

REVIEW AND APPROVALS

FELSENTHAL NATIONAL WILDLIFE REFUGE

Crossett, Arkansas

ANNUAL NARRATIVE REPORT

Calendar Year 1987

Robert J. Bridges 2/29/88  
Refuge Manager Date

John C. Norton 3-15-88  
Refuge Supervisor Review Date

Harold W. Benson 3/16/88  
Regional Office Approval Date

## INTRODUCTION

Felsenthal National Wildlife Refuge (NWR) was officially established on August 12, 1975, as an enhancement project of the U.S. Army Corps of Engineers' (COE) Ouachita and Black Rivers' Navigation Project. Effective November 18, 1985, fee simple title to 64,813.34 acres of land and water on Felsenthal NWR was officially transferred from the COE to the U.S. Fish and Wildlife Service (FWS).

Felsenthal NWR is located in Ashley, Union, and Bradley counties in southeast Arkansas, 53 miles west of the Mississippi River, three miles north of the Louisiana border and eight miles west of Crossett, Arkansas. The refuge office is located nearly five miles west of Crossett on U.S. Highway 82.

Felsenthal's 65,000 acres consist of three basic habitat types: bottomland hardwood (39,000 ac.), uplands (11,000 ac.), and permanent water (15,000 ac.). The refuge lies within what is known as the Felsenthal Basin, a remnant of an enormous lake that once extended below Monroe, Louisiana. This low lying area is dissected by an intricate system of rivers, creeks, sloughs, buttonbush swamp and lakes that meander throughout the bottomland hardwood forests. Drainage is generally in a southerly direction by the Ouachita and Saline Rivers whose confluence is the geographic center of the refuge. Periodic flooding of the bottoms during late fall, winter and spring historically has provided excellent wintering waterfowl habitat.

On November 16, 1985, the COE began raising the permanent navigation pool to the minimum 65.0' mean sea level (MSL). Concurrently, flooding of the world's largest greentree reservoir (GTR) began, thus providing 15,000 acres of permanent water with the capability to flood an additional 21,000 acres for wintering waterfowl and related species. This, in combination with the pine and upland forest habitat on the higher ridges, supports a diversity of wildlife including three known endangered species.

Of equal importance and quite possibly of greater management implication is the presence of some of the most significant and abundant cultural resources within the State of Arkansas with over 200 known sites on the refuge.

# FELSENTHAL NATIONAL WILDLIFE REFUGE

iii

UNITED STATES  
DEPARTMENT OF THE INTERIOR

ASHLEY, BRADLEY AND UNION COUNTIES, ARKANSAS

UNITED STATES  
FISH AND WILDLIFE SERVICE

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92°10'

R10W

92°05' R9W

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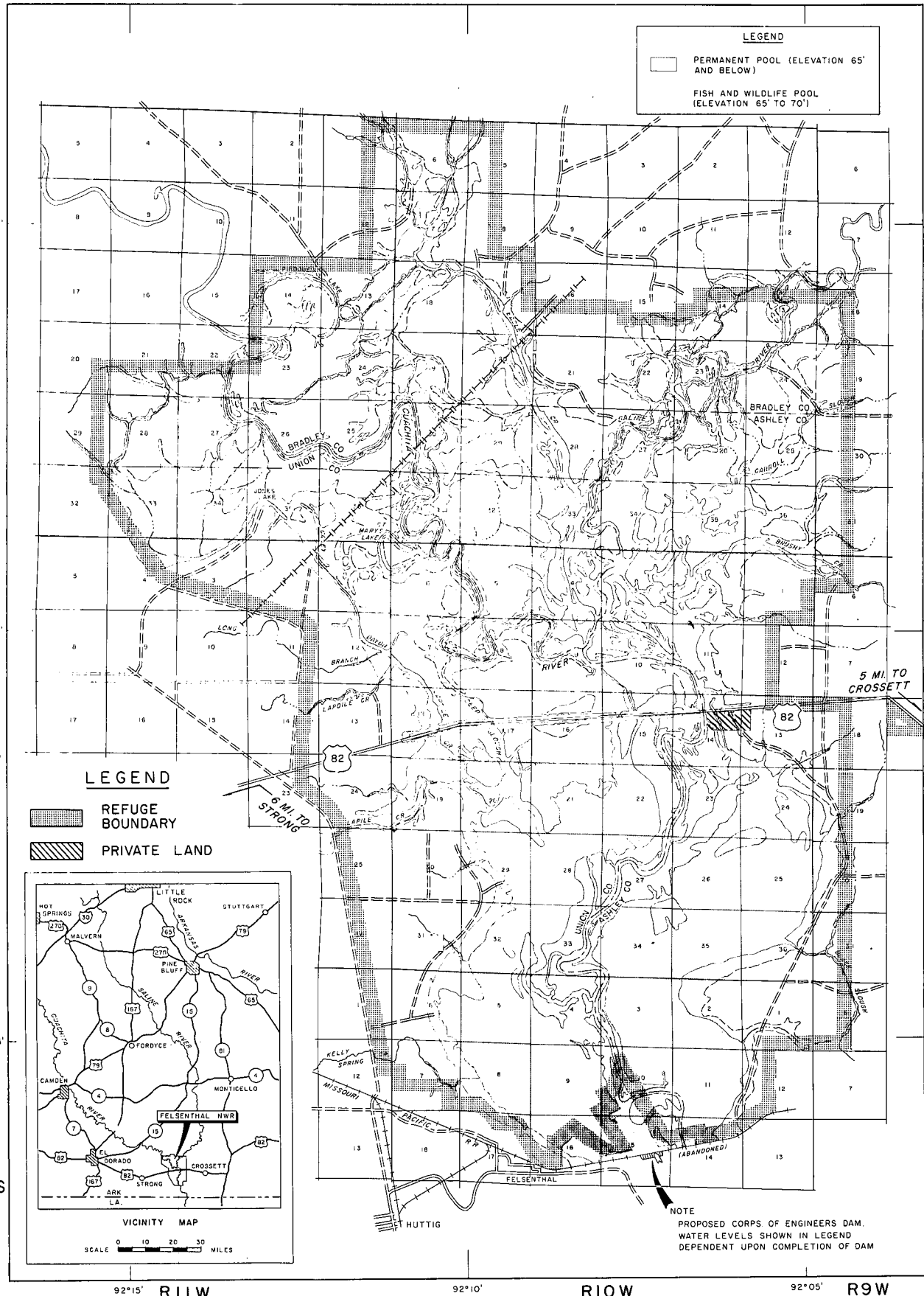
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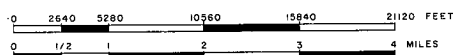
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COMPILED IN THE DIVISION OF REALTY FROM  
SURVEYS BY U.S. ARMY CORPS OF ENGINEERS  
AND AERIAL PHOTOGRAPHS

REVISED 1/84  
JULY, 1975

ATLANTA, GEORGIA



TRUE NORTH  
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## A. HIGHLIGHTS

Collection of baseline data for the Greentree Reservoir Monitoring Study completed (see Section D.5).

Drought conditions severely impacted fall acorn crop (see Section D.5).

Numerous personnel changes occur in 1987 (see Section E.1).

Felsenthal's volunteer program expands to include 16 volunteers in 1987 (see Section E.4).

Reproductive success for the red-cockaded woodpecker was excellent (see Section G.2).

Waterfowl populations peak at an estimated 60,000 birds (see Section G.3).

Hunter success and deer harvest increased dramatically on Felsenthal (see Section H.8).

Corps of Engineers completes on-refuge recreational access construction (see Section I.1).

Construction began on Felsenthal's new headquarters complex (see Section I.1).

## B. CLIMATIC CONDITIONS

The climate in south Arkansas generally consists of hot, humid summers and mild winters, with an average temperature and precipitation of 61°F and 57.4", respectively. For 1987 the annual average temperature was 62.7°F and precipitation for the year totalled 54.35".

The Ouachita River began the year at elevation 70' MSL as scheduled and was held at that level until 1/8 when the COE began dewatering the greentree reservoir (GTR). The reservoir was lowered at the rate of one inch per day until 2/17 when the COE lost control of the water due to heavy rains. The reservoir rose from an elevation of 65.9' MSL and peaked at 75.6' MSL on 3/13. By 4/16 normal summer pool level of 65' MSL had been reached. This level was held until 11/1 when, once again, the GTR was flooded at a rate of one inch per day. By 12/31 the

elevation of 70' MSL had been reached. The COE lost control of the managed pool on the afternoon of 12/30 as the river continued to rise above and below the Felsenthal Lock and Dam.



There's an old saying in these parts that "when the mayhaws (white-flowered shrubs above) bloom over the water, they fall over the water." That was not the case in 1987 with the spring backwater that peaked at 75.6' MSL on March 13 receding to normal summer pool level of 65.0' by April 16.

(3/11/87; RJB; #87-7-13)

The coldest month was January with an average temperature of 42°F. The warmest month was August with an average temperature of 81°F. Precipitation data was collected on a rain gauge installed at refuge headquarters in 1986. Temperature data was obtained from the U.S. Forest Service's Experimental Forest Station just south of Crossett. The following chart summarizes the climatological data compiled by refuge personnel since 1978.

## CLIMATOLOGICAL DATA FOR FELSENTHAL NWR

1978-87

<u>Year</u>	<u>Precipitation (inches)</u>	<u>Average Annual Temperature (°F)</u>	<u>Temperature Extremes</u>	
			<u>Low</u>	<u>High</u>
1978	52.18	56.0	11	101
1979	78.80	60.1	10	95
1980	47.27	61.0	13	106
1981	42.49	60.4	10	103
1982	70.26	62.4	0	98
1983	52.22	60.0	3	99
1984	75.52	59.7	9	96
1985	43.10	63.3	3	101
1986	57.50	64.2	17	102
1987	<u>54.35</u>	<u>62.7</u>	21	99
Average	57.37	61.0		

C. LAND ACQUISITION3. Other

During the year, the Arkansas Game and Fish Commission (AGFC) purchased approximately 7,000 acres of bottomland hardwoods lying between Felsenthal and Upper Ouachita NWR's. The land was purchased from the American Forestry Foundation, and we have heard rumors that the Commission will attempt to sell these lands to the FWS in the near future.

