Month	No.Skunks	No. Raccoons	Trap Nights
March	0	4	1010
April	0	2	1388
May	3	4	1457
June	2	1	1395
July	0	1	434
TOTAL	**5**	**12**	**5684**

Early fall trapping at duck banding trap sites resulted in the removal of five male raccoons.

16. Marking and Banding

Mallard preseason banding began on August 9th and continued until September 18th. The number of mallards banded during the last five years are shown in Table IX.

TABLE IX

MALLARDS BANDED AT BENTON LAKE NWR, 1991-95

Year	AHY-M	AHY-F	HY-M	HY-F	Total
1995	1149	261	570	296	2276
1994	744	234	635	363	1976
1993	491	211	357	224	1283
1992	329	172	257	192	950
1991	160	48	54	17	279
TOTAL	2873	926	1873	1092	6764

Other ducks banded this year included 79 Blue-winged/Cinnamon Teal, 375 Northern Pintail, 204 Redhead and 1 Wood Duck.

The refuge banding crew trapped and banded 2935 ducks during five weeks in late summer. Sex and age chorts of species banded are listed in G.15.
RFJ 8/95

This unusually late molting AHY-F Northern Pintail was captured by the banding crew on August 13th. Note the the new and old feathers in the tail and the worn primaries.
RFJ 8/13/95

17. Disease Prevention and Control

Avian botulism which occurs nearly every year during late summer was not evident this year (Table X). Airboat patrols in late July and August detected a few dead birds but none were suitable for submission to the National Wildlife Health Lab.

TABLE X

BOTULISM LOSSES AT BENTON LAKE NWR, 1991-1995

Year	Number of Dead Birds
1995	0
1994	0
1993	0
1992	58
1991	3738

H. PUBLIC USE

1. General

Public use on Benton Lake National Wildlife Refuge is principally wildlife oriented. Public use visits to the refuge this year were estimated at 10,370 compared to 10,170 in 1994. Wildlife viewing, wildlife photography, environmental education and waterfowl hunting are the main activities.

2. Outdoor Classrooms-Students

The refuge annually hosts the Great Falls Public School Environmental Education Program. The program is taught by teachers and includes elements on water, plants, soils and wildlife. Approximately 2800 third and seventh graders visited the refuge this year during October and May respectively.

The refuge requested and received $1200 of Region 6 Environmental Educational funds for the Great Falls EE Program. Funds were used to purchase bird books, compasses and spotting scopes for use by students visiting the refuge.

The refuge hosted a July field trip for a Montana State University (Northern) class on Environmental Health. Fifteen students visited the refuge to learn about wetland ecology and the refuge contaminant program.

5. Interpretive Tour Routes

April through September visits to the Prairie Marsh Drive ranged from 600-960 per month.

6. Interpretive Exhibits/Demonstrations

Benton Lake again coordinated a "Montana Refuges" exhibit and information booth at the Montana State Fair in Great Falls. Fourteen refuge personnel from the seven Montana NWR's staffed the booth from July 29th through August 6th. The exhibit was housed in the "Natures Den" along with the Montana Department of Fish, Wildlife and Parks, National Park Service, Bureau of Land Management and the U.S. Forest Service. Visits to the exhibits were estimated at 15,000.

The refuge hosted an open house on October 14th in recognition of National Wildlife Refuge Week. Activities included exhibition panels at the headquarters, a guided bird tour and a field trip for children. Cascade County Commissioner's designated the week of October 8th as NWR Week in Cascade County.

Refuge Manager Jim McCollum and Evrette Maxwell of Russell Country Sportsman Association exchanged congratulations at the dedication of the Prairie Marsh Trail on May 20th. The trail is a 1000 foot long board walk from the Prairie marsh Drive Auto Tour Route to an observation deck in Marsh Unit II.

5/95

Maxwell was instrumental in organizing volunteers to assemble most of the board walk in late 1994. He addressed 15 visitors and cameras from two Great Falls TV stations emphasizing the need for partnerships and cooperation to get worthy projects completed.

JEM

5/95

Various tours and other programs conducted by refuge staff during 1995 are shown below.

Program/Service	Group	Staff
Judging	-Great Falls Science Fair(2)	Johnson, Jordan, Martin, Gazda, Meade
Refuge talks	-Rainbow Retirement Home(2)	Martin
	-Cub Scouts	Martin
	-Missouri River Audubon	Martin
	-Eagle Mount Disability Prog	Meade
	-Great Falls Public Library	Jordan
	-Cascade Elementary School	Martin

8. Hunting

The refuge opens to public hunting of game birds each year on the beginning of the state waterfowl hunting season, this year on September 30. Recovering waterfowl populations resulted in the most liberal season length and limits in many years. Hunting for ducks extended through December 31 and for geese through January 7, 1996. Waterfowl habitat conditions in the hunting units were better than in 1994 but still below optimum. Water was present in all units of the hunting area but levels in Units 5 and 6 attracted more shorebirds than waterfowl.

Hunter numbers was a little above average with an estimated 120 hunters present on opening day. As normally occurs hunting pressure declined rapidly and remained at a low level throughout the remainder of the season. Refuge marshes iced over in late October but then opened back up under the influence of a strong chinook. Subzero temperatures in early November closed refuge waters for the remainder of the season. Although the refuge was closed to hunting during the November government-wide shutdown, there was little effect on hunting because the marshes were already frozen.

Of hunters checked on opening weekend about 3 ducks per hunter were bagged. Hunting success improved later in the season when hunter numbers declined, but only a few six-bird limits were checked. Tundra swan hunting by permit only began on October 15. Because of an early freeze-up of waters in hunting units, permittees took only two or three swans during the season. Few geese are taken on the refuge each year because the geese quickly learn to use the sanctuary areas to rest after feeding in grain fields off the refuge. Goose harvest on the refuge in 1995 was estimated at 15 birds.

A shortage of high quality upland bird habitat in the public hunting area results in few upland birds being harvested most years. That was the case again this year with an estimate of only 20 upland bird hunter visits to the refuge.

11. Wildlife Observation

Each spring a portable blind is placed near a Sharp-tailed Grouse dancing ground as part of the refuge "Watchable Wildlife" program. This spring the blind was reserved on 43 mornings in April and May compared to 35 times last year. The blind is available on a

reservation basis and will house up to four people. Persons wishing to reserve the blind must be prepared to enter the blind one to one-and-a-half hours before sunrise and remain in the blind for at least two hours.

17. Law Enforcement

There were no extraordinary law enforcement incidents this year. As is normal the refuge required a minimal level of enforcement activity except during the hunting season. There was one incident of trash dumping along Bootlegger Trail, the paved county highway that traverses the eastern end of the refuge. In December, a large field dressed mule deer buck was also found dumped along the road. It was obvious that the deer had been dead for several weeks and was apparently discarded by a hunter who did not want to go to the trouble of processing it. Although it was an obvious case of wanton waste, there was no evidence of who the culprit was. One costly act of vandalism occurred when the stone base of the refuge entrance sign was smashed by some means, probably a vehicle bumper.

All the remaining violation notices related to infractions encountered during the hunting season. The year's violations are summarized in the following list.

Date	Violation	Action	Disposition
09/30	Possession of lead shot while hunting	NOV*	Forfeited collateral $100
10/07	Hunting in refuge area closed to hunting	NOV	Forfeited collateral $50
10/07	Hunting in refuge area closed to hunting	NOV	Forfeited collateral $50
10/07	Unplugged shotgun	NOV	Forfeited collateral $75
10/08	Possession of lead shot while afield	Warning letter	none
10/15	Possession of lead shot while hunting	NOV	Forfeited collateral $100
11/04	Hunting in refuge area closed to hunting	NOV	Forfeited collateral $50

* Notice of Violation

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

The only substantial refuge Maintenance Management System (MMS) rehab project completed this year was the installation of bridge rails on the Unit 5 water control structure. (See Photo). The previous pipe rails were deemed too flimsy by the Service bridge inspection staff when the team inspected refuge bridges in 1992. The new guard rails for this 15 mph single lane bridge on the hunting area access road meet Federal interstate highway standards.

A force account project to modify the islands in Marsh unit IVa was initiated in the fall with the objective of improving the attractiveness of the islands for waterfowl nesting, reducing its attraction to nesting california gulls, and improving the natural appearance of the marsh. The sandstone rip-rap surrounding each of the two-acre islands was dozed into stockpiles. After sufficient frost developed in the soil in December, a portion of the rock was hauled and placed along the south side of the IVb dike. Plans are to continue work in the unit in 1996 by completing the removal of the rock, lowering the profile of the islands, and planting natural marsh vegetation to prevent erosion.

Refuge contaminants program funding was used to remove the last refuge underground storage tank and to purchase and install two 1,000 gallon above ground storage tanks(See Photo). In June, Shumaker Trucking and Excavation was contracted to remove the 1000 gallon UST. The tank had cathodic protection and was in good shape when removed. However, in the process of removing the tank, spilled fuel was detected in the excavation. It turned out that the fuel was left from a previous leaking tank which was removed in 1987. The detection was reported to the Montana Department of Environmental Quality and precipitated a remedial investigation to determine the extent of possible subsurface spread of the fuel. The Montana Salinity Control Association drilling rig was hired and several samples were collected from locations around the tank site. Minimal amounts of fuel were detected in the samples making it apparent that the exceptionally tight clay soils at the site have prevented the spread of the leaked fuel. No further clean-up has been required by the DEQ and the excavation was closed. Now that the last of our USTs are gone, maybe our fuel management regulatory problems are past but I wouldn't want to bet on it.

4. Equipment Utilization and Replacement

A new Ford Explorer was received in June to replace the 1990 Jeep Cherokee which had reached the recommended mileage limitation for 4X4 vehicles. The Explorer has proved to be very reliable and popular with the staff. It was ordered with FY 94 funds.

MMS funds were aggregated with Private Lands funds to order a four wheel drive seven passenger Suburban type vehicle to replace the refuge 1988 Dodge Caravan. The need for a large 4X4 passenger carrier has become more and more obvious in recent years as the Partners for Wildlife Program has developed. The new vehicle had not arrived by the end of the year.

Bridge guard rails were installed on the Unit V inlet water control structure. The workers had to deal with -30 degree wind chills for the final assembly. The guard rails meet interstate highway standards and should be effective in keeping wayward semis out of the marsh.

RFJ **12/95**

We hope the wrap-up of our fuel storage problems came on October 5th with the installation of two 1000 gallon above ground storage tanks. The concrete pads and concrete lined double walled tanks were shipped from Florida. Unloading and placement on pads prepared by the refuge staff took only an hour.

JEM 10/95

5. Communications System

No new radios were purchased. One excess low band mobile unit was transferred to Bowdoin NWR. Two cellular phones were acquired in April and shared between the refuge and the Partners for Wildlife program. Cell phones were chosen over an expanded radio system because of the lower initial cost and their flexibility. They have proven to be a very effective tool for maintaining communication in the very large portion of Montana that Complex staff operate in.

6. Computer Systems

No new computers were purchased this year. In November we requested a local computer business to do a free informal evaluation of our office and provide an estimate of the cost to install a file server and network system for all the station computers. Their rough estimate of $20,000 set us back on our heels. Particularly in the current budgetary climate it appears to be unlike we will be able to install such a system any time soon. However, due to the increased level of electronic mail and other computer based activities that staff is now having to deal with, it is apparent that some type of network is needed in the near future.

J. OTHER

1. Cooperative Programs

Most cooperative ventures at the Complex are related to off-station activities which are handled through the Wetland Management District.

2. Other Economic Uses

A free haying permit was issued to Ron Lee to harvest hay along Bootlegger Trail. The permit is effective July 15 and is used to manage vegetation along the county road at a reduced cost to the refuge and the county while reducing disturbance of nesting birds during the prime nesting season.

4. Credits

Martin wrote sections D.5-6, E.4, F.1-2,10, G., H.1-6,11 and J.4. McCollum wrote sections B., D.4, E.1-2,5-8, F.8-9, H.8,16-17, I. and J.1-2 Meade edited and helped compile this narrative and Rae typed photo captions. Photo credits are listed below the photos.