Refuge personnel prepared a summary of prospective sellers of inholdings and/or additions to Felsenthal NWR. This information was requested by the Regional Office Realty Division.

## D. PLANNING

### 1. Master Plan

Due to the "crunch" of other activities and the absence of a specialized staff person to complete the arduous task, little progress was made toward finalizing the draft Felsenthal Master Plan in 1987. A trip was made to the refuge in May by Ms. Pat Podriznik of the Regional Office to discuss and coordinate changes needed, including comprehensive revision of most graphics.

### 2. Management Plan

The Interim Oil and Gas Management Plan submitted to the Regional Office in April 1986 was finally approved on April 9, 1987, and returned to us.

An intensive public use review, conducted by a Regional Office team in May, resulted in a number of recommendations (including an extensive signing program) to enhance the growing public use program on Felsenthal. The draft document was reviewed by refuge staff and returned to the Regional Office for finalizing in October.

A revised edition of our Off-Road Vehicle Management Study (Plan) was completed and sent to the Regional Office in early December. Final approval of the document has not yet been received.

### 3. Public Participation

A questionnaire soliciting public input regarding various alternatives for utilizing of our growing wild turkey population was sent to newspapers statewide in March. Since only eight completed questionnaires were returned to the refuge office, no definitive public opinion could be drawn.

### 4. Compliance with Environmental & Cultural Resource Mandates

Preliminary estimates for cultural resource survey work needed in conjunction with planned force account road rehabilitation/construction were obtained from the Arkansas Archeological Survey (AAS). Also, the Regional Office was advised of the need for special funding to complete archeological clearances for a number of construction/maintenance projects on both Felsenthal and Overflow Refuges.



## 5. Research and Investigations

### Effects of Greentree Reservoir (GTR) Management on the Vegetation of Felsenthal National Wildlife Refuge

The purpose of the overall GTR Monitoring Study is to describe the impact of GTR management on the forest plant community in order to improve management over the long run. The general objectives of the study are to (1) define any changes and/or successional pattern differences; (2) describe the difference in tree vigor, growth, mortality and reproduction; and (3) provide quantitative plant community data needed to assess impacts of GTR management. A formal proposal for continuation of the GTR Monitoring Study was prepared this year by Ed Pendleton and Jim Allen of the FWS National Wetlands Research Center in Slidell, LA, and submitted to the FWS for review and approval. Refuge personnel, together with Ed Pendleton, Jim Allen, and Jim Teaford from the U.S. Army Corps of Engineers' Waterways Experiment Station in Vicksburg, MS, gathered the third consecutive year of data for the GTR Monitoring Study. Also during July, all study plots were permanently marked on each corner and in the center with 3-foot sections of 2" galvanized pipe. With the completion of the third year's data collection, a preliminary report will be prepared by the COE's Waterways Experiment Station and submitted for review by refuge and RO personnel in 1988. Also, Ed Pendleton, Jim Allen, and Jim Teaford have prepared two manuscripts to be submitted for publication dealing with the GTR Monitoring Study on Felsenthal.



Volunteer Clyde Mitchell cutting some of more than 500 sections of 2" diameter galvanized pipe used to more permanently mark over 80 of the GTR study plots.

(8/12/87; LDW; #87-27-8)

### Muzzleloader Crippling Loss Study

In October Biologist John Robinette presented a manuscript entitled "An Estimate of Unretrieved Deer Following a Muzzleloader Hunt" at the Southeastern Association of Fish and Wildlife Agencies in Mobile, AL. The study was conducted at Yazoo NWR following a 5-day muzzleloader hunt in December 1986. Co-authors include Mike Cartwright from the AGFC, Bently Wigley from the Department of Forest Resources, University of Arkansas at Monticello, and Project Leader Tim Wilkins from Yazoo NWR. They found the crippling loss to be approximately 23% of the total harvest.

### Hardwood Mast Study

During the month of September, John Robinette conducted an ocular mast survey on Felsenthal. This study is part of a statewide survey conducted by the AGFC. The mast crop for the fall of 1987 was comparable in numbers to that found in 1986 with some species showing an increase in number of acorns per twig, particularly Nuttall and overcup oaks. However, due to extreme drought conditions from September through mid-November, the quality of the acorn crop was extremely poor. Acorns examined by field personnel exhibited a heavy parasite load and, for most species, acorns produced were somewhat smaller than have been previously found. Overall, the mast crop for 1987 was fair, at best. This survey, now in its third year, has provided us with much needed information on potential winter carrying capacity for resident wildlife and overwintering food supply for waterfowl. In addition to this, we feel that it has enhanced our working relationship with the AGFC, providing them with some much needed data on the mast crop for south Arkansas.

### Black Bear Relocation Project

The Black Bear Relocation Project for Felsenthal has been put on hold. Unfortunately, appropriate funding by the AGFC and/or the FWS for this project is not available at this time. Also, there are individuals who believe the Louisiana Black Bear is a distinct subspecies and should be listed as endangered. Until there is final settlement on this issue, it would be unwise to stock bear on Felsenthal due to our relatively close proximity to these populations.



E. ADMINISTRATION1. Personnel

2 7 5 4 8 12 3 10 9 11 6 1

<u>Name</u>	<u>Title</u>	<u>Grade</u>	<u>EOD</u>	<u>Status</u>
(1) Robert J. Bridges	Refuge Manager	GS-12	11/20/81	PFT
(2) Larry D. West	Ref. Manager (Asst.)	GS-11	10/12/86	PFT
(3) Larry A. Threet	Forester	GS-11	05/24/87	PFT
(4) John R. Robinette	General Biologist	GS-9	09/09/83	PFT
(5) Larry L. King	Refuge Officer	GS-7	11/14/77	PFT
(6) E. Ann Laney	Secretary (Steno)	GS-5	03/26/78	PFT
(7) Mary A. Hollis	Clerk-Typist	GS-3	08/09/82	PPT
(8) William E. Parker	Maintenance Worker	WG-8	11/27/83	PFT
(9) E. Kyle Cheeseman	Automotive Worker	WG-8	03/30/86	PFT
(10) Robert M. Ellis	Biological Technician	GS-5	01/18/87	PFT
(11) Harold G. Smith	Maintenance Worker	WG-6	02/01/87	PFT
(12) Ruth R. McDonald	Forestry Technician	GS-5	02/15/87	PFT

Not Pictured

(13) Carl E. Miller	Engr. Equip. Operator	WG-8	02/21/80	PI (retired 1/17/87)
(14) David L. Smith	Forester	GS-11	02/05/84	PFT (transferred 5/24/87)
(15) Clyde D. Mitchell	Biological Aid	GS-4	07/13/87	TFT (terminated 9/18/87)



The year started off with the retirement of Engineering Equipment Operator Carl "Shorty" Miller effective 1/17. With Shorty's many years of experience, both with the Arkansas Forestry Commission and at Felsenthal, he made numerous contributions to the refuge forestry, equipment and facilities maintenance programs. On 2/6 the staff gathered for a combined farewell for Shorty and recently transferred Forestry Technician John Leon Tuggle (CY1986) with both honorees being presented well deserved achievement awards.



A combined farewell party was given in honor of the Tuggles (Leon and Betty, left) and the Millers ("Shorty" and Ouida). Both Leon and Shorty were presented well-deserved special achievement awards.

(2/6/87; RJB; #87-3-3)

The Biological Technician position, vacated with Larry King's conversion in 1986 to Refuge Law Enforcement Officer, was filled when Robert M. Ellis came on board 1/18. Robert has an extensive background with Louisiana State Police and Louisiana Wildlife Commission. He came on board at full speed, helping band over 200 ducks his first day at work.

Maintenance Worker Harold G. Smith entered on duty 2/1 filling retired Engineering Equipment Operator Shorty Miller's slot.



Following close behind, Forestry Technician Ruth R. McDonald came on board 2/15. This brought our station to its' approved staffing level for the first time in well over a year.

May once again found us gathering for a farewell. Forester Dave Smith transferred to Noxubee NWR effective 5/24. Dave did an outstanding job during his 3-year tenure at Felsenthal in managing timber for wildlife purposes, handling sensitive areas of minerals and cultural resources, Corps construction projects, and helping make our red-cockaded woodpecker colonies a management show place.



A family-oriented "blowout" was held at Lake Chicot in honor of the Smith's (Dave, Liz and Susan) after their 3-year tour of duty in south Arkansas. Dave's transfer to Noxubee NWR was officially effective 5/24.

(5/9/87; RJB; #87-12-5)

At the same time Larry A. Threet from the Delta National Forest, U.S. Forest Service, Rolling Fork, MS, arrived as our new refuge Forester. Larry brings considerable bottomland hardwood management experience to us along with a wealth of fire management expertise.

On 7/13 Mr. Clyde Mitchell began a 30-day temporary appointment. Clyde had previously been assisting us as a volunteer and is retired from the Arkansas Forestry Commission. Funds for his position were provided through the boundary survey allocation. A 30-day extension kept Clyde's services with us through the boundary survey posting and painting work

done with the YCC crew. On 10/13 the Regional Office Realty Survey Section brought Clyde on board under a one-year temporary appointment to assist their staff in completing our boundary surveying. We will have access to his services (at our expense) when they are not using him.

Just when we thought we had everyone settled in, we got word in December that General Biologist John Robinette had been selected for a Wildlife Biologist position at Georgia Coastal Complex. John will be leaving us in February. A vastly improved quality deer herd is one of the results of John's intensive effort to get our biological program "off the ground." John will be sorely missed by all but we wish him well at his new station.

Clerk Mary Hollis began a new tour-of-duty on 11/22. Mary will now work four days a week (Monday-Thursday) as opposed to three days a week. Mary's new work schedule will help in handling the continued escalation of public use inquiries and administrative demands.

The following chart summarizes the past five years staffing pattern for Felsenthal.

#### STAFFING PATTERN

##### Felsenthal NWR - 1983-1987

<u>Fiscal Year</u>	<u>Permanent</u>			<u>Temporary</u>			<u>Planned</u>	<u>FTE's</u>
	<u>FT</u>	<u>PT</u>	<u>I</u>	<u>FT</u>	<u>PT</u>	<u>I</u>	<u>FTE's</u>	<u>Used</u>
1987	11	1		1			11.8	
1986	10	1	1	1			11.6	9.7
1985	10	1	1	1			11.0	
1984	11	1	1	1			12.6	
1983	11	1	1				12.6	

Note that even with our vastly expanded refuge program, including completion of nearly five million dollars in capital improvements, public use that has quadrupled and nearly 10,000 acres at Overflow NWR, we have one staff person less now than five years ago.

#### 2. Youth Programs

Recruitment for our 1987 Youth Conservation Corps (YCC) program began 3/23. Information on the program was distributed to area high schools, Forest Echoes Vo-Tech School, and the Employment Security Division. On 4/20 a public drawing was held for four YCC enrollees (2 male, 2 female). Eight alternates were also drawn in case substitutions had to be made.



The eight-week YOC program began on 6/8 with a break during the July 4th week. Lack of funding kept us from hiring a crew foreman to supervise the youth this year. However, Volunteer Clyde Mitchell helped in supervising the enrollees three days a week. Staff members worked with the youth the other two days. It would have been difficult to manage our program without the assistance provided by Mr. Mitchell. His expertise in the field of forestry proved very beneficial to our YOC program. The YOC program ended on 8/7 with a luncheon for the youth. Several presentations were made at that time.



Without the capable supervision provided by Volunteer Clyde Mitchell, our YOC program would have been far less successful. From left to right are Latricia Bryant, Melissa Hollis, Clyde Mitchell, Stevie Robinson, and Chris Byrd.

(6/9/87; RJB; #87-19-8)



"All's well that ends well." The entire staff enjoyed a farewell luncheon for our YCC enrollees after a productive summer program.

(8/7/87; RJB; #87-26-11)

Our program this year was quite successful. Projects completed are as follows:

#### YCC PROJECTS FOR THE SUMMER OF 1987

##### Felsenthal and Overflow NWR's

<u>Project</u>	<u>Staff Hours</u>
Litter pickup	202
Tree marking and TSI for red-cockaded woodpecker colonies	262
Engineering Surveys	455
Erosion Control	40
Facility and Sign Maintenance	220
Training, Field Trips, & Safety	30



#### 4. Volunteer Program

Felsenthal feels very fortunate for the fact that a successful refuge volunteer program is beginning to take shape. In 1986 we had only one official volunteer. In 1987 we signed up 15 more volunteers.

Mr. Jack Lee, our first official volunteer, wrote 20 new releases for the refuge along with assisting in other areas. Mr. Lee assisted in our duck banding program, arranged an archeological program and field trip by Dr. Frank Schambach (AAS), assisted with the processing and analysis of our quota deer hunt permit applications, helped collect duck harvest data during waterfowl season, and assisted at one of our check stations during several of our deer hunts. Overall, Mr. Lee devoted 543 hours of meaningful volunteer work to the refuge.



Volunteer Jack Lee (standing), long-time friend and supporter of the refuge, discussing Overflow Refuge with Refuge Manager Larry West.

(2/10/87; RJB; #87-4-3)

We signed up four volunteers to help with our beaver control program on Felsenthal and Overflow Refuges. Mr. David Marshall was signed up in February, Mr. Larry Senn in March, Mr. Dan Cotton in April, and Mr. Waylon Glover in November. All were issued Special Use Permits to trap/snare beavers outside our regular furbearer trapping season.

Mr. Clyde Mitchell, retired Forest Ranger with the Arkansas Forestry Commission, was signed up as a volunteer in May to assist us with beaver



control and wildlife surveys. During June and July his time was spent supervising our YOC program.

During the October 30-31 muzzleloader deer hunt on Felsenthal, 11 forestry students from the University of Arkansas at Monticello (UAM) were signed up as volunteers to assist refuge staff in collecting biological data at deer check stations. The students were very interested in the work of the refuge and plan to assist us again as the need arises.



Forestry student volunteers from nearby UAM enthusiastically helped collect biological data at deer check stations this year.

(10/31/87; JRR; #87-31-10)

##### 5. Funding

Documented FY87 funding totalled \$477,600 with an additional \$1,100,000 obligated from our Special 8260 "Proceeds from Sales - Water Resource Development Projects" for our new headquarters Office/Visitor Center/Maintenance Complex. This total of \$1,577,600 looks great until all specially marked funding (as seen in the following chart) is removed leaving a scant base O&M operating budget of \$366,000. This is only about 85% of our FY86 funding. Special funding for radios, GTR spillway renovation and boundary survey and posting kept us afloat for this year at least.



## FY-87 FUNDING ALLOCATIONS

<u>DESCRIPTION</u>	<u>FUND TYPE</u>	<u>AMOUNT</u> <u>(thousands)</u>	<u>SUB-ACTIVITY</u>
*STATION: FELSENTAL NWR Initial Allocation (Includes \$50.4 for Small ARMM)	RF O&M	311.0	1260
Salary Savings	RF O&M	-14.0*	1260
PCS Obligations (Threet)	RF O&M	17.8*	1260
Truck, pickup (4x2)	EOY 87	14.0*	1260
Truck, pickup (4x4)	EOY 87	15.0*	1260
GTR - monitoring study	SPECIAL	17.0*	1260
Radios for LE safety	SPEC 2	4.0*	1260
Stabilize GTR spillway	SPEC 2	8.0*	1260
O&M increase	SPEC 2	5.0	1260
Fire equipment--Tiltbed for transport	FIRE EQP	15.0*	1260
Boundary survey and posting to prevent timber trespass	RPRP 87	33.0*	1260
Boundary survey and posting to prevent timber trespass (Savings on job)	RPRP 87	- 5.0*	1260
Purchase water quality testing kit	CONTAM	2.0*	1260
YCC (4 enrollees)	YCC	4.8*	1210
Initial Allocation	EXP/SALE	50.0	6860
(Headquarters & VC), (Contract amount-\$877,462 to Hampton & Crain Const. Co.)	PRO/SALE	1100.0*	8260
** SUBTOTAL **		1577.6	
* Specially Marked Funding		- 1211.6	
Base O&M		366.0	

Salary expenditures accounted for \$310,998 or almost 85% of our base funding. This was a slight drop from the 88% it took in FY86.

For the second year, no 8260 funds were available for station use. The balance of this account is earmarked for construction of our permanent headquarters Office/VCS and maintenance complex scheduled for completion May 1988.

The following chart depicts base funding of Felsenthal NWR since fiscal year 1983. No special appropriations are included in this chart.

<u>FUNDING</u> (in funding of dollars)					
<u>PROGRAM</u>	<u>1987</u>	<u>1986</u>	<u>1985</u>	<u>1984</u>	<u>1983</u>
Migratory Birds - 1220	-	-	-	-	209.3
Mammals & Non-Migratory Birds - 1220	-	-	-	-	43.0
Interpretation & Recreation - 1240	-	-	-	-	25.0
Wildlife Resources - Refuge O&M - 1260	316.0	331.5	363.5	326.0	-
Wildlife Resources - ARMM - 1260	-	60.0	15.5	45.0	-
Expenses for Sales - 6810 (6860)	50.0	50.0	50.0	26.0	19.0
<b>TOTAL REFUGE APPROPRIATIONS</b>	<b>366.0</b>	<b>441.5</b>	<b>429.0</b>	<b>397.0</b>	<b>296.0</b>

On 3/16 ARMM Project Proposals for Felsenthal and Overflow for FY88 and beyond were sent to RO. Hopefully, folks will recognize the vast resource management potential we have and fight for appropriate funding.

During the month of August, Larry West and Project Leader Bob Bridges prepared and sent to RO a list of major operational and development needs for Felsenthal and Overflow Refuges. The total amount was nearly four million dollars. This was a response to a congressional inquiry from the office of U.S. Congressman Beryl Anthony.

Biologist John Robinette and Robert Ellis developed project proposals and a budget request for the FY88 refuge biological program on 11/18.

## 6. Safety

No accidents or injuries involving refuge staff occurred on Felsenthal this year. A safety committee was formed with the following staff members serving for one year: Larry West, Bill Parker, Harold Smith, and Mary Hollis.

A safety meeting was held each month. Topics included: fire safety, hearing tests, vehicle safety, heat stroke, CPR, First Aid, defensive driving, ATV maintenance and operation, stress management, and proper use of fire extinguishers.



Automotive Worker Kyle Cheeseman conducted an ATV operation, maintenance and safety orientation for the staff using our two recently acquired 4-wheelers.

(9/28/87; RJB; #87-30-3)





A very practical (and enjoyable) first aid training session was held at the local Forest Echoes Vo-Tech School. Some of our folks really got wrapped up in the affair.

(3/19/87; RJB; #87-8-6)

In April all office and vehicle fire extinguishers were inspected, replaced and/or recharged if needed. In December Assistant Fire Chief Ray Haney of the Crossett Fire Department made a fire safety inspection of our rental headquarters and discussed fire drill procedures with staff members.

#### 7. Technical Assistance

The Felsenthal staff provided technical assistance to State and Federal agencies as well as private enterprises throughout the year. Assistance was provided in the form of information exchange, copies of literature, on-ground investigations, and review of documents. The subjects involved included: turkey populations, law enforcement, refuge mapping, moist soil management, and greentree reservoir management.



## 8. Other

The office of Contracting and General Services (CGS) requested and received an extension on the lease for our temporary headquarters at Felsenthal. This extension which has an expiration date of 11/88, should give us ample time to make the move into our new headquarters. The formal contract completion date for the Office/Visitor Center/Maintenance Complex is May 1988 and construction is running fairly close to schedule.

In preparation for our imminent move into the new headquarters facilities, Secretary Ann Laney and Clerk Mary Hollis began purging some 13 years of refuge files.



The ladies get to fulfill a burning desire.  
(3/14/87; RJB; #87-8-3)

In January, Mr. Louis Jacks from the Soil Conservation Service (SCS) in Hamburg, informed us that he would be interested in assisting with short and long-term development projects at Overflow Refuge. The SCS is specifically interested in assisting with engineering survey work and/or soil typing.