Alan G. Nelson deserves special recognition for his contribution of wildlife photographs to the refuge slide file. The Grasshopper Sparrow photo in this narrative is an example of Alan's work.

REVIEW AND APPROVALS

BENTON LAKE WETLAND MANAGEMENT DISTRICT

Black Eagle, Montana

ANNUAL NARRATIVE REPORT

Calendar Year 1995

_____	_____	_____	_____
Refuge Manager	Date	Associate Manager Review	Date

_____	_____
Regional Office Approval	Date

INTRODUCTION

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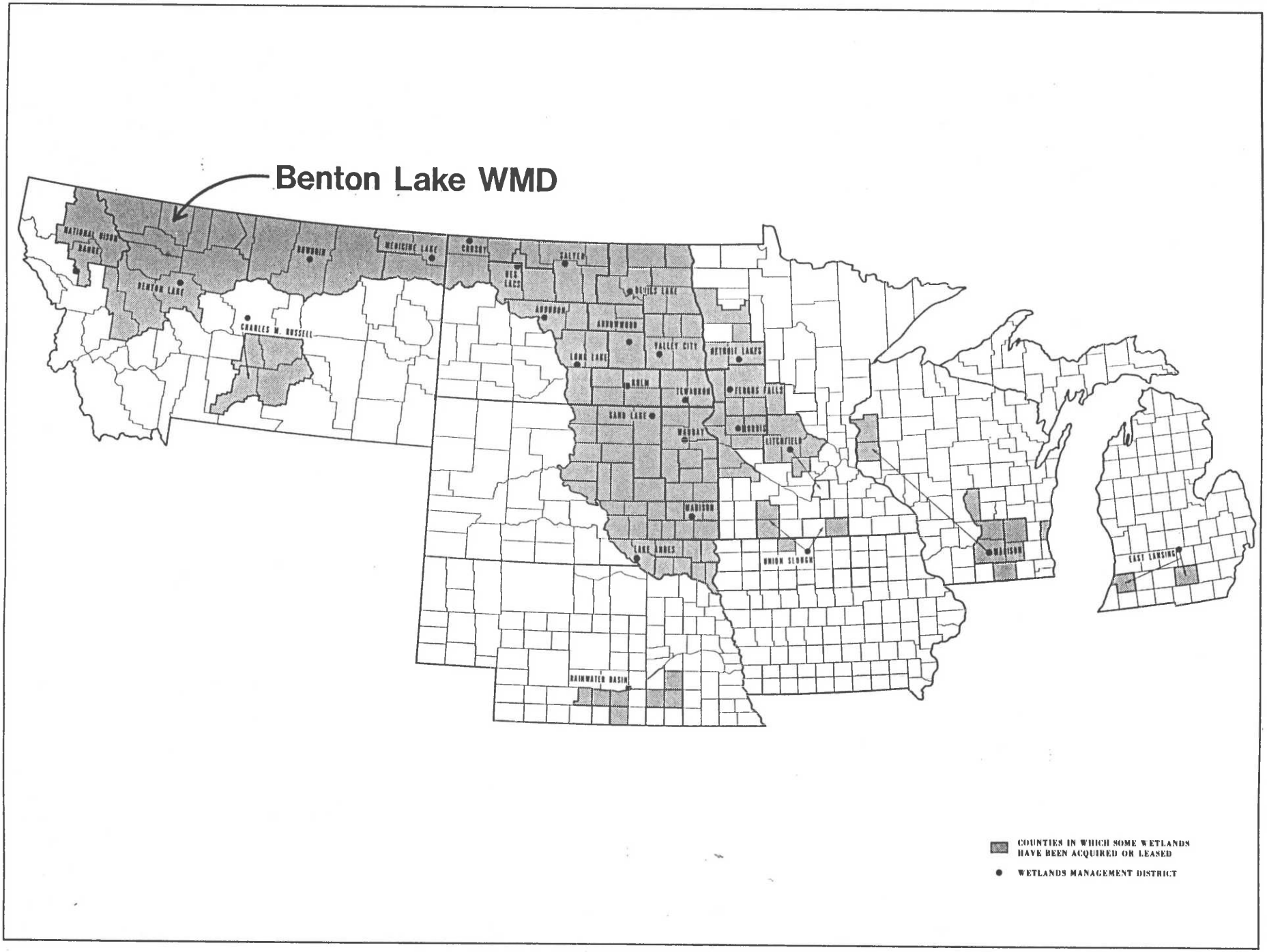
UNITED STATES
DEPARTMENT OF THE INTERIOR

WATERFOWL PRODUCTION AREAS

UNITED STATES
FISH AND WILDLIFE SERVICE



COMPILED IN THE DIVISION OF REALTY

WASHINGTON, D.C. SEPTEMBER 30, 1981

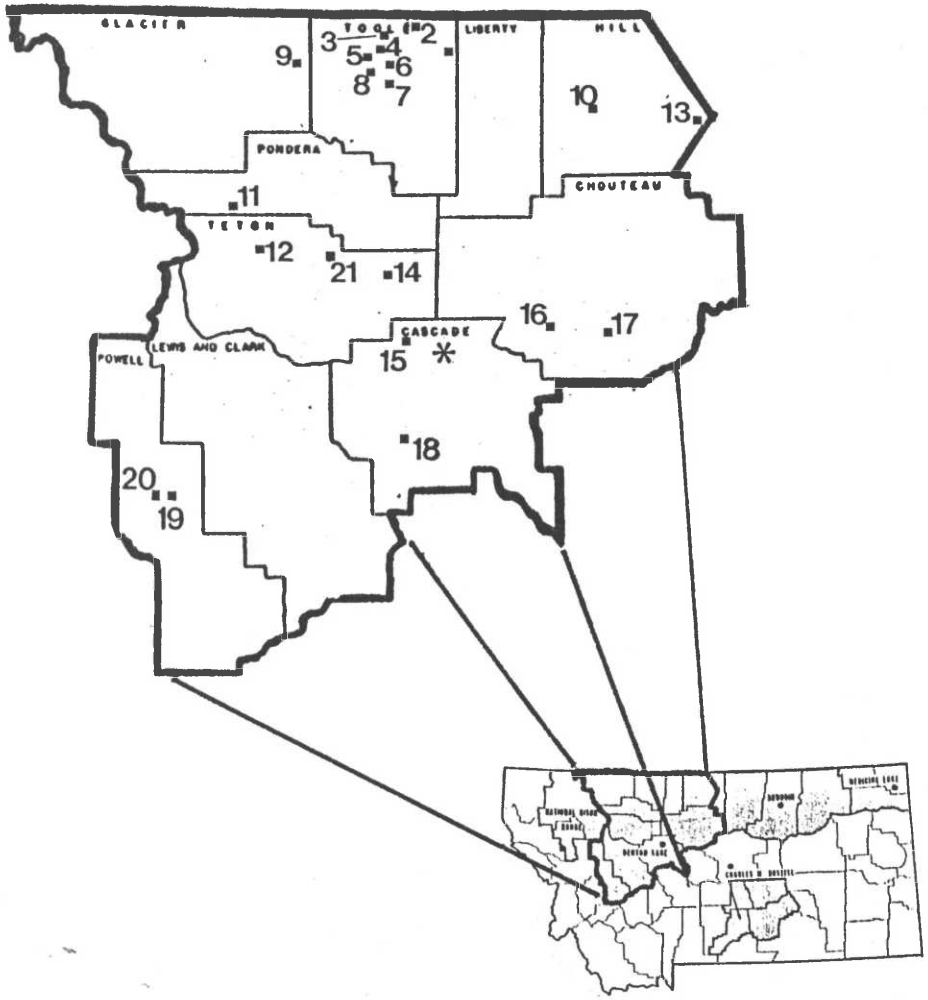
0 100 200 300 MILES

BENTON LAKE WETLAND MANAGEMENT DISTRICT

* Benton Lake National Wildlife Refuge

▪ Waterfowl Production Areas

1.	Furnell	1,995.00 Ac	
2.	Ehli	475.24 Ac	
3.	Danbrook	327.00 Ac	
4.	Dunk	80.00 Ac	
5.	Brown	260.00 Ac	
6.	Long Lake	645.66 Ac	
7.	Blackhurst	320.12 Ac	
8.	Cemetary	108.58 Ac	
9.	Peterson	94.20 Ac	
10.	Hingham Lake	280.00 Ac	*
11.	Jarina	640.00 Ac	
12.	Savik	397.00 Ac	
13.	Sands	378.93 Ac	
14.	Brumwell	251.50 Ac	
15.	Hartelius	307.22 Ac	
16.	Big Sag	349.58 Ac	**
17.	Kingsbury Lake	3,733.69 Ac	**
18.	Schrammeck Lake	420.24 Ac	
19.	Blackfoot	1,524.60 Ac	
20.	Kleinschmidt Lake	1,120.00 Ac	
21.	Arod Lakes	797.46 Ac	
TOTAL FEE ACREAGE		14,506.02 Ac	



* Leased from the State of Montana

** These WPA's contain acreage held under BLM and State ownership

INTRODUCTION

The Benton Lake Wetland Management District (WMD) encompasses some 25,000 square miles of north central Montana, an area roughly the size of West Virginia, making it the largest WMD in the country (Figure 1). Established in 1975, the district is administered by the staff at Benton Lake National Wildlife Refuge and includes 21 waterfowl production areas (WPA's) totalling 14,626 acres. The WPA's range from 80 to 3,734 acres in size and are widely scattered across a ten county area (Figure 2). Fourteen WPA's are located over 100 miles from headquarters making effective management of these units somewhat challenging. Perpetual wetland easements are spread over 90,000 acres of private land in all ten counties, protecting some 7,088 acres of wetlands.

Topography, soils, climate and precipitation vary greatly across the WMD resulting in a significant diversity of habitat types. The western portion of the district is dominated by the Rocky Mountains and includes broad valleys interspersed with glaciated wetlands and riparian habitat. To the east lies the prairie pothole region of the northern Great Plains, an intensively farmed area with remnant tracts of short grass prairie and small isolated mountain ranges.

A. HIGHLIGHTS

The year began with extremely dry conditions in the eastern half of the WMD. January through February precipitation in Great Falls was the lowest ever recorded (.20 inches). Conditions changed dramatically in mid-April with extremely heavy rains (B and F.2).

Gary Sullivan was chosen by the National Wildlife Refuge Association as the Refuge Employee of the year (E.1).

The first Montana Partners For Wildlife (PFW) stream restoration project along the east front of the Rockies was initiated on Elk Creek near Augusta in Lewis and Clark County (E.7).

The Montana PFW program received the American Fisheries Society Group Award in recognition of the program's outstanding contribution to the protection and enhancement of fisheries resources in Montana (E.7).

WMD and PFW staff attended COE Regulatory IV Wetland Training (E.8).

Development work was completed on the Arod Lakes WPA in Teton County. The unit has been surveyed, signed and fenced, 500 acres of cropland have been seeded to DNC, one mile of access road was relocated, 154 acres of poor quality CRP was mowed and interseeded and a one mile long, five row shelterbelt was established on the north boundary of the WPA (F.4).

Point count transects were established on the Furnell and Kingsbury Lake WPA's. Fifty-five species were detected at Furnell and 67 at Kingsbury Lake. On the Furnell WPA, 66 Sprague's pipits and 16 Baird's Sparrows were among the birds observed (D.5).

B. CLIMATIC CONDITIONS

The year began warm and dry throughout most of the WMD. Precipitation for January totaled .03 inches in Great Falls. This trend continued in February with total precipitation for the year at .20 inches at the end of the month. April through July was significantly wetter than normal. Dry conditions returned in August and precipitation for the remainder of the year was below normal.

Local weather conditions can vary greatly across the WMD. Precipitation totals from National Weather Service (NWS) reporting stations near WPA's can be found in Table I.

TABLE I

PRECIPITATION RECORDS FOR SELECTED NWS REPORTING STATIONS

County	(Station)	1995 Total	Normal	Percent of Normal
Cascade	(Cascade)	19.27	15.89	121%
Chouteau	(Geraldine)	20.97	15.55	135%
Glacier	(Cut Bank)	16.77	11.73	143%
Glacier	(E. Glacier)	39.45	28.23	140%
Hill	(Havre)	16.59	11.16	149%
Lewis-Clark	(Augusta)	18.51	13.08	142%
Liberty	(Chester)	16.38	11.48	143%
Pondera	(Valier)	16.83	11.97	141%
Powell	(Ovando)	16.64	13.45	124%
Teton	(Choteau)	17.94	10.54	170%
Toole	(Sunburst)	19.02	12.11	157%
Toole	(Gold Butte)	17.85	12.96	138%

C. LAND ACQUISITION

1. Fee Title

In recent years our land acquisition program has shifted away from traditional fee title work towards more emphasis on acquiring perpetual easements. As O&M budgets decline it has become increasingly difficult to manage our existing WPA's. Expanding the easement program has still enabled us to protect important trust species habitat in the district while minimizing our direct management costs. We continue to place a high priority on roundouts and one additional proposal was submitted to Realty in 1995. An appraisal and purchase offer were completed for a 500 acre roundout (Gottfried tract) to Ehli WPA in Toole County. The landowner has yet to sign the option but we hope to successfully negotiate a deal in 1996.

Approximately 48,000 acres have been delineated for fee purchase in the district. In addition, roundouts are needed for nearly half of the existing WPA's. Since 1975, some 12,403 acres have been acquired in eight counties. An additional 2,222 acres of Bureau of Land Management (BLM) and state lands are managed within the boundaries of three WPA's (Table II).

TABLE II

FEE TITLE ACREAGE BY COUNTY

County	Acquisition Goal	Number of WPA's	Total Acres
Toole	4,675	8	4,331.60
Chouteau	2,500	2	2,140.79*
Cascade	2,000	2	727.46
Hill	1,000	2	378.93**
Teton	2,251	3	1,445.96
Pondera	2,000	1	640.00
Powell	1,300	2	2,644.60
Glacier	2,096	1	94.20
Liberty	2,000	0	0
Lewis & Clark	500	0	0
Totals	20,322	21	12,403.54

TOTAL MANAGED ACRES = 14,626.02

* An additional 1,942.48 acres of State and BLM lands are contained within WPA boundaries.
** An additional 280 acres are leased from the State of Montana (Hingham Lake WPA).

2. Easements

Four separate easement programs are used to protect habitat in the district. They include perpetual wetland, grassland, conservation and Farmer's Home Administration (FmHA) easements that restrict certain land use practices on various habitat types.

One additional wetland (Glacier County 55X) and grassland easement (Glacier County 55G) was accepted in 1995. The A&N Cattle Company tract includes 178 wetland acres and some 2,106 acres of cropland that will be reseeded to native grasses in 1996. Currently, wetland easements are scattered throughout all ten counties of the district, protecting 7,492 wetland acres on 136 tracts (Table III). Grassland easements have been acquired in two counties protecting 6,479 acres on four tracts (Table IV).

TABLE III

WETLAND EASEMENT ACRES BY COUNTY

County	Easement Tracts	Wetland Acres
Toole	56	2,933
Glacier	46	2,139
Liberty	9	428
Pondera	9	733
Hill	6	407
Cascade	4	78
Powell	2	456*
Lewis & Clark	2	247
Teton	1	50
Chouteau	1	21
Totals	**136**	**7,492**

* Note: Powell County totals have been revised from previously reported acreage due to the conversion of two wetland easement tracts to a new conservation easement program. These protected wetland acres are now reflected in Table VI.

Efforts to expand our wetland/grassland easement program on the Blackfeet Indian Reservation failed to make any significant progress during the year. The Memorandum of Understanding with the Bureau of Indian Affairs (BIA) and Blackfeet Nation was revised to follow BIA procedures for recording easements on tribal lands. The BIA continues to oppose our plans to work with the Blackfeet Nation despite the tribe's desire to protect large blocks of wetlands and native prairie. We hope to finalize several easement proposals on the reservation in 1996.

The Clearwater River (right) joins with the big Blackfoot River approximately twenty-five miles west of the Blackfoot WPA. The Clearwater is a major bull trout and westslope cutthroat fishery, both native species of special concern. Fishing pressure, irrigation, mine wastes, grazing, and commercial timber harvesting are negatively impacting native fisheries in the Blackfoot Valley.

GLS 08/95

TABLE IV

GRASSLAND EASEMENT ACRES BY COUNTY

County	Easement Tracts	Grassland Acres
Powell	2	2,961*
Glacier	2	3,518
Totals	4	6,479

* Note: Powell County totals have been revised from previously reported acreage due to the conversion of grassland easement tracts to a new conservation easement program. These protected grassland acres are now reflected in Table VI.

Two additional FmHA easements were proposed on inventory properties during the year. Both proposals are on hold since the landowner's have exercised their lease back-buy back rights. The 150-acre Evan's tract in Glacier County would protect 25 wetland acres and result in the reseeding of 65 cropland acres back to permanent grassland cover. The 227-acre Sand's tract in Cascade County includes 85 acres of wetlands and borders nearly 1 mile of the Sun River. Only one FmHA easement has been recorded in the district since the program was enacted back in 1987 (Table V).

TABLE V

FmHA EASEMENT ACRES BY COUNTY

County	Number of Tracts	Wetland Acres Protected	Grassland Acres Protected	Total Acres
Teton	1	2	12	14

The majority of our easement work continues to focus on the Blackfoot River Valley in western Montana. This 1.5 million acre watershed contains some of the best trust species habitat left in the district. The diversity of fish and wildlife found here is exceptional and includes ten candidate species being considered for listing under the Endangered Species Act. Unfortunately, residential and commercial development are threatening to fragment this unique ecosystem.

The Small Wetlands Acquisition Program (wetland/grassland easements), designed to prevent agricultural conversion of habitat in the prairie pothole region, doesn't adequately address these threats to the Valley. This prompted us to develop a new easement program that incorporates the wetland and grassland easements into a single document and adds additional restrictions to prohibit subdivision/development for residential, commercial or industrial purposes.

A Preliminary Project Proposal (PPP) approved in 1994 outlines a strategy to acquire conservation easements on 23,500 acres of private land within a 165,000 acre project boundary. Approximately 7.5 million dollars are being requested from the Land and Water Conservation Fund (LWCF). No LWCF funds were appropriated by Congress in 1995.

The scenery in the Blackfoot Valley can be breathtaking. This is a shot of Brown's Lake looking north into the Scapegoat Wilderness. Brown's Lake is just south of the Blackfoot WPA. This type of scenery makes the western Montana Valleys popular places to live. It is a major reason why the pressure to subdivide and build 20 acre ranchettes everywhere is such a problem and a threat to wildlife and a rural lifestyle built around ranching.

GLS 04/95

This initiative involves integrating conservation easements with habitat restoration activities completed under the Partners for Wildlife (PFW) program. Over 1,600 wetland acres and 35 miles of stream/riparian habitat have been restored or enhanced on private land. Completed PFW projects often lead to opportunities to perpetually protect important wildlife habitat with easements. The PFW program has been instrumental in building public support for our easement program throughout the Valley. Acquiring conservation easements on private lands is helping to protect a vital habitat corridor between State Wildlife Management Areas (13,400 acres), Waterfowl Production Areas (2,600 acres), Nature Conservancy easements (8,975 acres) and Partners For Wildlife projects (114 sites) within the LWCF project area.

Two conservation easements totalling 5,875 acres were acquired with "Duck Stamp" dollars in the Blackfoot during 1995. The Stone tract (Powell County 17C) protects 2,440 acres of the Jones Lake wetland complex and includes portions of Hoyt and Dick Creeks. The University of Montana's Bandy Ranch tract (Powell County 18C) protects some 3,435 acres of the Upsata Lake wetland complex and lies adjacent to the Blackfoot Clearwater Wildlife Management Area. To date, conservation easements have been acquired on four tracts to protect 6,995 acres in the Blackfoot watershed (Table VI).

TABLE VI

CONSERVATION EASEMENT ACRES BY COUNTY

County	Number of Tracts	Wetland Acres Protected	Grassland Acres Protected	Total Acres
Powell	4	589	6406	6995

D. PLANNING

2. Management Plans

Work continued on developing inventory and management plans for all WPA's in the WMD. Historical and management information for WPA's is currently very difficult to retrieve. Completion of management plans will allow easy access for information relating to past management activities on specific units and will simplify the development of annual work plans. A grazing system was developed by NRCS for the Jarina WPA in Pondera county. Work was also started on designing grazing systems for the Furnell WPA in Toole County and the Kingsbury Lake WPA in Chouteau County. These three units are made up of over 6,000 acres of native prairie.

4. Compliance with Environmental and Cultural Resource Mandates

Pesticide Use Proposals were written and approved at the field level. All required Federal, State, and Tribal permits as well as endangered species and cultural resource reviews are completed for each Partners for Wildlife project.

5. Research and Investigations

a. Benton Lake WMD 95 - Breeding Bird Response to Partners for Wildlife Projects in the Blackfoot Valley of Montana.

Staff from the Montana Cooperative Wildlife Research Center at the University of Montana began this project in July of 1995. The primary goal is to determine the level of migratory bird use on PFW projects in the Blackfoot Valley. Breeding bird surveys, nest searches, and brood surveys will be the primary tools used in this project. Monitoring the level of bird use on the Kleinschmidt Lake and Blackfoot WPA's will also be included.

b. Benton Lake WMD 95 - Saline Seep Monitoring

Saline seep monitoring was not carried out in 1995 on the two WPA's with test wells. Seeps pose a serious threat to both public and private lands in Montana. These low volume springs form when native rangeland is converted to cropland in areas of the state where an impervious layer of shale lies beneath the soil profile. Fallow cropland, often referred to as recharge areas, does not effectively utilize annual precipitation resulting in excess water moving down through the soil profile. This water leaches out soluble salts and heavy metals which seep out on the ground surface down slope, often degrading water quality of wetlands and sterilizing topsoil.

Initial efforts to control saline seeps on two WPA's began in 1981 as a cooperative project between the Service and the Montana Salinity Control Association. A series of shallow cased wells were drilled on Brumwell and Long Lake WPA's for the purpose of monitoring sub-surface water tables. These wells have now started to break down and are no longer suitable for groundwater monitoring.
Recharge areas which are owned by the Service have been reseeded to permanent vegetation (DNC) to utilize as much precipitation as possible. Unfortunately, the remaining recharge areas are located on adjacent private land where fallow cropping practices continue to aggravate seeps on adjacent WPA's.

The only long term solution to resolving saline seeps is to convert recharge areas (cropland) back to permanent vegetation. Working within a defined watershed will have greater long-term benefits and reclamation. Watershed efforts have higher success with agencies to coordinate programs and policies. The Montana Salinity Control Association recommends a five to ten year rotation of alfalfa or other deep-rooted perennial crop. This will dry out the deep subsoil in the recharge areas and lower the artificially created shallow ground water system. Following the alfalfa, the producers must adopt a water-use efficient cropping system to utilize annual precipitation before some is lost to deep percolation. Changing land use on private lands adjacent to WPA's will be a major challenge in the coming years. A number of options to address the recharge areas need to be pursued including acquisition, grassland easements and other incentives which encourage cropland idling such as the Conservation Reserve Program (CRP) and the Wetland Reserve Program (WRP).

Above normal precipitation received in 1995 has raised the water table in many areas. Seep development and formation has increased as a result. Preventing seep formation and reclaiming active seeps will be a major challenge in the years ahead.

c. Benton Lake WMD 95 - Trace Elements in Sediment and Biota from the Benton Lake Wetland Management District, North Central Montana.

This study was conducted to determine if trace elements are accumulating in either sediment or the aquatic food chain of water-bird habitats in the Benton Lake WMD. Nine WPA's in five counties were sampled. Trace element analyses were performed on sediment, aquatic plant, aquatic invertebrate, amphibian, and fish samples. Arsenic, boron, cadmium, copper, lead, mercury, and selenium were the trace elements that were analyzed.

Based on the environmental contaminant data collected, there is no evidence indicating that significant contamination is occurring or that existing trace element contaminants at the sites pose an imminent threat to water birds using the areas.