In December, a draft Memorandum of Understanding (MOU) between the COE and the FWS regarding administration of the Crossett Harbor Recreational Site was completed and informally agreed upon by both parties. Basically, the COE agreed to administer a lease (outgrant) of the soon-to-be completed 2.7 million dollar facility to a third party (Crossett

Harbor Port Authority). The complex will be located on approximately 200 acres of COE property surrounded by the refuge. The FWS agreed to manage the adjacent refuge lands in a manner that will complement the recreational site including such things as establishing a safety buffer zone in which hunting and firearms are prohibited, establishing and maintaining a permanent firebreak around the boundary, and providing support in the suppression of wildfires. Official approval of the MOU is expected early in 1988.

## F. HABITAT MANAGEMENT

### 1. General

The habitat on Felsenthal can be broken down into the following general types and acreages:

<u>HABITAT TYPES</u>	<u>ACRES</u>
Permanent Water	15,000
Forestland	49,383
Open fields, Prairies & Non-productive Areas	<u>617</u>
TOTAL	65,000

During the winter, up to 21,000 additional acres of bottomland hardwoods are flooded to provide wintering waterfowl habitat (see Section F.3).

### 2. Wetlands

Felsenthal NWR currently contains approximately 15,000 acres of permanent water at 65.0' MSL. This includes the Ouachita and Saline Rivers, oxbow lakes, creeks, sloughs, and cypress brakes. This elevation is maintained by the recently completed COE' lock and dam located at the south boundary of the refuge. The amount of available wetland habitat may fluctuate from year-to-year due to backwater resulting from winter and spring rainfall.

We initiated a moist-soil management program on Felsenthal by making good use of an old 73-acre soybean field located west of the old Bradley Tram and south of U.S. Highway 82. The area is commonly referred to as the "bean field." Automotive Worker Kyle Cheeseman and Maintenance

Worker Harold G. Smith used a heavy duty bushhog borrowed from D'Arbonne to mow the field which had partially grown up in button willow, persimmon, and overcup oak saplings. After bushhogging, the field was burned and disked to promote grasses, sedges, and other food plants. Maintenance Worker Bill Parker set about the task of surveying the field for elevations in order to place the interior dikes in the proper locations. Following that, a rice levee plow borrowed from Yazoo NWR Complex, a 'dozer and motor grader were used to construct the outside and interior levees. The levees were then planted with browntop millet. Time ran out before we could install small pipes with water control structures. When the water level in the Ouachita River was raised during the month of November the field was flooded. We plan to hold the water until early summer and drain the field by gravity feed well after the permanent pool reaches its' normal 65' MSL level.





(7/21/87; LDW; #87-23-14)

A host of equipment (borrowed and owned) was used in our pioneer moist soil management effort this summer. Being completely surrounded by water, just getting to the 70+ acre "bean field" was no small task (above). The rank growth of grasses, vines, shrubs, and saplings was mowed, burned and disked (below) before levee work was begun.



(7/21/87; RJB; #87-23-19)





(8/5/87; RJB; #87-26-5)

Low level dikes were constructed using a combination of rice levee plow, motor grader and 'dozer (above). Even though we did not get to complete the project, initial results, including early season duck use following flooding, were most encouraging (below). Our maintenance staff did an extraordinary job!



(11/19/87; JRR; #87-35-2)

### 3. Forests

#### a. Forestlands

Felsenthal NWR has 49,383 acres of forestland under active management. This long-term program is designed to provide a diversity of habitat conditions to meet the needs of a full spectrum of indigenous wildlife species with the main emphasis on endangered species and waterfowl.

Refuge forestlands are classified in four major types. These types and their acreages are:

Pine	9,490
Pine-Hardwood	705
Bottomland Hardwood	39,000
Upland Hardwood	<u>188</u>
TOTAL	49,383

Based on our approved Timber-Wildlife Management Plan (1979), we use biologically-sound silvicultural practices to provide a diversity of forest habitats. Through commercial forest thinnings and improvement cuts, the forest environment is manipulated in such a manner as to provide habitat for the endangered red-cockaded woodpecker, resident and wintering waterfowl, other migratory birds, and numerous species of resident wildlife.

Currently, we are in the process of redefining management unit (compartments) boundaries to reduce the individual units from 2,000-3,000 acres to between 1,000-1,300 acres. This change will increase the diversity of all timber age classes, thus providing a more diverse and sustained habitat.

Approximately 500 acres of refuge forestlands received some type of silvicultural treatment in 1987. Timber was harvested through four commercial timber sales with one of the sales made in 1987 (see following two tables). The others were carry-over sales from previous years. The timber was removed to improve wildlife habitat and aid forest protection by salvaging pine trees infested with southern pine beetles. Improvement cuts and forest thinnings were applied on the above acreage. These cuts consisted primarily

of removing trees that were undesirable as future growing stock, leaving healthier, more vigorous stands. Wildlife habitat conditions were greatly improved by obtaining better species composition and by creating more open conditions in the forest canopy, thereby promoting the growth of wildlife food plants and cover on the forest floor.



## TIMBER HARVEST REPORT

Felsenthal NWR - 1987

<u>Permittee</u>	<u>Special Use Permit No.</u>	<u>Acres</u>	<u>Pine</u>		<u>Hardwood</u>		<u>Value</u>
			<u>Pulpwood (cords)</u>	<u>Sawtimber (bd.ft.)</u>	<u>Pulpwood (cords)</u>	<u>Sawtimber (bd.ft.)</u>	
Smith & Roberts, Inc.	F-28-86	200	-	-	1,542	-	\$ 6,321
Meshell Timber Co., Inc.	F-2-86	100	1,229	-	360	-	\$14,057 (sold 10/11/85)
Marion Wood Co., Inc.	F-7-85	160	275	-	128	-	\$ 3,390 (sold 5/24/85)
Ashley Wood Co.	F-9-87	120	562	-	-	-	\$ 4,499 (sold 4/27/87)
		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
		580	2,066	0	2,030	0	\$28,267

## TIMBER SALES

Felsenthal NWR - 1987

<u>Permittee</u>	<u>Date</u>	<u>Special Use Permit No.</u>	<u>Acres</u>	<u>Pine</u>		<u>Hardwood</u>		<u>Value</u>
				<u>Pulpwood (cords)</u>	<u>Sawtimber (bd.ft.)</u>	<u>Pulpwood (cords)</u>	<u>Sawtimber (bd.ft.)</u>	
Ashley Wood Co.	4-20-87	F-9-87	120	500	-	-	-	Consumer Tally Sale @\$8.00/ cord

Special attention is given to red-cockaded woodpecker (RCW) colony areas by maintaining open park-like conditions where necessary. Additionally, trees with potential nesting cavities and den trees for other wildlife are retained. Ruth R. McDonald, our new Forestry Technician, completed a survey of the roughly 10,000 acres of available red-cockaded woodpecker habitat and found 55 additional RCW trees, bringing the grand total to 230 (see Section G.2). Also, under Ruth's direction, the YOC enrollees repainted 90% of the RCW trees with stencilled black numbers over white bands. It's very distinctive and professional looking.

The plague of the southern pine beetle ended this year (thank goodness!). The tiny pest had an insignificant impact this year killing only a handful of trees. In addition to these, we had a few trees killed by black turpentine beetles, and interesting enough, we had two small spots (20 trees) that were killed by the Ips beetle. We had a logger remove the infested trees to prevent further spread of the beetles. The two spots just happened to be in the unofficial natural area on Locust Ridge.

Detection and control of the beetles is a cooperative effort of the refuge staff, Arkansas Forestry Commission, and the U.S. Forest Service. With our high-density population of the endangered red-cockaded woodpecker, the potential loss of habitat is a major refuge concern.

Free firewood permits (for personal use only) were issued to 20 individuals during the summer and fall of 1987. Firewood cutting was restricted to specifically marked or downed trees along the Pine Island road. Timber stand improvement work was needed and commercial sales were not feasible.

#### b. Greentree Reservoir

Except during extreme high water conditions, the Felsenthal Lock and Dam has the capability to seasonally regulate refuge water levels between 65.0' and 70.0' MSL. This five-foot difference in elevation will flood an additional 21,000 acres of bottomland hardwoods. In essence, from late fall through early spring, the refuge will contain up to 36,000 acres of wetland habitat for wintering waterfowl. Much of this is shallowly-flooded bottomland forest.

The GTR flooding regime for the 1987-88 season is scheduled, for the first time, to follow the originally selected plan for watering and dewatering the Felsenthal GTR. The previous two years, the schedule was altered until Jim Teaford of the COE's Waterways Experiment Station in Vicksburg, MS, could finish taking pre-GTR flooding baseline data. Having completed the third and

final year of baseline data collection, the GTR will be flooded according to the original schedule.

Flooding began this year on 11/1 and continued at the rate of one inch per day until 12/30 when the COE lost control of the water due to flooding after nearly five inches of rain fell on 12/28. The Ouachita River crested on 1/8/88, at 81.2' MSL. The normal schedule of raising the water level to 70' MSL by 1/1 and holding it at that level for one week before descent, of course, was interrupted. The COE will return to the regular schedule as the waters in the Ouachita recede. If Mother Nature allows, the water level will be lowered to 67' MSL by 3/1 and held at the 67' MSL until 4/20 to provide optimum sport fish spawning conditions. Then, gradual lowering of the water will continue until the permanent pool level of 65' MSL is reached on 5/15.

In anticipation of the long term (30+ years) monitoring of the greentree study plots, Ruth McDonald and Biological Aide Clyde Mitchell had the monumental task of physically marking the four corners and the center of the plots with galvanized pipes. They drove over 500 two-inch diameter pipes leaving one foot of each pipe above ground level to help locate the plots and measure deposition or erosion.

##### 5. Grasslands

There are currently about 170 acres of cleared land that were farmed prior to establishment of the refuge. This acreage is maintained in an early successional stage through a combination of prescribed burning, mowing, and disking. In 1987, 15 acres were disked and seeded, 60 acres were mowed, 22 acres were burned, and the remainder left as cover and nesting habitat.





(4/21/87; RJB; #87-11-8)

Establishment and maintenance of strategically-located wildlife openings add to overall habitat diversity. A combination of burning, mowing and disking (above) results in productive and aesthetically-pleasing habitat (below).