Additional monitoring was recommended at several sites. Elevated boron concentrations were detected in aquatic vegetation samples from the Blackfoot and Sands WPA's. Selenium concentrations in aquatic invertebrates from Brumwell and Savik WPA's were slightly elevated and concentrations in daphnia, backswimmers, and waterboatmen at Danbrook WPA met or barely exceeded the dietary threshold determined to impair mallard reproduction.

d. Benton Lake WMD Non-Game Monitoring Program

Point count transects were established on the Furnell and Kingsbury Lake WPA's in 1995. The point count method is used to census grassland avifauna with point count stations at least 200 meters apart plus an additional random distance to ensure statistical viability. During the ten minute period spent at each point the species, sex, and type of detection are recorded (visual, singing, or calling) as well as the distance of the bird from the point center, and detection time.

A total of 361 individuals and 24 species were detected along 47 points on five transects on the Furnell WPA. The rolling prairie interspersed with numerous shallow wetlands on this unit is typical of the glaciated prairie pothole region. Forty-seven points along five transects were established on this unit. Savannah sparrows were the most abundant species detected followed by Sprague's pipit. Sixteen Baird's sparrows which are listed as rare by the Service in Region 6 were detected on this unit.

A total of 274 individuals and 35 species were detected along 44 points on eight transects at the Kingsbury Lake WPA. This WPA is situated in the foothills of the Highwood mountains with rolling terrain and steep rocky breaks. Transects on this unit were located in grassland, riparian zone and greasewood flats. Western meadowlarks were the most abundant species detected followed by Brewer's blackbird. Only one Sprague's pipit and no Baird's sparrows were detected on this unit. The third most abundant species detected on this unit was the rufous-sided towhee.

E. **ADMINISTRATION**

1. Personnel

The ten county district is administered by personnel at Benton Lake NWR. Effective management of the district is challenging, due to the small staff and logistical problems associated with managing WPA's located over 100 miles from headquarters.

Vince Marko, Engineering Equipment Operator, retired in January after more than 30 years of service at Benton Lake. We will miss Vince's unique ability to do anything and do it well.

Jackie Rea, who previously was on the realty staff in the RO, was selected to replace Betty Benway as the administrative assistant for the complex.

For additional information on training, meetings and other personnel matters, refer to section E.1 of the refuge narrative report.

5. Funding

Operations and maintenance (1260) funds are shared between the refuge and WMD. Maintenance and development needs for the district were identified in the Annual Work Plan, Maintenance Management System (MMS) and the Refuge Operating Needs System (RONS). In addition, several "special project" proposals were submitted for the WMD involving watchable wildlife, wetland education, challenge grant initiatives, and river restoration funds. Additional funds were obtained from Trout Unlimited, Montana Audubon, Wildlife Forever, Pheasants Forever and Ducks Unlimited.

6. Safety

There were no lost time accidents associated with district field work in 1995. One motor vehicle accident occurred when a landowner backed into the front quarter panel of the PFW Jeep cherokee when it was parked in front of a ranch house. The landowner could not recall backing into it, but blue paint from the ranch pickup indicated that was the vehicle involved.
Safety briefings are held before beginning all force account projects to assure the proper use of equipment and review any necessary safety precautions. For additional information regarding the station safety program refer to the refuge narrative report.

7. Technical Assistance

Cooperation and coordination between the Partners for Wildlife Program (PFW) and Benton Lake WMD continued in 1995. We routinely share staff-time, equipment, and funds. This interaction helps us find creative solutions to various natural resource problems. Dare we say: " an ecosystem approach to resource management."

Montana's Rocky Mountain Front is an important Partners for Wildlife Focus Area. The "Front" has several large, privately owned ranches bordering the Bob Marshall Wilderness Area. The landscape is dominated by large wetland complexes and unique riparian habitats. Grizzly bear, gray wolf, westslope cutthroat trout, harlequin duck, and trumpeter swan are among the more charismatic species inhabiting this unique ecosystem.

RJG

5/95

A. Administration

Benton Lake NWR/WMD provides office space and an Administrative Assistant to the Montana PFW Program. Montana PFW receives indispensable help with budget tracking, WEA processing, and other administrative functions. This arrangement increases the workloads for the Refuge Assistant but makes more PFW money available for habitat restoration.

The two programs share other expenses. Partners for Wildlife provides funds for equipment, utilities, fuel, and supplies. Benton Lake NWR provides heavy equipment and maintenance help. Staff time is also shared. PFW assists the WMD with wildfire control, law enforcement, banding, wildlife surveying and other routine WMD activities. The WMD staff assisted PFW with landowner contacts, wetland determinations, minimal effect determinations, FmHA property inspections and other PFW related activities.

Approximately 2 FTE's are devoted to private lands habitat work in the WMD. This figure includes PFW and WMD staff time. One MT PFW biological technician works exclusively in the Benton Lake WMD.

B. Partners for Wildlife Habitat Accomplishments

The Montana PFW Program uses a "focus area" approach to target habitat restoration efforts. This strategy allows us to prioritize staff and funding. Various criteria are used to establish PFW focus areas. NAWMP Joint Venture Areas automatically become PFW focus areas. Other focus area designations are based on unique habitats, T&E or candidate species concentrations, threat levels, and restoration opportunities.

Benton Lake WMD has portions of three PFW focus areas; 1) The Blackfoot River Watershed, 2) Lonesome Lake PPJV, and 3) The Rocky Mountain Front. Montana PFW Focus Areas outside the Benton Lake WMD are; 1) The Centennial Valley in SW Montana, 2) Beaver Creek PPJV Area, 3) Northeast Montana PPJV, and 4) Five-Valleys PPJV.

Private land accomplishments for 1995 are summarized below.

1. Wetland Habitat

Wetland restoration, enhancement and establishment projects remained a high priority in 1995. Table VII summarizes statewide wetland accomplishments for the MT PFW Program in 1995.

Over 500 wetland acres were restored, established, or enhanced in the Benton Lake WMD in 1995.

Arctic grayling and westslope cutthroat trout are two native fish inhabiting Montana's Centennial Valley. The Valley's wetlands, grasslands, and riparian habitats are unparalled in scenic beauty and wildlife diversity. Red Rock Lakes National Wildlife Refuge is also found in the Centennial Valley. The Valley is another major PFW Focus Area. We are working with private landowners on riparian/instream restorations, wetland restoration, grazing management, and off-site livestock watering facilities.

JWS 6/95

BEFORE

AFTER

Montana Partners for Wildlife biologists continued to restore wetlands in 1995. This 9 surface acre restoration project is in the Blackfoot River Valley.

GAN 6/95

TABLE VII

1995 PFW Accomplishments: Wetland Habitats

Project Type	Number of Basins	Acres Impacted	Total Cost
Wetland Restoration	26	302	$83,000
Wetland Establishment	32	149	$175,000
Wetland Enhancement	96	1,249	$125,000
TOTALS	**154**	**1,700**	**$383,000**

* Total Cost includes contributions by Non-FWS funding partners

2. Riparian and In-stream Aquatic Habitats

Riparian areas are some of the most productive habitat types in the Northern Great Plains and Inter-Mountain West. Instream, riparian wetlands, shrub zones and wet meadow components provide habitat for a myriad of fish, migratory birds, T/E species, and resident wildlife. Benton Lake WMD contains vast acreages of riparian habitat. The district includes portions of the Rocky Mountain Front, Blackfoot Valley, and Missouri River Watershed. There are literally thousands of miles of streams, creeks and rivers in the Wetland District.

Unfortunately, riparian areas throughout Montana are severely degraded. They are adversely impacted by over-grazing, irrigation, brush clearing, and recreational development. Extraordinary wildlife values and continued degradation make riparian habitats an important priority for the MT PFW Program.

Table VIII shows 1995 riparian habitat restoration accomplishments.

TABLE VIII

1995 PFW Accomplishments: Riparian & Instream Aquatic Habitats

Project Type	Number of Sites	Miles Restored	Total Cost
Riparian Restoration	10	57.5	$55,000
In-Stream Restoration	26	95.1	$238,000
TOTALS	**36**	**152.6**	**$293,000**

C. Special PFW Projects

Partners for Wildlife has been enormously popular in Montana. This success is due to a number of program attributes. Three important features are innovation, creativity, and flexibility.

Biologists from Montana Department of Fish, Wildlife and Parks and MT PFW eletro-shocking an irrigation ditch in the Blackfoot Valley. Over 150 juvenile bull trout were recovered in this 200 yard ditch. The data verifies the impacts of non-fish friendly irrigation structures and helps us determine which structures to replace.
JWS 9/95

This fish friendly irrigation structure was installed on an irrigation canal diverting water from the Northfork of the Blackfoot River. The Northfork is a major bull trout spawning tributary. The structure uses stainless steel screens to prevent fish from swimming down the ditch. This $20K project was co-funded by Trout Unlimited, MDFWP and MT PFW. 9/95

As has been the case in past years, 1995 presented the Montana PFW staff with several unique and non-traditional projects. One of the newest challenges involves native fish and irrigation structures. Antiquated irrigation structures present a number of problems for fish like bull trout and westslope cutthroat. The biggest problem involves juvenile fish. Young fish mistake irrigation intakes for natural stream side channels and will swim down these ditches. Fish then perish in ditches and hay fields. Irrigation structures and weirs also impede adult fish from reaching traditional spawning habitat. Replacing these old structures has become a high priority for MT PFW.

Technology is helping us deal with the problem. There are a irrigation structure designs available that are essentially 100% fish friendly. Paralleling new technology development has been an effort by fisheries biologists from the Montana Department of Fish, Wildlife and Parks to identify non-fish friendly irrigation structures in the Blackfoot River Valley. So in 1995 we began replacing old structures.

We believe that these projects will have a significant positive effect on the survival of juvenile native fish and the spawning success of adults. They also will improve irrigation efficiency for landowners. This leaves more water in the stream for fish and wildlife.

D. Funding Partnerships

Funding partnerships continued to flourish in 1995. Partnerships allow us to combine and leverage various sources of money for habitat work in the District. Leveraging also allows us to participate in expensive and extensive restoration projects. Nearly every PFW project in Montana includes cost-share funds.

Partnerships develop gradually as trust and credibility improve. The process requires patience but the rewards are obvious. Table IX summarizes the amount of non-FWS monies used for habitat projects in 1995. Leading contributors to PFW projects in Montana include: private landowners, Montana Department of Fish, Wildlife and Parks, Trout Unlimited, Ducks Unlimited, Wildlife Forever Foundation, and Pheasants Forever.

TABLE IX

1995 PFW FUNDING PARTNERS - MONTANA PFW PROGRAM

Group/Agency	$ Contributed
MT Department of Fish, Wildlife & Parks	$195,000
Ducks Unlimited	$ 10,000
Trout Unlimited	$ 61,000
Private Landowners	$123,000
Foundations & Grants	$ 25,000
US Dept of Agriculture	$ 15,000
TOTAL FUNDS PROVIDED BY PARTNERS	**$429,000**

There are unlimited wetland establishment opportunities in northeastern and northcentral Montana. This "artificial" wetland project was built on privately owned native prairie in the Beaver Creek PPJV Area. Beaver Creek is a key MT PFW Focus Area. The project was co-funded by MT PFW and Montana Department of Fish, Wildlife and Parks.

JWS **4/95**

BEFORE

AFTER

Elk Creek is located near Augusta, MT on the Rocky Mountain Front. The stream supports a productive fishery. The local Conservation District contacted us about a chronic erosion problem. The landowner was concerned about a damaged irrigation headgate. We were able to solve the headgate problem **and;** stabilize a severly eroded streambank, construct deep pool habitat, improve spawning habitat with a rock wier, and restore two point bars. Funding partners included: Audubon, Trout Unlimited, Montana Department of Fish, Wildlife and Parks, Lewis and Clark Conservation District, and the landowner.