(10/22/87; RJB; #87-31-6)



## 9. Fire Management

Felsenthal NWR had three wildfires (totalling but 21 acres) in 1987 resulting in very light damage. The problem was extremely dry weather during late summer through fall. Arson was suspected in at least one case.

Prescribed fire is a primary habitat management tool on the 9,490 acres of pine forest type on Felsenthal NWR. The objectives of our prescribed burning program are (1) wildlife habitat improvement for red-cockaded woodpeckers and other species, (2) fuel reduction, (3) site preparation and, (4) understory management. Less than optimum burning conditions resulted in 2,329 acres being prescribed burned in 1987. Our annual burning goal is about 2,350 acres.



Prescribed burning continues to be a primary habitat management tool, especially in our uplands. Even with less than optimum conditions, we nearly reached our goal of burning 2,350 acres during 1987.

(2/14/87; RJB; #87-4-8)

Harold Smith and Kyle Cheeseman did a fine job getting us started on one aspect of fire management by pushing 7-1/2 miles of permanent firebreaks. These breaks were situated in our 10,000 acres of uplands along our boundaries and in some cases between major prescribed burning

compartments. Most of these permanent firebreaks are from 10-14 feet wide and can be planted with grasses to provide more diverse wildlife habitat. Included in the 7-1/2 miles was the 30' wide permanent firebreak that was pushed around most of the boundary of the Crossett Harbor Recreational Site. The purpose of the wide break is to preclude any fire from crossing into the recreation site from FWS property and vice versa.

We were not able to purchase a tilt bed for our heavy equipment truck this year so we used the allocated fire money to buy a much needed piece of equipment, called a reclaim plow, from FESCO in Starkville, MS. Along with the plow we purchased a V-Blade for a total cost of \$14,635. The V-Blade and reclaim plow, with hydraulic lift hitch, was custom made to fit either of our John Deere 450 crawler tractors and our Seico fire plow. With this equipment we can reclaim the many miles of old firelines that crisscross Felsenthal. It can also be used to plow firelines, to build small levees for water management, for heavy duty disking, and to maintain many miles of all-terrain vehicle trails.





(11/3/87; LAT; #87-33-2)

We believe this custom-built reclaim plow and V-blade (above) purchased with special fire funding will vastly enhance our fire (and habitat) management program. Preliminary results (below) appear most promising.



(11/3/87; LAT; #87-33-5)

## 12. Wilderness and Special Areas

Felsenthal NWR encompasses at least two areas of local ecological significance that are being managed as special areas. These areas have not been formally proposed for any special designation but are addressed in our Timber-Wildlife Management Plan.

One area is a 160-acre tract of timber in Union County with a representative sample of all known timber types occurring on the refuge. This area has not been logged since the 1950's and is currently managed as a natural area. In 1986, southern pine beetles killed five acres of a 28-year old stand within the unofficial natural area. In 1987 a 14' wide firebreak was pushed around the perimeter.

The second area is a 60-acre alkaline prairie community in Ashley County. Because the soil on this tract is extremely alkaline, very few trees or shrubs are present. Though not unique in Arkansas, it is uncommon and is the only example of this type habitat on the refuge.

## G. WILDLIFE

### 1. Wildlife Diversity

With the completion of the Felsenthal Lock and Dam, a 15,000-acre reservoir or navigation pool was created in 1985. Together with this, Felsenthal has the world's largest greentree reservoir with the capability to flood an additional 21,000 acres of timber. This, when coupled with a good mast crop, provides excellent habitat for wintering waterfowl, resident and related wildlife. Most open areas within the pine upland hardwood types support an almost homogeneous stand of broomsedge if left undisturbed. In an effort to provide suitable habitat for a diversity of species, we continue to manipulate these areas through burning, disking, mowing, and limited planting. This has proven to be a very effective management approach, enhancing growth of a wide variety of plant species in these areas. Also, with the blessing and encouragement of the AGFC, our District Biologist and openings management guidelines from the Regional Office, we have begun to establish small permanent openings in our upland pine/hardwood areas.

In conjunction with our beaver control program, the growth of many moist soil plant species is enhanced by dewatering of beaver ponds and sloughs during last spring and early summer. Also, we have established several moist soil management units in an abandoned agricultural field in the southeast section of the refuge. Many of these areas examined during

August and September revealed healthy stands of wild millet, smartweed, sedges, and other varieties of desirable waterfowl food plants.

By far, our most valuable habitat management tool is our active forest management program. This has greatly enhanced habitat for the red-cockaded woodpecker, together with positive benefits for a host of other resident and migratory species as well. The hardwood mast study has shown that acorn production is stimulated in areas where we have thinned overstocked hardwood stands. Thinning in our upland pine stands, coupled with an active prescribed burning program, has provided an abundance of seed, cover and browse for a diversity of wildlife species.

## 2. Endangered and/or Threatened Species

Three species listed as endangered in Arkansas by the Department of Interior occur on Felsenthal. Resident species include the American alligator and the red-cockaded woodpecker. One transient species, the bald eagle, is not infrequently seen during winter.

### a. American Alligator

Felsenthal lies near the northern fringes of the historical range of the American alligator. For the most part, our alligator population is the result of State and Federal stocking efforts from 1971-79. A total of 261 alligators was reported released during the nine-year period. Natural attrition, egress, drownings in gill and trammel nets, and other visitor-caused mortality have reduced the population to an estimated 100 individuals or less. One thing that may have a positive impact on the alligator population on Felsenthal has been the increase in the normal summer pool from 5,000 to 15,000 acres. The additional 10,000 acres is fairly shallow and thick with vegetation. This should not only provide excellent additional habitat but also some isolation from human contact.

The cooperative alligator survey, conducted through the Alligator Subcommittee of the Southeast Section of The Wildlife Society, was conducted on Felsenthal for the eighth consecutive year. The survey was conducted on 7/23-24 and covered the 11 river miles of the Saline River within the refuge boundary and two miles of the Caney Bayou drainage which encompasses Jones and Blue Lakes. One alligator was sighted during the 13-mile survey. The animal was approximately 2-1/2 feet long, and located at the confluence of the Saline and Ouachita Rivers. The small size of the alligator indicates that there has been some successful reproduction on the refuge. The following table summarizes the results for the past eight years. A dash (-) indicates that the area was not surveyed.



## ANNUAL ALLIGATOR SURVEY RESULTS

Felsenthal NWR - 1980-1987

<u>Location</u>	Number of Alligators Observed by Year							
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
Ouachita River	1	0	4	2	-	0	-	-
Saline River	0	0	2	2	0	0	0	1
Eagle Creek	0	0	0	0	-	-	-	-
Buck Lake	0	-	0	0	-	-	-	-
Straight Lake	0	-	0	0	-	-	-	-
Gar Lake	1	-	0	0	-	-	-	-
Jones Lake	0	5	5	3	2	1	0	0
Blue Lake	4	0	4	1	1	0	0	0
Wildcat Lake (and flatwaters)	2	4	4	1	-	0	-	-
Deep Slough	0	0	3	0	-	-	-	-
Pete Wilson Slough	1	0	0	0	-	0	-	-
Filihaw	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>-</u>	<u>0</u>	<u>-</u>	<u>-</u>
Totals	9	10	22	9	3	1	0	1

b. Bald Eagle

The annual aerial bald eagle survey (combined with our mid-winter waterfowl survey) was conducted on 1/5. The survey route included lands from the western boundary of Felsenthal east to and including Overflow NWR. No eagles were seen during this survey. A summary of eagle sightings for 1987 is as follows:

BALD EAGLE SIGHTINGS

Felsenthal NWR - 1987

<u>Date</u>	<u>Location</u>	<u>Immature</u>	<u>Mature</u>
11/20	Open Brake		1
11/21	Bean Field		1
11/24	Pete Wilson	2	1
12/21	Mud Lake	—	<u>1</u>
	Totals	2	4

According to reports by refuge personnel, at least three of the six eagles sighted were different birds. Compared to 1986, the total number of eagle sightings on the refuge was the same, six each year.

c. Red-cockaded Woodpecker

Felsenthal harbors one of the highest known concentrations of the red-cockaded woodpecker in the State of Arkansas. Refuge personnel annually conduct a red-cockaded woodpecker cavity tree survey to monitor the status of this species. Survey results for the past eight years are summarized in the following table.

## ANNUAL RED-COCKADED WOODPECKER CAVITY TREE SURVEY RESULTS

Felsenthal NWR - 1980-87

	Numbers by Year							
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
Colonies	25	30	32	32	32	32	34	25
Active Cavity Trees	59	70	68	71	74	76	85	118
Inactive Cavity Trees	31	44	35	36	57	57	58	35
New Start Colony Trees	12	15	20	17	6	4	3	13
Abandoned Cavity Trees	15	15	33	47	27	27	28	58
Dead Cavity Trees	0	3	4	5	7	0	1	12
Total Cavity Trees (excluding dead trees)	117	144	156	171	164	164	174	224

The 1987 data represents the most extensive cavity tree survey conducted on Felsenthal. Also during the survey, all trees were repainted, numbered, and locations plotted on forest compartment maps.





Forestry Technician Ruth McDonald recording data on newly found red-cockaded woodpecker nest tree.  
(7/29/87; JRR; #87-24-11)

In conjunction with the cavity tree survey, the first reproduction data on red-cockaded woodpeckers for Felsenthal was obtained. Complete reproduction data was collected on 10 of the 25 known colonies (40% of the colonies surveyed). In each of the 10 colonies, 2 adult birds were involved in the nesting effort. There was no evidence of additional helpers in any of the colonies, indicating that the red-cockaded woodpecker on Felsenthal may not be a clan species. The average number of birds fledged per clan was 2.9. All but one of the colonies produced three birds to flight stage. Data was obtained for four additional colonies; however, we were unable to locate and get a complete count on the young birds after they had fledged. From this reproduction data, we estimate that the total post-nesting population on Felsenthal was approximately 123 birds.

In August, FWS Endangered Species Biologist Gary Henry from Ashville, NC, contacted our office and requested that we send an estimate of funding needs for red-cockaded research and habitat improvements. Biologist John Robinette requested a total of \$30,000 in additional funding for habitat improvement and research needs. Unfortunately, we received word that we will not get any additional funding for FY88.