RJG

10/95 and 5/96

This wetland, located on an RECD property, along the east front of the Rocky Mountains in Glacier County, is typical of wetlands along this area of the front.
RFJ 06/95

This RECD property, located in Hill County in the Bear's Paw mountains, was inspected for easement potential. Which side of the fence is the RECD property?
RFJ 06/95

E. Conservation Compliance (FSA)

Numerous staff days were again spent working with the Soil Conservation Service (SCS) and Agricultural Stabilization and Conservation Service (ASCS) on various FSA wetland issues. Technical assistance was provided to SCS on fifteen minimal effect determinations and ten wetland determinations.

Workloads related to the Montana Inter-Agency Wetland Team continued in 1995. The Team reviewed and tested various SCS wetland determination tools including, hydric soil parameters, off-site wetland determination techniques, and hydrologic factors. We also evaluated previous SCS wetland determinations.

F. Farmer's Home Administration (FmHA)

Fifteen Farmers Home Administration (FmHA) inventory properties were inspected this year for possible conservation easement opportunities. Eight conservation easements were proposed and are proceeding through the recording process. Four FmHA conservation easements have been recorded in the district.

G. Conservation Reserve Program (CRP)

Staff from the Montana PFW Program and Benton Lake WMD continue to be involved in discussions regarding the future of CRP. Congressional debates on the 1995 Farm Bill will ultimately determine CRP's fate. In Montana, we have formed a CRP Task Force to help shape a unified position on CRP. The Task Force meets on a regular basis to discuss all issues related to the program. Montana Congressman Pat Williams is a Task Force member and he is carrying our concerns back to Washington.

8. Other Items

Revenue sharing checks for FY 1994 totalled $15,254 or 77.1% of full entitlement, a .77% decrease from last year. Payments less than 100% entitlement still far exceed personal property taxes paid by private landowners in the state. As an example, the taxes paid on the 1120 acre Kleinschmidt Lake WPA in Powell County were $280 and the revenue sharing payment was $2,520, a 900% increase, while the taxes paid on the 1525 acre Blackfoot WPA in Powell County were $590 and the revenue sharing payment was $2,781, a 471% increase. Consequently, county commissioners in the district are generally supportive of our small wetlands program. Checks were personally delivered to all County commissioners except for the Glacier County check which was mailed.

This grassed waterway east of Dutton in Teton County was burned, ditched, and plowed in an effort to increase the amount of cultivated land. Several other waterways in this area received the same treatment. This type of agricultural activity increases the potential for erosion and certainly is not representative of good land stewardship.

RFJ 04/95

In April, a highway restoration project began on six miles of the northbound lane of I-15 near Brady in Pondera County. The construction company needed a place to deposit fill and a local landowner had just the spot. Fortunately, we observed the activity and completed a wetland determination on the area in conjunction with NRCS. Hydric soils, hydrophytic vegetation, and hydrology were all present and NRCS informed the landowner that the area was a wetland and could not be filled. The boundary of the wetland was marked and the construction company was told to keep the fill out of the wetland. The landowner indicated that he would appeal the ruling, but he did not do so.

RFJ 08/95

F. HABITAT MANAGEMENT

1. General

The goal of habitat manipulation on WPA's is to protect and enhance wetlands and maintain maximum productivity in both native and tame grasslands. Haying, grazing and burning are the primary management tools used in the Benton Lake WMD. WPA habitat types include approximately 3,691 acres of wetlands, 7,384 acres of native grassland, 2,979 acres of tame grasses/legumes, 220 acres of forest, 68 acres of riparian habitat and 60 acres of cropland. The cropland is located on the Ehli WPA and will be seeded back to cover as soon as the cooperator cleans up the field.

2. Wetlands

In the northern tier of WMD counties snowfall in the winter of 1994/95 was very limited. Runoff was very spotty and many wetlands received no runoff at all. The Ehli WPA in Toole county was virtually dry in November and the water level in early April was almost identical. Conditions changed dramatically in mid-April. Heavy precipitation throughout the WMD in April and May filled most temporary and seasonal wetlands. Precipitation remained above normal through July and water levels were maintained in most wetlands throughout the WMD.

Three small wetlands on the Arod Lakes WPA were restored during road construction activities. Culverts that had functioned as drains were removed when the section of road was moved away from the edge of the marsh. As a result of above normal precipitation these three wetlands held water throughout most of the summer and were used extensively by waterfowl broods.

Aquatic vegetation growth was excellent in the wetlands that were restored in 1995 on the Blackfoot WPA. Water levels were maintained in these wetlands throughout the year as a result of above normal precipitation and spring flows. Water movement through the series of restored wetlands functioned as planned. Waterfowl use was heavy with many broods observed throughout the summer.

Water conditions in Halfway Lake on the Sands WPA in Hill County were good throughout the year. Significant spring and early summer precipitation maintained high water levels throughout the breeding season. All of the small islands that were constructed in the unit as a condition of the donation of this unit by the landowner have now completely eroded away with the high water levels of the past several years. Emergent vegetation has also become very limited on the unit.

Construction of the drainage project that will eliminate North Halfway Lake continued during the summer. The main runway for the Havre airport runs between Halfway Lake on the Sands WPA and North Halfway Lake which lies on private land. The Federal Aviation Administration has expressed concern about the potential for a bird strike hazard as a result of waterfowl flying back and forth across the runway between Halfway Lake and North Halfway Lake. After extensive negotiations we agreed to allow the drainage of North Halfway Lake with appropriate mitigation which was accepted late in 1994. Current plans call for the project to be complete and functioning in early 1996. Water conditions at freeze-up were average throughout the WMD. Most temporary and seasonal

Spring water conditions on the Blackfoot WPA in Powell County. This shot also shows the problem we have on the unit with trees spreading into the sagebrush/grassland as a result of years of fire suppression.
RFJ 04/95

Montana Conservation Corps Enrollees spent a day in August on the Blackfoot WPA removing trees from the sagebrush/grassland.
GLS 08/95

Approximately 20 acres of an old waterbank stand on the Dunk WPA in Toole County were interseeded with three pounds of creeping alfalfa per acre in the spring of 1993. The soils in this tract are poor and very rocky so we chose not to break out the stand and start over. This is what the stand looked like in July of 1995.

RFJ 07/95

Montana agricultural humor. The landowner installed this sign shortly after spraying out the volunteer winter wheat in this field.
RFJ
07/95

Montana farmers can be very innovative. This producer, in northern Glacier County, chose to use his combine as a spray rig. Maybe next year he'll figure out some way to use it to pick rocks.
RFJ
06/95

wetlands were dry as a result of the dry conditions that began in September and ran through the end of the year.

3. Forests

The Blackfoot WPA is the only WPA in the WMD with forested habitat. Two hundred and twenty acres of Ponderosa pine on Marcum mountain and 68 acres of riparian habitat (cottonwoods, aspen, willow) along the Blackfoot river are found on this unit. No active management has been conducted in these forested areas. Our goal is to protect them from grazing and logging activities conducted on adjacent private land. The riparian area that was fenced on this unit in 1992 continues to recover nicely. High water levels in the Blackfoot River in the spring buried part of the fence with sediment and allowed cattle access to the riparian area early in the summer. The cattle were removed in spite of a less than cooperative neighbor and recovery of the area continues. Red-osier dogwood, which is common in the riparian zone, had been especially hard hit by cattle. Extensive growth of this species was noted in 1995. The grasses in the riparian area were also much more vigorous in 1995. Lush grass was present in the riparian zone just prior to freeze-up unlike previous years when the areas had been heavily grazed all year and no new growth was present at freeze-up.

4. Croplands

Approximately 60 acres of cropland were included in the 120 acre Ehli WPA roundout that was purchased in 1993. These acres continue to be farmed in an effort to clean up the seedbed prior to seeding these acres back to grass.

5. Grasslands

Montana Conservation Corps members spent a day in August removing trees from the sagebrush/grassland on the Blackfoot WPA. Mountain Juniper, Ponderosa Pine, Douglas Fir and Western Red Cedar have invaded the grasslands as a result of the suppression of fire.

The 250 acres of DNC that were seeded on the Arod Lakes WPA in 1994 came on very well in 1995. The alfalfa and sweetclover growth was outstanding and provided excellent cover.

The WMD includes 6,450 acres of native grassland. Most of this lies in the eastern portion of the district and consists mainly of western wheatgrass and green needlegrass. WPA's in the foothills and mountainous areas contain primarily western wheatgrass, bluebunch wheatgrass, and rough fescue. Grasslands are monitored and management activities are prescribed when vigor declines and species composition begins to deteriorate.

A grazing system was developed by NRCS for the 640 acre Jarina WPA in Pondera county. This unit is native prairie with a small area of tame grass. It has been rested for nine years and the cover quality and vigor of the native plant community has declined significantly. A WPA neighbor has expressed interest in grazing the unit and we hope to implement the grazing system in 1996.

NRCS staff also developed a grazing system that included 160 acres of the Blackfoot WPA in Powell county. The system is designed with five separate pastures on and off the WPA. When one of the two pastures on the WPA is grazed a corresponding private pasture will be rested.

6. Other Habitats

Eight hundred replacement trees were planted in the one year old shelterbelt on the Arod Lakes WPA. In spite of the extremely dry conditions of 1994, when the shelterbelt was initially established, shrub survival was excellent and exceeded 95 percent for carragana, American plum and buffaloberry. Mountain juniper survival was in the 50 percent range and most of the replacement shrubs were used for mountain junipers. This species is difficult to establish even under the best of conditions.

8. Haying

DNC rejuvenation continued with 350 acres on six WPA's hayed in 1995 (Table X). Haying was not permitted before July 15 in order to protect ground nesting birds. Cooperators were required to rake or harrow the hayed areas to remove matted litter from the fields. Raking is not a common practice in this part of Montana and it is often extremely difficult to find a cooperator that has access to a rake.

TABLE X

1995 COOPERATIVE HAYING PROGRAM

WPA	Acres Hayed
Long Lake	80
Schrammeck Lake	70
Brown	70
Hartelius	70
Kingsbury Lake	48
Dunk	12
Total	350

DNC rejuvenation through haying is preferable to breaking the stand out and starting over. The drought conditions that we have experienced in the past few years make grassland establishment a high risk operation. Failed seedings require another farming cycle for weed control and add additional cost to a very expensive procedure. In addition, stands that are broken out will not provide cover for at least three years.

9. Fire Management

No prescribed burns were conducted in the WMD in 1995. We were also fortunate to escape any wildfires.

A burn plan was prepared for a 65 acre native grass seeding on the Blackfoot WPA that is infested with cheatgrass. Uncooperative weather has prevented us from completing this burn. The Blackfoot WPA is located along State Highway 89, the main route from Great Falls to Missoula. Smoke management is a primary concern and the unit can only be burned with a north or east wind. Winds from these directions are very rare in the

Blackfoot Valley thus making burning very challenging.

10. Pest Control

Canada thistle, musk thistle, spotted knapweed, diffuse knapweed, Russian knapweed, small whitetop, leafy spurge and yellow toadflax are the targets of our weed control efforts. Mechanical, biological and chemical control methods are used. Fortunately, most infestations are small.

In 1995, a total of 4.35 acres of noxious weeds on five WPA's were treated with chemicals (Table XI). Forty acres of musk thistle on the Savik WPA were mowed for the third consecutive year. Stem density has been significantly reduced. Thirty acres of Canada thistle in scattered patches were mowed on the Arod Lakes WPA.

TABLE XII

1995 CHEMICAL NOXIOUS WEED CONTROL

WPA	TARGET SPECIES	ACRES	CHEMICAL/ACRE
Blackfoot	Leafy Spurge	.25	1 pint Tordon/1 quart 2,4-D
Blackfoot	Yellow Toadflax	1.25	1 quart Tordon/1 quart 2,4-D
Arod Lakes	Russian Knapweed	1.5	1 pint Tordon/1 quart 2,4-D
Arod Lakes	Canada Thistle	.5	1 quart Curtail
Jarina	Canada Thistle Spotted Knapweed	.1	2 quarts Curtail
Schrammeck Lake	White Top	.5	.5 ounces Escort
Peterson	Canada Thistle	.25	2 quarts Curtail
	TOTAL ACRES	**4.35**	

Two additional releases of 450 Agapeta zoegana, a root moth and one additional release of 100 Cyphocleonus achates, a root weevil were made on the Blackfoot WPA for spotted knapweed control. This is the third year that these insects have been released on the WPA. Two moths, Urophora affinis and Urophora quadrifasciata, that attack spotted knapweed flowers are present on the unit. We are hopeful that an array of insects attacking different parts of the plant will begin to exert a significant level of control on the spotted knapweed on this unit. The upper slopes of Marcum mountain are becoming heavily infested with spotted knapweed. The rugged terrain in this area makes chemical treatment extremely difficult. This area is important deer and elk wintering range and has a healthy native bunchgrass community that we would like to preserve.

One hundred Brachypterolus pulicarius, an ovary feeding beetle, and 100 Calophasia lunula, a defoliating moth, were released on the Blackfoot WPA as biological control

agents for yellow toadflax. The level of toadflax infestation has increased dramatically on the WPA in the past two years with most of the new plants in the native sagebrush/grassland community. Chemical control of toadflax is difficult, especially in the sagebrush community where significant damage can occur to the sagebrush plants.

The native grass seeding on the Blackfoot WPA that was heavily infested with cheatgrass, Bromus tectorum, and was grazed in 1994 has shown significant improvement . We placed 35 cow/calf pairs on the field which had been divided into two 15 acre pastures and rotated them through each pasture twice in April and May. The cheatgrass was severely impacted and the level of infestation has been substantially reduced.

11. Water Rights

The Service and the State of Montana currently disagree over whether or not the Service has to pay filing fees for water rights. We have filed an application for additional water rights on the Ehli WPA in Toole County and we do not anticipate any problems with the actual rights. The issue of filing fees has not been resolved. Routine monitoring and reporting of water rights was completed in the annual water use report.

13. WPA Easement Monitoring

No new violations were found in the WMD in 1995. Easement flights were completed in early April when conditions were very dry throughout most of the WMD. Little spring runoff and a very dry summer have reduced the need for recreational scraper use. Very little drainage was observed on private land.

Many excellent wetland/grassland complexes exist in the WMD and these would be prime candidates for easements. The Kevin rim and Sweetgrass Hills area of Toole county have numerous tracts of exceptional native grassland with excellent wetland complexes. Landowners remain interested in wetland/grassland easements and in the new Western Montana easement which was designed to prevent subdivision. The PFW staff continue to promote the easement program and have generated landowner interest. The biggest problem we have in this WMD is the lack of landowner knowledge about the program and the lack of realty staff to contact landowners.

Easement monitoring in the Benton Lake WMD can be a very challenging proposition. Easement tracts are scattered over 5,000 square miles and isolated 40 and 80 acre tracts are sometimes difficult to find from the air since many remote areas don't have discernable section lines or other surface features.

Black bears are common in the western part of the WMD. This one was on Plum Creek Timber Company land north of the Blackfoot WPA in the Blackfoot Valley.
GLS 06/95

The victim of a northern shrike on the Furnell WPA in Toole County. Numerous shrews were impaled on the fence along the road through this unit during a warm spell in late January.
RFJ 01/95

G. **WILDLIFE**

Specific information on district wildlife populations is limited, due to its size and our limited staffing. Wildlife surveys are usually done incidental to other WPA projects. With an average driving distance of 100 miles from headquarters to most WPA's, collecting accurate and timely biological information is somewhat difficult.

1. Wildlife Diversity

The Benton Lake WMD stretches from the Rocky Mountains to the short grass prairie of the northern Great Plains. A wide diversity of wildlife habitat occurs in this 25,000 square mile portion of the state. Biodiversity on fee title land in the district is best represented by the varied habitat types of the Blackfoot WPA.

2. Endangered and Threatened Species

Montana includes habitat for two endangered mammals (Black-footed ferret and gray wolf), three endangered birds (Peregrine falcon, whooping crane, and least tern), one threatened mammal (grizzly bear), two threatened birds (Bald eagle and piping plover), two endangered fish (Pallid sturgeon and white sturgeon) and two threatened plants (Water howellia and Ute ladies-tresses).

Bald eagle populations continue to do well along several major rivers in the district. As many as 45 eagles have been sighted on the Blackfoot WPA which provides important migration and winter habitat. Seven active eagle nests have been documented in the Blackfoot River watershed including one located approximately 2 miles east of the WPA. In 1993, a 42 acre wetland called wigeon marsh was restored on the Geoff Foote property, approximately 10 miles west of the Blackfoot WPA. Geoff called us in April of 1995 to let us know that a pair of bald eagles were building a nest on the shores of wigeon marsh.

Grizzly bears are found in and along the front range of the Rocky Mountains. There have been three confirmed grizzly sightings on the Jarina WPA in Pondera County since the unit was purchased in 1986. Sightings have also been reported on the Savik WPA in Teton County.

Gray wolf sightings are becoming more common in the district. Wolves continue to move down along the front range out of Canada. Livestock depredation by wolves is a growing problem on the Blackfeet Indian Reservation in Glacier County. Sightings have been reported near Jarina WPA in the Birch Creek area.

The Ute ladies-tresses were found on land owned by the Golden Sunlight mine in Jefferson county. The mine purchased a large wetland called the Piedmont swamp and contacted us about enhancing the area for wildlife. The Montana Heritage program conducted a biological inventory of the property and discovered several Ute ladies-tresses along an abandoned railroad ROW on the mine property. This is the only known site in Montana where this species occurs. A management plan will be written to protect and enhance habitat conditions for this species.

A trumpeter swan nesting platform that was placed on the Jarina WPA in Pondera County. Trumpeters are frequently seen on this unit and several pairs nest in the Augusta area approximately 50 miles south of this unit.
RFJ 03/95

You never know what cows are going to do. This one decided that she needed a toothpick so she picked up a shed deer antler and seemed quite happy with the results.
RFJ 10/95

3. Waterfowl

Waterfowl habitat is found in three distinct regions of the district. Most of the WPA's are located in the intensively farmed portion of Montana's Hi-Line referred to as the Golden Triangle. The Furnell WPA lies at a higher elevation in the Sweetgrass Hills along the Canadian border and is characterized by rolling glaciated prairie similar to the Coteau of North Dakota. The western portion of the district includes broad mountain valleys containing glaciated wetland complexes and extensive riparian habitat.

Estimating waterfowl production on widely scattered and diverse WPA's has proven to be difficult. No single technique can be extrapolated to the entire district due to differences in habitat types and predator populations. The only way to come up with an accurate production estimate for all WPA's would be to sample each habitat type within each of the three distinct regions of the district. In the past, production estimates have been "guestimates" at best, based on partial pair counts and observations made incidental to other force account projects.

Nest dragging is the best alternative but getting an adequate sample size for all habitat types is impossible due to our small staff, and long distances to WPA's. Limited nest searching was conducted on the Blackfoot WPA in 1995. Seven duck nests were found in three days of dragging (July 7-9) and five hatched for a Mayfield success rate of 49%. Obviously this was a very small sample size and the results need to be used with caution. The nesting study on the Blackfoot WPA was just beginning in 1995 and logistical and personnel problems prevented an earlier start. Current plans call for beginning the 1996 phase of the study in May.

A brood survey on the Blackfoot WPA on August 2 found 35 duck broods. During these late brood counts emergent vegetation was widespread throughout the marshes on the unit and these numbers should be considered minimal.

Numerous swans are seen along the Rocky Mountain front during the spring and fall. Many of these birds are trumpeters with some Tundras mixed in. Several pairs of Trumpeters nest in the Augusta area of Teton and Lewis and Clark county. Unfortunately, many of these nesting efforts are near roads and people that are just looking for something to shoot at kill several trumpeters each year.

Canada geese are doing extremely well throughout the WMD. The goose population has shown such a significant increase statewide that the daily bag limit on Canada geese was increased to four.

Installing cone type nest structures for mallards is almost a waste of time since geese will occupy virtually all of the structures that are available.

Thousands of Canada geese winter along the Missouri River and provide exceptional hunting opportunities.

One of the more interesting sightings that we had this year was a pair of white-winged scoters at the Arod Lakes WPA on May 13th. A pair of snow geese were also present at Arod Lakes on June 22nd.

4. Marsh and Water Birds

A diversity of marsh and water birds are found throughout the district. Sightings on WPA's this year included sandhill cranes, eared grebes, American coots, black-crowned night herons, great blue herons, white pelicans, red-necked grebes, common loons and western grebes.

Pied-billed, horned, eared and red-necked grebes have all been known to nest on WPA's in the district. A sandhill crane colt was seen on the Blackfoot WPA on June 1. Crane nesting has also occurred on the Savik and Arod Lakes WPA's in past years.

5. Shorebirds, Gulls, Terns and Allied Species

Excellent wetland conditions provided abundant habitat for shorebirds in the northern portion of the WMD in 1994. Species observed on WPA's included American avocets (*), marbled godwits (*), willets (*), common snipe (*), killdeer (*), Wilson's phalaropes (*) ring-billed gulls (*), long-billed curlews (*), black terns (*), short-billed dowitchers, common terns (*), and spotted sandpipers (*). A newly hatched spotted sandpiper brood was seen at Arod Lakes on the 25th of July. Species listed above which have nested on WPA's are followed by an asterisk (*).

6. Raptors

Raptor's observed on WPA's during the year included golden eagles, bald eagles, prairie falcons, peregrine falcons, red-tailed hawks (*), Cooper's hawks, rough-legged hawks, American kestrels (*), ospreys, northern harriers (*), Swainson's hawks (*), great horned owls (*), short-eared owls (*), burrowing owls (*), and ferruginous hawks (*). Species listed above which have nested on WPA's are followed by an asterisk (*).

Two burrowing owls were seen in the prairie dog town on the Kingsbury Lake WPA this year. This was the first breeding record of burrowing owls on a WPA in the WMD.

7. Other Migratory Birds

The Shonkin Mourning Dove route in Chouteau County was completed this year. Twenty-one doves were heard, but none were seen.

The Breeding Bird Survey for the Highwood route was completed this year by volunteer Karen Stutzman. This 25 mile loop is located 20 miles northeast of Great Falls and contains 50 stops.

Point count transects were established on the Furnell and Kingsbury Lake WPA's this year. These two units are the largest blocks of native prairie on WPA's in the WMD (See D.5).

8. Game Mammals

Ten species of big game mammals occur in the district including white-tailed deer, mule deer, elk, black bear, grizzly bear, antelope, moose, mountain lion, bighorn sheep, and

mountain goats. Bighorn sheep and mountain goats are the only two species that have not been observed on WPA's. No specific WPA surveys are conducted for these species.

White-tail and mule deer populations continue to do well on most WPA's in the district. Both species have taken advantage of the extensive CRP acreage on private land.

Small herds of pronghorn antelope were regularly seen on Kingsbury Lake and Furnell WPA's during the year. Two antelope fawns were seen on the Kingsbury Lake WPA on 5/31 and two were seen on the Furnell WPA on 6/9. Occasional sightings are made on the Ehli and Danbrook WPA's in Toole county. Antelope are scattered throughout the eastern half of the district.

Elk have been observed on five WPA's in the past three years. Six cow and calf elk were present on the Jarina WPA in Pondera county on the 22nd of July. Thirty additional cows and calves were just off the unit. A WPA neighbor indicated that a sow grizzly and cubs were also using the unit in July.

The Blackfoot WPA provides some of the best elk winter range in the Blackfoot Valley. Ten days after the big game season closed in November numerous branch-antlered bulls were present on and just off the eastern boundary of the WPA. The warm weather throughout most of the big game season kept the elk up high longer than usual with a reduced harvest in the traditional hunting areas. Heavy elk use was also evident in the native grass seedings on the west side of the unit.

A large elk herd wintered on the Long Lake WPA in Toole County along with several hundred white-tailed deer. Many of these animals live year round on the open prairie. The Sweetgrass Hills herd continues to grow and these animals are occasionally seen on the Furnell WPA.

The large amount of CRP acreage in the WMD continues to provide excellent habitat for a wide array of resident and migratory species. A significant amount of CRP lies adjacent to the Long Lake WPA and is heavily used by the wintering elk and deer.

Black bears, bobcats, and an occasional moose have been reported on the Blackfoot WPA by private landowners in the area.