In September, John Robinette and Forestry Technician Ruth McDonald met with Endangered Species biologists from the AGFC, members of the Arkansas Natural Heritage Commission, representatives from the U.S. Forest Service, and members of the Arkansas Audubon Society to discuss the status of the red-cockaded woodpecker in Arkansas. John presented a brief summary of the cavity tree survey and bird census work conducted on Felsenthal. Several members of the Audubon Society volunteered to assist in cavity tree and bird census work in the spring of 1988.

### 3. Waterfowl

The year began with relatively low waterfowl populations on Felsenthal. The refuge was holding an estimated 21,000 birds during the first part of January. However, by the end of the month, cold weather had pushed many ducks into our area and populations peaked for the year at an estimated 60,000 birds. In February, populations remained high at an estimated 60,000 birds, dropped by mid-month to about 5,300 birds and increased again to an estimated 10,000 by the end of the month. By the end of March, populations had dropped to 5,000 birds and remained fairly steady until mid-April. By late April, the migratory populations had left with a resident wood duck population of approximately 1,100 birds remaining. Due to extreme drought conditions during the fall of 1987, Felsenthal was one of few areas in the State with any water at all. By mid-October, waterfowl populations had begun to increase to an estimated 17,000 birds (including 10,000 wood ducks and 5,000 mallards). By December, waterfowl populations had increased steadily to approximately 48,000 birds by the end of the year. Peak mallard populations occurred in late January at an estimated 45,000 birds and peak wood duck populations occurred in December at about 19,000. Diving duck populations peaked in early March at approximately 800 birds (400 scaup and 400 ringneck). This was down from the 1986 peak of 6,100 scaup and ringneck. Also, total peak waterfowl populations for 1987 were down from the 1986 peak of 70,000 birds. From mid-November through the month of December, we received over 16-1/2" of rain. Thus, available habitat for waterfowl in south Arkansas was plentiful and birds were scattered. We feel this, coupled with fairly warm weather and the poor mast crop, was responsible for the lower peak populations in 1987. A summary of peak waterfowl populations for the past nine years is shown in the following table.

## ESTIMATED PEAK WATERFOWL POPULATIONS

Felsenthal NWR - 1979-1987

<u>Year</u>	<u>Mallards</u>	<u>Wood Ducks</u>	<u>Total Population</u>	<u>Average Population (Oct.-Dec.)</u>
1979	7,500 (Dec.)	10,000 (Nov.)	16,950 (Dec.)	3,857
1980	4,500 (Nov.)	10,000 (Nov.)	14,815 (Nov.)	6,663
1981	2,500 (Jan.)	10,000 (Jan.)	12,500 (Jan.)	3,098
1982	1,500 (Jan.- Dec.)	8,000 (Jan.)	10,000 (Jan.)	3,192
1983	4,500 (Dec.)	4,500 (Dec.)	13,420 (Dec.)	10,673
1984	4,000 (Dec.)	5,000 (Dec.)	11,315 (Dec.)	7,663
1985	41,500 (Dec.)	8,300 (Dec.)	55,000 (Dec.)	13,500
1986	53,000 (Dec.)	17,000 (Dec.)	70,000 (Dec.)	17,500
1987	45,000 (Jan.)	19,000 (Dec.)	60,000 (Jan.)	15,000

The annual mid-winter waterfowl and all goose surveys were conducted in January and December, respectively. These flights, in conjunction with boat route surveys and roost counts, provide a fairly good index to the waterfowl populations on Felsenthal. Counting ducks in flooded timber is difficult, at best, using any method. Counts on Felsenthal are designed to be conservative and estimates of total populations should be considered as an indices and not a true census.

Estimates of wood duck production indicate approximately 1,400 young fledged from an estimated breeding population of 1,100 birds. This fall, students from the shop class at Rogers Junior High School in El Dorado constructed 47 wood duck boxes for us. They will be placed in key areas in the near future.

#### 4. Marsh and Water Birds

The following species have been identified on Felsenthal by refuge personnel and are listed more or less in order of abundance: great blue heron, little blue heron, black and yellow-crowned night herons, double-crested cormorant, common egret, American bittern, and anhinga. Also,



species that are rare for our area but were seen by refuge personnel this year include white pelicans, woodstorks, and sora rails.

#### 5. Shorebirds, Gulls, Terns & Allied Species

Through casual observation, refuge staff identified the following species listed in approximate order of abundance: American woodcock, killdeer, common snipe and least, spotted and semipalmated sandpipers.

#### 6. Raptors

Species in this category that have been identified on the refuge include: turkey vulture, black vulture, barred owl, screech owl, great-horned owl, American kestrel, red-tailed hawk, red-shouldered hawk, broad-winged hawk, marsh hawk, and sharp-shinned hawk. These species have been identified by refuge personnel through casual observation. Also, there were a few sightings of ospreys on the refuge this year.

#### 7. Other Migratory Birds

Once again this year, we participated in the Audubon Society's Christmas bird count. Members of Audubon's Arkansas Chapter, together with refuge personnel, counted 1,615 birds representing 65 species.

Large flocks of grackles and starlings traditionally pass through our area in late fall, winter and early spring. These species concentrate in the bottomland hardwood areas utilizing the mast crops from willow and water oaks in particular.

#### 8. Game Mammals

The primary species in this category include: white-tailed deer, gray and fox squirrels, eastern cottontail and swamp rabbits, and a host of furbearers.

##### a. White-tailed Deer

The white-tailed deer is probably the most popular game mammal found on the refuge. Felsenthal has approximately 50,000 acres of fairly good deer habitat. Soil tests conducted in 1985 show an average pH of 4.5. Other soil condition parameters measured were found to be deficient (calcium, phosphorous, etc.). Despite these relatively poor soil conditions, habitat quality remains very good through an intensive habitat and herd management program.

During the fall hunts in 1986, a record 694 deer was checked. Also, the mast crop was fairly good that year; however, it could not be compared to the bumper mast crop during the fall of 1985. Also, a spring flood from mid-February through mid-April this year may have impacted the quality of our deer herd. We were uncertain what impact these conditions would have on the quality of our deer herd. This year, during one muzzleloader and two modern gun

hunts on the refuge (six days of hunting), for the second year in a row, a record number of deer was taken (902 deer checked). This was an increase of 23% from last year's record harvest. The reason for the increased harvest was a dramatic increase in hunter success. In 1986 and 1987, 2,400 permits were issued each year for the quota deer hunts. The number of hunters participating decreased from an estimated 1,215 in 1986 to 1,130 in 1987. However, hunter success was up from 57% in 1986 to almost 80% in 1987. The poor quality of the 1987 mast crop, coupled with excellent weather conditions for hunting, probably had the greatest effect on hunter harvest this year.

The age structure of the deer herd has remained fairly stable. Herd sex ratio remains at approximately 1:1. Percent spikes for 1-1/2 year old bucks increased from 37% to 45% from 1986 to 1987. Percent lactation for adult does remained fairly steady at approximately 81%. However, the ratio of adult does to fawns dropped from an estimated 1.9 fawns per doe in 1986 to 1.5 fawns per doe in 1987. Also, average weight by age class dropped slightly in 1987 as compared to 1986. These results indicate that quality and quantity of the fall mast crop, coupled with spring flooding conditions, have a significant impact on the quality of Felsenthal's deer herd. However, overall the deer herd still appears to be in excellent shape. We believe we have yet to reach the optimum harvest level, however. Therefore, during the 1988 deer hunting seasons, we will attempt to increase the harvest to 1,000 checked deer. Biological data on Felsenthal's deer herd is summarized in the following tables.

AVERAGE WEIGHT BY AGE AND SEX FOR WHITE-TAILED DEER  
(mean hog-dressed weight in lbs.)

Felsenthal NWR - 1982-1987

Age Class (years)

Year	0.5		1.5		2.5		2.5+	
	M	F	M	F	M	F	M	F
1982	38.9	34.8	73.7	62.5	108.1	75.3	116.5	64.0
1983	39.2	31.4	74.8	62.4	104.3	65.2	-	78.4
1984	38.9	35.7	74.3	61.8	91.1	72.9	-	66.8
1985	46.3	42.3	72.4	65.3	92.1	71.9	115.5	76.3
1986	49.3	45.7	86.8	74.5	112.1	78.9	123.9	79.8
1987	41.3	39.6	78.1	66.6	106.3	71.0	124.4	70.8

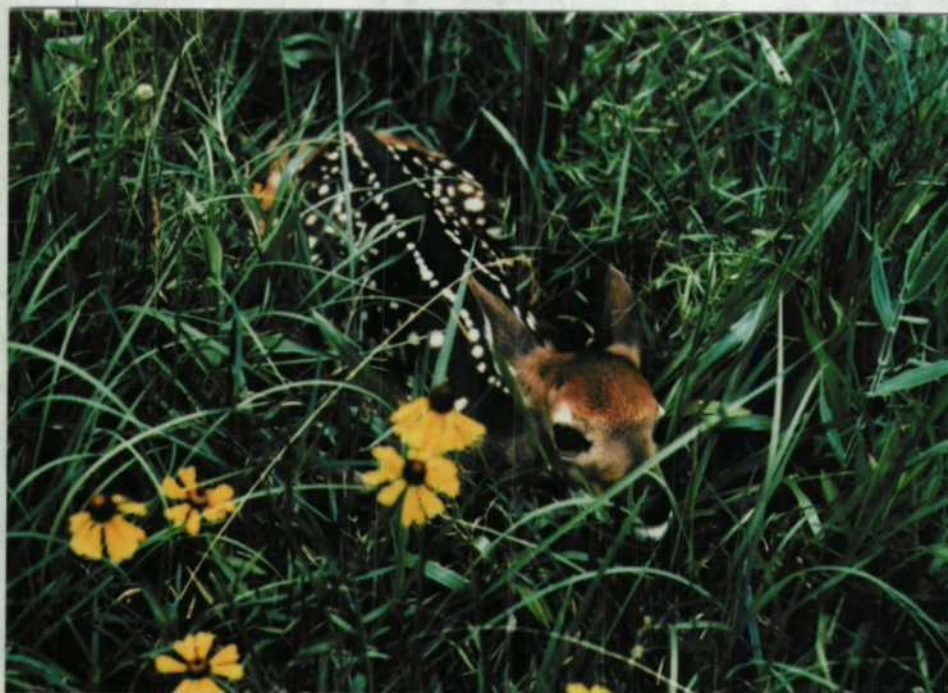


## BIOLOGICAL DATA SUMMARY OF WHITE-TAILED DEER

Felsenthal NWR - 1983-1987

Percent of Total Harvest  
(N = Sample Size)