10. Other Resident Wildlife

The eastern half of the district lies in the heart of Montana's Golden Triangle. Much of this intensively farmed area lacks sufficient winter cover for many species. Seven species of upland game birds are found in the district including sharp-tailed grouse, gray partridge, ring-necked pheasants, ruffed grouse, blue grouse, spruce grouse and Merriam's wild turkeys. All but the latter have been observed on WPA's.

Relatively mild winters and additional habitat on CRP lands have resulted in increased populations of upland game birds in portions of the district during recent years. Pheasant populations throughout the eastern section of the WMD were excellent. The Brady-Conrad area of Teton and Pondera county had extremely high pheasant numbers. The population in Choteau county was up significantly from 1994.

Gray partridge coveys were also common throughout the eastern portion of the WMD.

Sharp-tailed grouse numbers were up throughout the WMD. Numerous large flocks were seen in the Sweetgrass Hills area of Toole County. MTDFWP biologists in Great Falls reported increases in lek counts throughout the central portion of the WMD. Numbers of dancing males were also up significantly in Cascade and Chouteau counties.

No blue grouse broods were seen on the Marcum mountain portion of the Blackfoot WPA during fence maintenance and weed control activities. Brood sightings on this unit have been common in the past.

Coyotes, red fox, raccoon, badger, bobcats, striped skunks, mink, long-tailed weasel, muskrats, beaver, Columbian and Richardson's ground squirrels, prairie rattlesnakes and black-tailed prairie dogs are also found on WPA's in the district.

16. Marking and Banding

WMD staff assisted Montana Natural Heritage Program folks with their pelican banding efforts at Arod Lake in July. The breeding colonies are located on islands in the state owned portion of the lake which is just east of the WPA boundary. A total of 413 young pelicans were banded with standard FWS bands and red plastic leg bands with an alpha-numeric code. Production at the Arod Lake colony appears to be excellent. Unfortunately, no census of breeding birds is done in this colony. Annual aerial photos of the colony are cheap and easy to obtain. Since the islands are state-owned it is a state responsibility to monitor the population levels.

H. **PUBLIC USE**

1. General

A variety of wildlife oriented recreation, including birdwatching, hiking, photography, hunting and trapping in accordance with state regulations takes place on Waterfowl Production Areas. The units are open year round for these activities. Travel on WPA's is limited to foot or horseback only and overnight camping and fires are prohibited on all units except the Arod Lakes unit in Teton County where camping is allowed on a small campground that was in use when we purchased the unit.

Monitoring public use activities on WPA's is very difficult. The large size of the district and the remote location of many of the units precludes routine patrols to check public use activities. We rely heavily on adjacent landowners and hunters to provide us with information on public use. Trapping and hunting are the most common public use activities on WPA's in the WMD.

6. Interpretive Exhibits/Demonstrations

The interpretive overlook and parking area on the Blackfoot WPA continued to receive significant use during 1995. More than 2800 visits were recorded on the traffic counter. Large numbers of spring migrants and many waterfowl broods attracted many birders. Adult cranes with young were seen regularly feeding in the newly seeded native grass stands on the unit. Numerous duck and goose broods were present on the unit and provide excellent viewing opportunities. Two bluebird boxes that were placed on power poles near the parking area were occupied by tree swallows that many visitors enjoyed watching. The unit is located along highway 200 which is a heavily traveled main route between Missoula and Great Falls.

8. Hunting

In the eastern portion of the WMD upland game hunting accounts for most of the WPA visits during the fall season. Gray partridge were more common on these units than in the fall of 1994 and sharp-tailed grouse numbers also increased.

Hunting for ring-necked pheasants was excellent in the Great Falls and Ulm area and north into Teton and Pondera Counties. The Arod Lakes WPA in Teton county provided some excellent pheasant hunting. The area received heavy use throughout the season with 32 vehicles present on opening day. Weather conditions were excellent and most hunters shot limits of birds. An article in the Great Falls paper the day before the season opened that described what an excellent area Arod Lakes was for pheasant hunting angered one of the WPA neighbors. His land lies more than a mile east of the unit adjacent to State land. He called and said that hunters were all over his ground and were causing numerous problems. He also indicated that his neighbors had made numerous calls to the local MTDFWP biologist and game warden to complain about the problems. We checked with the FWP folks and there had not been any complaints. This area has received heavy hunting pressure for years and the large acreage of CRP ground attracts many hunters from all over the U.S. and Canada. Our neighbor must be tired of all the hunters and decided that the government was an appropriate target for his displeasure.

A group of happy hunters on the Arod Lakes WPA in Teton County on the opening day of the 1995 pheasant season. Thirty two vehicles were present on the 800 acre unit and most hunters shot a limit of birds. This party shot a limit of pheasants, a few bonus sharptailed grouse and were done by 11:00 A.M.
RFJ 10/95

The Arod Lakes WPA is also a popular spot with fishermen. Northern Pike are the most common game fish present.
RFJ 01/95

Waterfowl hunting pressure on the Blackfoot was significantly reduced from previous years. Six vehicles were present on the unit and by noon there were no hunters left on the WPA. The weather was warm and sunny which may have influenced hunting pressure although the numbers of hunters in the Blackfoot Valley were very limited. There was one vehicle on the Aunt Molly WMA, which is a state-owned area along the Blackfoot river south of the WPA. Few other hunters were observed anywhere in the Ovando area.

Hunting pressure on the Kingsbury lake unit in Chouteau county was down in 1995. Significant numbers of mule deer did not move onto the unit during the big game season due to the lack of snow in the Highwood mountains.

Antelope numbers in the Kingsbury Lake area have been reduced by several years of very liberal regulations with an unlimited number of doe/fawn licenses available. One antelope hunter was seen in three trips to the unit and he commented on how few antelope were in the area.

Schrammeck Lake, Blackfoot and Furnell WPA's also offer good hunting for mule and white-tailed deer. Deer numbers appear to be down from previous years in the Sweetgrass Hills area of Toole county. Mature bucks were difficult to find and overall numbers were also down. Antelope numbers in the Furnell WPA area of Toole county have been significantly reduced by several years of a liberal policy of selling over the counter doe/fawn licenses. This policy has changed and over the counter doe/fawn licenses are no longer available. Hunting pressure is reduced and with less hunters in the area the quality of antelope hunting has certainly improved.

The Marcum mountain portion of the Blackfoot WPA is a popular site for late season elk hunting. Warm temperatures during the latter half of the big game season kept the elk up high and few animals were in the Marcum mountain area. Numerous whitetail and mule deer were present on the unit and provided hunting opportunity. This unit is included in the 11,000 acre Marcum mountain walk-in area administered by the Montana Dept. of Fish, Wildlife and Parks.

The Sands WPA is the only unit in the WMD that is closed to hunting. Gordon Sands, who donated the unit to the Service, stipulated in the deed that hunting and trapping be prohibited.

No biological data relative to harvests is collected in the WMD. Most units are located a significant distance from headquarters and we simply don't have time to visit them on a regular basis.

9. Fishing

The Blackfoot WPA provides the only cold water fishing opportunities in the WMD. Several species of trout are found in the Blackfoot river which winds through one corner of the WPA. The upper reaches of the Blackfoot River are not highly rated as a trout fishery. Problems with mine tailings entering the river have seriously degraded water quality and significantly reduced fish populations in the past. The river has started to recover and fish populations have increased in the middle reaches of the river near the WPA. Extremely heavy rains during the spring and early summer increased the sediment load in the river and caused severe erosion problems along many areas of the river. Approximately 15 rods of a barbed wire fence and a section of riverbank 100 feet by 50 feet were washed away by the high flows.

Warm water fishing opportunities for northern pike and yellow perch can be found on the Arod Lakes WPA. Ice fishing on this unit is a very popular pastime and northerns up to twenty ponds have been caught in the main lake. Fishing pressure was heavy once again with middle and round lakes being the most popular. Numerous northerns in the one to three pound range were caught which indicates that substantial natural reproduction is taking place in the lakes.

There is also some interest in early spring fishing at Arod. Several fisherman were checked that were wading the shoreline in late April and May. They were catching small northerns in the main lake and in middle and round lakes. Several individuals took advantage of the large carp that are present in the system and had fairly good success bowfishing.

Unfortunately, submergent plant growth in late May and June makes fishing almost impossible.

10. Trapping

Trapping of nine species of furbearers in the WMD including marten, otter, muskrat, fisher, mink, bobcat, lynx, wolverine and beaver are governed by state regulations. Trapping is restricted to Montana residents only. There are no restrictions on trapping predators such as coyotes, red fox, badger, weasels, and skunks.

Trapping interest in the WMD has been significantly reduced for the past several years due to low fur prices. Coyote numbers are up considerably throughout the WMD, but trapping interest has not increased in response to higher numbers. Muskrat numbers increased in response to improved water conditions in parts of the district, but rat prices are still depressed and we didn't see any muskrat trapping activity.

Trapping opportunity for fox and coyotes in the eastern half of the WMD is almost unlimited. The fur buyer for Pacific Hide and Steel in Great Falls trapped sixty foxes within three miles of the city limits of Great Falls. He also told us that landowners in the local areas welcome trappers on their property. Although prices are still low the recreational opportunity is still there for anyone that is interested. The benefits to groundnesting birds with the removal of foxes is also significant.

15. Off-Road Vehicling

Motorized vehicles are prohibited on WPA's, but unfortunately, some individuals never seem to get the message. Much of the off road use is associated with hunting from a vehicle or retrieval of big game. Enforcement is difficult, but additional fence construction and signing has reduced the problem.

We have a continuing problem with unauthorized vehicle access on the Furnell WPA. The Montana Power Company has several gas wells on the unit which they check on a fairly regular basis. Gate closers were installed on the gates to the gas wells to make gate closing an easier process, but MPC employees are still leaving the gates open which causes real problems with unauthorized access, especially during the big game seasons.

Someone decided that they wanted their own collection of signs. Highway signs, WPA signs, fishing access signs, watchable wildlife signs, and Forest Service informational signs were found hidden approximately 30 yards north of the Blackfoot WPA boundary on State land. Two months after the Powell County Sheriff's office was notified and showed no interest in investigating they were collected and returned to the proper agency.

RFJ 06/95

We're really not sure what kind of vehicle besides a boat would be used to go beyond this point since it's a boat ramp on the Missouri River.

RFJ 11/95

17. Law Enforcement

Law Enforcement in a district the size of Benton Lake is difficult, at best. Travel time to many of the units is a four hour round trip. As a result, law enforcement patrols are usually conducted in conjunction with other WPA work projects.

Johnson worked the Blackfoot WPA area on the opener of waterfowl season. One vehicle was present on the Aunt Molly WMA and three other vehicles were observed in the Ovando area. Pressure on the Blackfoot WPA was light and all hunters had left by noon. Ducks were plentiful, but Bluebird weather conditions made hunting difficult.

Assistance was provided to state wardens with a check station at Freezeout Lake WMA on October 1. Several individuals choose not to stop at the check station and were cited for failure to stop. No citations were written for wildlife violations.

Johnson worked the Sweetgrass Hills area on the opening day of antelope season. Hunting pressure was extremely light and few animals were harvested. No hunters were observed on the Furnell WPA. The elimination of over the counter doe/fawn licenses has been responsible for the reduction in hunting pressure and a corresponding increase in hunting quality. Montana state game wardens decided not to set up a check station due to the lack of hunters.

Johnson worked the Arod Lakes WPA area on the opening weekend of pheasant season. Hunting pressure was extremely heavy. Most hunters harvested a limit of birds with a few bonus sharptailed grouse and Hungarian partridge thrown in. At least one hunter was observed shooting a hen pheasant, but despite a lengthy search the bird was not found and no citation was written. Several hunters were observed shooting very young roosters with little or no adult coloration. When asked how they knew they were roosters the typical response was a blank stare. Many opening day pheasant hunters cannot tell the difference between a hen and a rooster on the wing and as a result they tend to shoot anything.

Johnson and Sullivan assisted Montana State wardens with a check station at the Freezeout Lake WMA on the afternoon and evening of October 14 which was the opening day of pheasant season. Relatively few hunters were checked and no citations were written.