Age (years)	1983	1984	1985	1986	1987
	N=64	N=88	N=400	N=677	N=902
0.5	23	45	31	35	30
1.5	47	23	35	33	38
2.5	16	22	17	22	20
2.5+	14	10	17	10	12
=====					
	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>
Sex Ratio (excluding fawns)	1.0:1.9	1.0:1.3	1.0:1.14	1.0:0.89	1.0:0.83
=====					
	N=45	N=16	N=99	N=143	N=243
% Spikes for Yearling Bucks	60.0	56.3	87.6	37.1	45.2
=====					
	N=61	N=48	N=205	N=358	N=477
% Fawn & Yearling Bucks of Total Buck Harvest	80.3	87.5	84.5	75.7	78.6
=====					
Ratio Adult Doe:Fawn	1:0.82	1:1.74	1:1.2	1:1.87	1:1.5
=====					
			N=101	N=127	N=185
% Lactation for Adult Does (2-1/2 & older)	-	-	82	79	81.3



Based on general observations of fawn drop, the peak rut for our deer herd appears to be in early to mid-November.

(6/1/87; RJB; #87-17-9)

Although the quality of the herd was slightly less in 1987 as compared to last year, the hunting public was still very impressed with their success and the quality of the animals harvested. The increase in harvest success and the high quality of animals maintained has generated much public support for the FWS, in general, and Felsenthal NWR in particular. We have received many favorable comments concerning our deer herd management practices including many positive letters. Intensive data collection has been mutually beneficial to Felsenthal and the AGFC. The AGFC will use Felsenthal's data, in part, for developing a predictive computer model for south Arkansas deer herds.

b. Gray and Fox Squirrels

Data gathered from opening weekend of squirrel season indicates that ratio of fox to gray squirrels on the refuge is approximately 1:1. Hunter success averaged a very respectable 2.5 squirrels per hunter, a slightly higher success rate than during 1986.

c. Eastern Cottontail and Swamp Rabbits

There is much less suitable cottontail habitat available on Felsenthal than suitable habitat for swamp rabbits. Swamp rabbits

are fairly abundant due to the vast expanse of bottomland habitat. This year we noticed an increase in the number of cottontails seen by refuge personnel.

d. Furbearers

Furbearers found on the refuge include: raccoon, beaver, mink, opossum, striped skunk, coyote, river otter, muskrat, nutria, and the gray fox. The species that has the greatest impact on the refuge is the beaver. With no significant predators, a prolific reproductive rate and thousands of acres of prime habitat, recruitment potential is astronomical. In conjunction with this is the potential to destroy thousands of acres of bottomland hardwood forest. A major beaver control effort continued in 1987 (see Section G.15). Raccoons continue to be the primary furbearer sought by hunters and trappers. The population continues to increase despite a more liberal refuge hunting and trapping season.

10. Other Resident Wildlife

Turkey populations on Felsenthal continue to grow significantly. Turkey sighting questionnaires were sent to successful hunters participating in the October muzzleloader and mid-November modern gun deer hunts this year. A total of 392 questionnaires was mailed and 287 (73%) were returned to us. Of these, almost 42% reported turkey sightings. The total population for the refuge was calculated to be 814 birds, an increase of 144 birds from 1986 to 1987. A comparison of the results from the turkey sighting questionnaires sent out during four of the last five years is summarized in the following table.



## SUMMARY OF TURKEY SIGHTING QUESTIONNAIRE

## Felsenthal NWR

	<u>1983</u>	<u>1984</u>	<u>1986</u>	<u>1987</u>
Total no. of potential participants	101	75	440	392
No. of forms returned	56	68	263	287
% Return	55.4	90.6	60	73.2
Returns with sightings	21	21	56	120
% Returns with sightings	37.5	30.9	21	41.8
No. of turkeys sighted	101	82	359	962
No. of turkeys sighted per return	1.8	1.2	1.4	3.4
Reported illegal kill	3	0	1	10
Estimate of total population	340	175	670	814

For the second year, Felsenthal was included in the statewide turkey brood survey conducted by the AGFC. Turkey brood sightings were reported in June, July, and August of 1987. A total of four broods was sighted averaging 4.75 poults per brood. Last year, six broods were reported on Felsenthal, averaging a little over three poults per brood.

The expanding turkey populations on Felsenthal gives us the unique opportunity to participate with the AGFC in efforts to reestablish the wild turkey in Ashley and Union counties off the refuge. Both these counties have been closed to turkey hunting for a number of years due to low populations. In early 1987, an attempt was made to bait and capture

turkeys for the restocking effort. However, due to mild winter conditions and the abundance of mast, we did not succeed in getting turkeys on bait. The turkey trapping efforts will continue in 1988.



Efforts to get turkeys on bait in conjunction with an off-refuge restoration program by the Arkansas Game and Fish Commission were unsuccessful. Biological Technician Robert Ellis "sweetening the pot."

(2/23/87; JRR; #87-6-1)





Black rat snake at Locust Ridge.  
(5/27/87; RJB; #87-16-9)

#### 11. Fishery Resources

Primary management responsibilities for the fisheries resources have been essentially relegated to the AGFC. During June, AGFC District Fisheries Biologist Don Turman, together with John Robinette, Robert Ellis, and Refuge Officer Larry King, conducted shoreline seine samples on Felsenthal. Results indicate forage items such as freshwater shrimp, invertebrates, and small forage fish are in abundance. Also, bluegill spawning success was quite high. However, success of the largemouth bass spawning was limited probably as a result of an early spring flood and water levels dropping extremely fast immediately following peak bass spawning. Also in June, a three-acre rotenone fish sample on Felsenthal was conducted. Results indicate a good standing crop of intermediate age class game and forage fish.

#### 14. Scientific Collections

During the summer of 1987, Dr. Eric Sundell and Dr. Bently Wigley from the University of Arkansas at Monticello, together with Bob Pierce from the Arkansas Extension Service, and refuge personnel collected plant samples for identification. From these collections we now have the beginnings of a plant list for the refuge with particular emphasis on moist soil plants which will benefit wintering waterfowl populations. We plan to continue efforts in this area during the spring and summer of 1988.





Dr. Eric Sundell (center), collecting representative plant specimens in conjunction with developing a basic refuge plant list.

(8/5/87; RJB; #87-26-1)

#### 15. Animal Control

Although construction of beaver dams results in the creation of wetland habitat, many acres of bottomland hardwood timber have been destroyed on Fessenden. In an effort to control the loss of bottomland hardwoods on the refuge, an intensive beaver control program was initiated in 1981. The objective of this program was not to eliminate the beaver but to keep the population in check. Control methods used include:

- (1) Daytime shooting from boats.
- (2) Nighttime spotlight shooting from boats.
- (3) Incidental shooting by refuge personnel during other management activities.
- (4) Trapping by refuge personnel.
- (5) Public trapping by permit during the State trapping season (see Section H.10).
- (6) Trapping by special permit (SUP) outside State season.
- (7) Removal of beaver dams and lodges utilizing explosives, hand tools, and heavy equipment.



Techniques used during 1987 included daytime shooting, public trapping, and SUP trapping. The total number of beaver removed during 1987 was 248, slightly higher than the total for 1986. Public trapping and SUP trapping accounted for over 85% of the beaver removed. This has proven to be a very efficient method of beaver removal on Felsenthal. The following is a summary of the beaver harvest for Felsenthal during 1987.

#### BEAVER HARVEST SUMMARY

Felsenthal NWR - 1987

<u>Technique Used</u>	<u>Number Beaver Killed</u>	<u>Staff Hours Expended</u>	<u>Beaver Killed Per Staff Hour</u>
Daytime Shooting	33	33	1.0
Public Trapping	107 <sup>1/</sup>	N/A	N/A
SUP Trapping	<u>108</u>	—	—
Total	248	33	7.5

1/ From trapping reports submitted by 33 trappers during 1986-87 season.

#### 16. Marking and Banding

For the first time, pre-season wood duck banding was attempted on Felsenthal NWR. We were given a quota of 200 birds. Five banding sites were located and prebaited beginning in late July. Two sites were located on the east side of the refuge, two on the west side, and one near the Ouachita River. Small, portable swim-in traps were used exclusively. One site had to be abandoned because of predator problems and one because of disturbance from other refuge activities. This, along with the demands of other necessary duties, hampered filling our quota; however, 152 birds were finally banded. Experience gained this year, coupled with planned construction of at least one rocket net site, should facilitate our pre-season banding efforts in 1988.





Pre-season wood duck banding was a demanding task. Persistence and hard work by John Robinette (left) and Robert Ellis (right) finally paid off with 152 birds (of our 200 bird quota) successfully banded.  
(8/20/87; RJB; #87-26-14)

#### H. PUBLIC USE

##### 1. General

Felsenthal is known for its excellent hunting and fishing opportunities and over 90% of our public use falls into these two categories. However, during the past few years we have made some progress in developing the interpretive aspect of our public use program as well. We hope to continue to make progress in the areas of interpretation and environmental education in the future. Throughout the year, numerous articles appeared in local and statewide newspapers dealing with a wide variety of subjects on Felsenthal. Refuge volunteer Mr. Jack Lee from El Dorado prepared the majority of these news releases. Through Jack's efforts, we have made great strides in keeping the public informed. Refuge visitation increased once again this year to over a quarter of a million (273,102) visits. With the near completion of our new headquarters office/visitor center, coupled with completion of 10+ million dollars of recreational facilities by the Corps of Engineers next fall,



we fully expect refuge visits to exceed one-half million in the next few years.