Johnson and Sullivan assisted Montana State wardens with a check station at Marias pass on October 15th. The state wardens had been observing a party of hunters with a history of overbagging, tresspassing, hunting after hours, etc. and this check station was set up to try and apprehend these individuals. They went through the check station without stopping and were pursued and returned to the check station where several citations were written for overbags, no species I.D. and failure to stop at a check station. Several warnings were issued for transporting pheasants without proof of sex (one leg) left attached. Montana law states "No person shall transport within the state any pheasant unless one leg remains naturally attached to each bird at all times while being transported from the place where taken until they have arrived at the personal residence of the sportsperson or commercial locker, ranch or permanent camp." The term permanent camp is vague and open to interpretation and as a result the state wardens that we work with are hesitant to issue citations for failure to leave a leg attached while transporting from a camp to their home.

Johnson assisted state wardens with a check station at Kershaw, north of Great Falls on November 5th. Several citations were written including using a 1994 deer tag during the 1995 season.

Two other cases, shooting pheasants from a road and taking a buck antelope with a doe/fawn tag were turned over to the state.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

Routine fence maintenance was completed on the Jarina, Blackfoot and Furnell WPA's. Winter snow damage is a continuing problem and on the Jarina and Blackfoot units elk can also cause some significant fence damage. One-half mile of old boundary fence on the Klienschmidt lake WPA was removed. The boundary of this unit was surveyed and a WPA neighbor agreed to replace the fence on the surveyed boundary. We cleared the new fence line, removed the old fence and supplied the materials for a new fence which was constructed by the neighbor. Although the fence is in a new location, neither the Service or the neighbor lost any significant amount of land. We lost land in some spots and gained in others as did the neighbor. It appears that the staus quo was essentially maintained.

The remaining one-half mile of access road on the Arod Lakes WPA was rerouted away from the shoreline of the marsh. The entire access road was located along the marsh boundary which is some of the most heavily used habitat on the unit. The new road is straighter, safer and will allow undisturbed wildlife use along the edge of the marsh. Vince Marko graciously donated his time to operate the scraper and move the road.

3. Major Maintenance

One fencing contract was completed and one was started and placed in winter shutdown. The completed contract involved constructing 2.16 miles of fence on the Arod Lakes WPA, removing .38 miles of old fence and constructing .38 miles of new fence on the Savik WPA and removing 1.48 miles of old fence and constructing 1.48 miles of new fence on the Jarina WPA.

A second contract was issued for removing 2.6 miles of old fence and constructing 2.6 miles of new fence on the Kingsbury Lake WPA and removing 3.2 miles of old fence and constructing 3.2 miles of new fence on the Big Sag WPA. The engineering estimate for this contract was $17K and the contract was awarded for $5,509. The contractor began work on the Kingsbury Lake portion of the contract in mid-September and entered a winter shutdown period on December 8. He removed .5 miles of fence and constructed 100 rods in the three months that he worked on the fence. He now has 34 days remaining on the contract to complete the entire job. We questioned awarding the contract to this individual because the bid was so low it was unreasonable. Unfortunately, it appears that he will not be able to complete the fence. We no longer have 17K to issue another contract, and we have a neighbor at Kingsbury Lake who expects a new fence to replace an old fence that is in such bad shape it is no longer repairable. We're faced with a dilemma where we may end up having to construct the fence force account.

J. OTHER ITEMS

1. Cooperative Programs

In addition to WPA and easement responsibilities, considerable staff time is spent on cooperative partnerships in the district. In most cases, this involves working with local stakeholders to develop consensus on how to address resource threats and problems across large geographic areas or watersheds. Finding common ground between diverse interests is often the toughest part of resource management in Montana.

The Partners for Wildlife program has been an invaluable tool for addressing resource issues beyond our boundary signs. It continues to help build trust and support for the Service and its mission. The following is a brief description of work completed on several cooperative projects during the year. Additional information on specific habitat accomplishments is included in the Partners for Wildlife portion of this narrative (see Section E.7) .

a. The Blackfoot Challenge

Habitat restoration and protection work in the Blackfoot River Valley remained a high priority in 1995. This effort has grown into a flagship project and serves as a Region 6 model for the ecosystem approach to resource management. The success of this effort is built upon a relatively simple concept: local citizens, landowners, recreationists with vested interests working together with government agencies to solve common problems.

This project evolved from a 1991 meeting sponsored by a local chapter of Trout Unlimited that was concerned about resource problems facing the Blackfoot River. Subsequently, the Service teamed up with private landowners, local businesses, conservation organizations and other state and federal agency representatives on a cooperative resource management project in the watershed. Since then the coalition, known as the Blackfoot Challenge, has grown into a successful partnership where funding, labor and information are pooled to work on resource problems throughout the 1.5 million acre drainage.

Participants in the project include over 100 private landowners and representatives from 27 state, federal and non-governmental organizations. The mission of the group is to "coordinate efforts that will enhance, conserve and protect the natural resources and rural lifestyle of the Blackfoot River Valley for present and future generations."

Fish and wildlife habitat in the watershed has been degraded by a long history of poor mining and logging practices, overgrazing of riparian areas, sodbusting and infestations of noxious weeds. More recently, subdivision of the landscape into summer homes, golf courses and 20 acre "ranchettes" poses a more serious, long-term threat.

Despite this, the Blackfoot Valley remains relatively intact and provides habitat for numerous threatened, endangered or candidate species such as the grizzly bear, wolverine, Canadian lynx, fisher, black tern, harlequin duck, northern goshawk, Columbian sharp-tailed grouse, bald eagle, bull trout and westslope cutthroat trout. The only known populations of Howell's gumweed and the three-tip sagebrush/rough fescue plant association are limited to two remanent sites in the Valley. Glaciated wetland complexes and extensive riparian habitat are scattered throughout the 123-mile long watershed.

The Blackfoot Valley provides us with a unique opportunity to restore, enhance and protect trust species habitat. Service involvement in the Blackfoot Challenge has focused on Partners for Wildlife (PFW) and conservation easement activities. This approach enables us to integrate habitat restoration and protection efforts into a comprehensive strategy to address resource problems in the watershed. Finding "common ground" and building trust/credibility between the Service and private landowners has been instrumental to the project's success.

Typical PFW projects involve restoring wetlands, streams and riparian areas, developing grazing systems, reseeding native vegetation, releasing biological weed control agents and implementing other land management activities that improve stewardship practices on private land. Specific habitat restoration/enhancement projects are described in the Partners For Wildlife portion of this narrative (Section E.7).

The Blackfoot Challenge became a non-profit 501 (C)(3) organization in 1995. A new part-time Executive Director was hired in July and ARM Sullivan was elected to serve a two-year term on the Executive Board. The seven member board is comprised of representatives from three federal agencies (Fish and Wildlife Service, BLM and Forest Service), two state agencies (Montana Departments of State Land and Fish, Wildlife and Parks), private landowners (two ranchers), timber industry (Plum Creek Timber Company) and one non-governmental organization (American Conservation Real Estate Company).

The organization continues to serve as an information clearinghouse for land management activities in the drainage. Blackfoot Challenge meetings are held monthly and a newsletter is distributed to some 400 Valley residents on a quarterly basis. In addition, the group sponsors educational workshops and tours throughout the year to encourage local involvement and ownership in resolving resource problems in the watershed.

b. The Lonesome Lake Prairie Wetland Project

Initial efforts to get this project off the ground date back to 1991. Originally proposed as a Prairie Pothole Joint Venture (PPJV) project, the core area included a 16,000 acre tract of federal land that was jointly managed by the Bureau of Reclamation (BR) and Bureau of Land Management (BLM). The property was originally withdrawn from public domain in 1902 for an irrigation project that never materialized. It is centered around Lonesome Lake (1200 acre ephemeral wetland) and includes one of largest blocks of native prairie (14,000 acres) remaining in the eastern portion of the WMD.

In 1993 a Memorandum of Understanding was developed between the BLM, BR, Montana Department of Fish, Wildlife and Parks (MDFWP) and the Service to facilitate a cooperative habitat project at Lonesome Lake. An interagency team was established to develop management recommendations for the core area. The joint jurisdiction between BR and BLM over Lonesome Lake in the past has hampered effective management of the area.

Nonetheless, an interagency team was formed to develop recommendations for improving the farming and grazing programs on public lands at Lonesome Lake. Season-long livestock use is currently permitted on 81% of the core area. A rest rotation or twice-over grazing system was recommended to increase residual cover on the unit. Other plans called for phasing out farming on 2,100 acres of federal land and reseeding this acreage to permanent vegetation for additional nesting cover. Currently farming permittees are allowed to lease federal cropland for 5 years (at approximately 20% of fair market value)

and enroll those same acres into USDA subsidy programs.

Proposals to modify farming and grazing programs to benefit wildlife proved to be very controversial in the local agricultural community. The political heat got too hot for the BR who transferred all management responsibilities to the BLM at the beginning of the year. Hundreds of written comments were received but the BLM was reluctant to move forward without reaching some sort of consensus on the project.

A Coordinated Resource Management (CRM) effort was initiated by the local permittees in April. Representatives from the BLM, USFWS, Montana Department of Fish, Wildlife and Parks, Natural Resource Conservation Service, National Wildlife Federation, Russell Country Sportsman Group and Audubon Society met to see if there was any common ground regarding the future management of public lands at Lonesome Lake. Both sides agreed to work together on a compromise solution and continued to meet several times throughout the summer and fall.

A CRM alternative was developed for the EA that outlines a proposal to maximize residual cover on 33% of the uplands. This would involve eliminating season-long livestock use and resting significant portions of the project area. The permittees would be given a 10-year BLM grazing permit instead of the 1 year lease that BR had used in the past. Permittees would no longer be responsible for all range improvement costs and funding for cross-fencing and water development would be provided from several additional sources.

Phasing out the farming program proved to be more difficult. The CRM group agreed to give permittees another 10 years before taking any steps to eliminate it. Permittees would be required to use minimum till or no-till techniques to reduce soil erosion and minimize impacts to ground nesting birds.

At the end of the year, the BLM was revising the EA to include the CRM goals and objectives in the preferred alternative. A final decision document is expected in the spring of 1996. After being bogged down in controversy for some 4 years, we hope that the proposed changes are implemented without any further delay.

c. Rocky Mountain Front Initiative

No progress was made during 1995 on an initiative to develop a conservation strategy for the Rocky Mountain Front. During the past two years, the Service has been working with The Nature Conservancy and Montana Department of Fish, Wildlife and Parks on an effort to protect this unique area. The proposed project area covers 2.4 million acres and extends from the Canadian border south to Highway 200 west of Great Falls. The Front lies adjacent to Glacier National Park and the Bob Marshall Wilderness Area and includes a large block of nationally significant wildlife habitat. Residential subdivision, commercial development and conversion of native prairie to cropland pose a major threat to the area's unique resources and rural lifestyle.

Local landowners, conservation organizations, sportsman's groups and representatives of state, federal and tribal governments participated in a series of meetings in 1994 to identify opportunities to work cooperatively on resource threats in this area. A grassroots coalition formed into an organization known as the FRONTLANDERS. The group tentatively agreed to work together to prevent fragmentation of the area's important wildlife habitat and agricultural land base.

Initial response to the proposal was positive but unfortunately some local opponents believed that it was some sort of government plot or environmental scheme to prevent future growth and development in the area. Subsequently, a spin-off group called Montanans for Private Property Rights (MPPR) formed and began talking to local landowners about preserving the area's traditional values without the help of government agencies or outside influences. They fueled local consternation over endangered species recovery (grizzly bears and gray wolves) and property rights issues. This made it extremely difficult to move forward since much of the Front is a mix of private and public land.

Ultimately, MPPR managed to stifle the project and the FRONTLANDERS did not formally meet during 1995. We had hoped that the group would evolve into a successful organization similar to the Blackfoot Challenge. Although the outlook for this project is uncertain at best, we hope to resurrect it at some point in the future.

4. Credits

Sullivan wrote Section C, and J.1. Stutzman and Neudecker wrote E.7 and Johnson wrote the remainder. McCollum edited and Martin assembled this report.