In May, a comprehensive public use inspection was conducted on Felsenthal. A FWS public use team from the Regional Office, together with John Oberheu and refuge staff, participated in the week-long inspection. From information gathered, a formal Public Use Plan has been drafted for Felsenthal.

#### 7. Other Interpretive Programs

During the year we were able to accommodate most requests for refuge programs. Refuge staff presented fifteen programs (four on refuge) to schools, various groups, and professional organizations. The following chart summarizes the programs involving 455 participants in 1987.



Dr. Frank Schambach, Archeologist with the Arkansas Archeological Survey, led a group of 22 students and teachers from Crossett High School's gifted and talented program on a cultural resource field trip at Locust Ridge.

(6/25/87; RJB; #87-19-9)





John Robinette leading class of UAM forestry students on resource management-oriented refuge tour, one of 15 on and off-site programs conducted this year.

(10/2/87; RJB; #87-30-4)

## REFUGE PROGRAMS PRESENTED IN 1987

<u>Speaker</u>	<u>Date</u>	<u>Program Subject</u>	<u>Organization</u>	<u>Participants</u>
Smith	1/12	Refuge Habitat Mgmt.	Society of American Foresters - Monticello, AR	20
Bridges	2/2	Refuge Update	Calvary Baptist Church Warren, AR	22
Smith	2/24	Refuge Update	Rotary Club Warren, AR	60
Smith	2/26	Refuge Update	Rotary Interact Club Crossett, AR	12
Robinette	3/20	Deer Mgmt. & Turkey Restoration	Drew Co. Bow Hunters Assoc. - Monticello, AR	50
Robinette	5/2	Refuge Birding Tour	Arkansas Audubon Society Crossett, AR	12*
Bridges	6/15	Refuge Management	Rotary Club El Dorado, AR	80
Bridges/ Dr. Schambach	6/25	Archeology/Refuge Management	Gifted & Talented Students, Crossett, AR	22*
Bridges	8/25	Refuge Update	Sunday School Class Bastrop, LA	14
West	9/25	Refuge Update	Rotary Club Crossett, AR	60
Robinette	10/2	Refuge Tour	Forestry Students - UAM Monticello, AR	23*
Robinette	10/12	Birds of Felsenthal	Cub Scouts Crossett, AR	15
West	10/27	Waterfowl Production	Kiwanis Club Bastrop, LA	30
King	11/16	Trapping Regulations	Bradley Co. Trappers Assoc. - Warren, AR	25
Ellis/ Robinette	11/19	Refuge Tour	Cub Scouts Crossett, AR	10*

\* Denotes on-refuge program.



## 8. Hunting

Small game hunting on Felsenthal includes: squirrel, rabbit, and quail plus a limited nighttime raccoon hunt. Squirrel season began on 10/3 and ran through 1/31/88. For the second year in a row, squirrel hunters were very successful on Felsenthal. This year's hunter success was slightly higher than last years, 2.54 squirrels per hunter visit as compared to 2.27 during the 1986-87 season.

Dates for the rabbit hunting season were the same as squirrel season. Rabbit hunting generally occurs incidental to other small game hunting with few hunters specifically out to hunt this game species. The main reason is the somewhat limited prime cottontail habitat, coupled with the fact that we do not allow dogs for rabbit hunting until January 1. Although we have an abundant swamp rabbit population in the 40,000 acres of bottoms, very few folks actively pursue them.

Quail season began 11/21 and ran through 1/31/88 with fairly good hunter success. Hunting pressure for this species is normally light. However, refuge quail hunters enjoyed one of the best seasons in many years.

This year raccoon and opossum season was held during the entire month of December during the hours of darkness only. Bag limits were three raccoons per hunter per night with no group limit. As usual, hunter pressure and harvest was very light.

The change (three-fold increase) in season length was in response to the AGFC's (and public's) request to more equitably treat the two primary raccoon user groups, hunters and trappers, especially since the raccoon population is so high. Heretofore, raccoon hunting season and trapping season was segregated in order to minimize conflicts between the two user groups (traps and dogs). This year's experiment seemed to work well, with a minimum of conflict and overall endorsement by both groups. We'll probably continue this approach next year.

The deer archery season was held during the months of October, November, and December except for being closed during the three two-day quota deer hunts. Hunting pressure was much greater than last year with an estimated 800 archery hunting visits to the refuge. The quality and number of deer on Felsenthal has begun to attract many bow hunters from the surrounding area.

This year's gun deer hunting included one two-day muzzleloader (primitive weapons) hunt and two two-day modern weapon hunts. Hunters were selected by a public quota drawing held on 9/12. By the deadline of 9/1, a total of 4,165 legal (acceptable) applications for the deer gun hunts had been received. This was an increase of over 1,000 applications from the 1986 hunts. A total of 2,400 permits was mailed to selected applicants on 9/22. All deer hunting on Felsenthal, including archery, is either-sex.

On October 30-31, an estimated 420 hunters participated in the muzzle-loader deer hunt. The checked kill for this hunt was 275 deer, producing a success rate of 65.5%. An estimated 314 hunters participated in the November 13-14 modern gun deer hunt, harvesting 377 deer, for a phenomenal success rate of 120%! A total of 250 deer was harvested during the November 27-28 modern gun deer hunt with about 398 hunters participating. The total harvest for all three hunts was 902 deer harvested by the estimated 1,132 participating hunters, for a success rate of 79.7%. For the second year in a row, the hunter success and deer harvest increased dramatically on Felsenthal. The estimated total deer harvest for the fall of 1987 is summarized in the following table.

## ESTIMATED TOTAL DEER HARVEST

Felsenthal NWR - Fall 1987

Hunt/Date	<u>Buck</u>		<u>Doe</u>		<u>Both Sexes</u>		Total
	Fawn	Adult	Fawn	Adult	Fawn	Adult	
Muzzleloader Either-Sex (Oct. 30-31)	25	127	34	89	59	216	275
	152		123				
Regular Gun Either-sex (Nov. 13-14)	65	138	59	115	124	253	377
	203		174				
Regular Gun Either-sex (Nov. 27-28)	42	80	46	82	88	162	250
	122		128				
Total Known Kill	132	345	139	286	271	631	902
	477 (53%)		425 (47%)				
Estimated Archery Kill	6	15	6	13	12	28	40
	21		19				
<sup>1/</sup> Crippling Mortality and/or Illegal Kill	37	97	39	80	76	177	253
	134		119				
<sup>2/</sup> Remaining Mortality	13	35	14	28	27	63	90
	48		42				
Grand Total	188	492	198	407	385	900	1,285
	680 (53%)		605 (47%)		1,285		

<sup>1/</sup> Crippling mortality and/or illegal kill rate estimated at 25% of known kill for modern gun and muzzleloader and 70% of estimated kill for archery.

<sup>2/</sup> Includes natural mortality, out-of-season hunting, etc. Based on 10% of total known harvest.





The public drawing for the 2,400 quota permits issued for Felsenthal's increasingly renowned deer hunts was well attended.

(9/12/87; RJB; #87-29-10)

Volunteer Jack Lee spent many hours wading through the 2,400 quota gun deer permits actually drawn and worked up the following valuable comparative demographics data for us. These data are from analysis of the 691 successful hunters that harvested a total of 902 deer.

## DEMOGRAPHICS OF 1986 and 1987 QUOTA GUN DEER HUNTS

## Felsenthal NWR

<u>Residence of Hunter</u>	<u>Deer Harvested</u>	
	<u>1987</u>	<u>1986</u>
Local AR, Zipcodes 716-717	181 (20.1%)	119 (17.4%)
Central AR, Zipcodes 720-721-722	310 (34.4%)	195 (28.4%)
Northeast AR, Zipcodes 723-724	276 (30.5%)	284 (41.4%)
Other AR, Zipcodes Miscellaneous	91 (10.1%)	88 (12.8%)
Out-of-State	44 ( 4.9%)	
	902 (100%)	686 (100%)

Multiple Kills by an Individual

	<u>1987</u>	<u>1986</u>
Double	155	106
Triple	28	13





Volunteer Clyde Mitchell (left) and Clerk Mary Hollis checking one of 902 deer harvested by less than 1,200 hunters during six days of quota permit hunts on Felsenthal.

(11/14/87; RJB; #87-33-10)

The taking of feral hogs is permitted during all daytime refuge hunts with weapons legal for those hunts. We do not keep harvest data for this species. However, based on staff observations, we don't believe the harvest of feral hogs was significantly different from that of 1986. Many of the out-of-town hunters come to Felsenthal to actively hunt the "wild boar."

Felsenthal had a 40-day split waterfowl season (11/27-12/6 and 12/19-1/11/88) with hunting allowed until noon each day. This year steel shot was required for the first time since the 1982-83 waterfowl season. Waterfowl hunter visits dropped from 10,750 in 1986-87 to 7,005 for the 1987-88 season. Also, the average number of ducks harvested per visit dropped by more than 30%. Total harvest was estimated to be 8,546



ducks, a dramatic decrease from the 1986-87 season. A relatively poor mast crop, coupled with extremely high water conditions the second split season, probably contributed to the poor duck hunting season. A summary of hunter use and hunter success for the past 10 waterfowl seasons follows:

#### ESTIMATED WATERFOWL HUNTER-USE AND SUCCESS RATE

1978-79 through 1987-88

Felsenthal NWR

<u>SEASON</u>	<u>NO. HUNTER VISITS</u>	<u>NO. WATERFOWL HARVESTED</u>	<u>DUCKS/ VISIT</u>
1978-79	1,035	2,150	2.08
1979-80	480	1,050	2.27
1980-81	1,565	3,250	2.08
1981-82	1,335	2,235	1.67
1982-83	1,125	1,879	1.67
1983-84	1,250	2,412	1.93
1984-85	625	1,200	1.92
1985-86	2,700	5,400	2.00
1986-87	10,750	19,200	1.79
1987-88	7,005	8,546	1.22

#### 9. Fishing

Sport and commercial fishing constituted over 70% of the total refuge visits in 1987. With the completion of improved access roads, boat ramps, and parking areas, combined with heavy publicity in area newspapers and magazines concerning the good fishing on Felsenthal, we fully expect fishing pressure will continue to increase over the next few years. Fishing was excellent in 1987 with numerous reports of limit

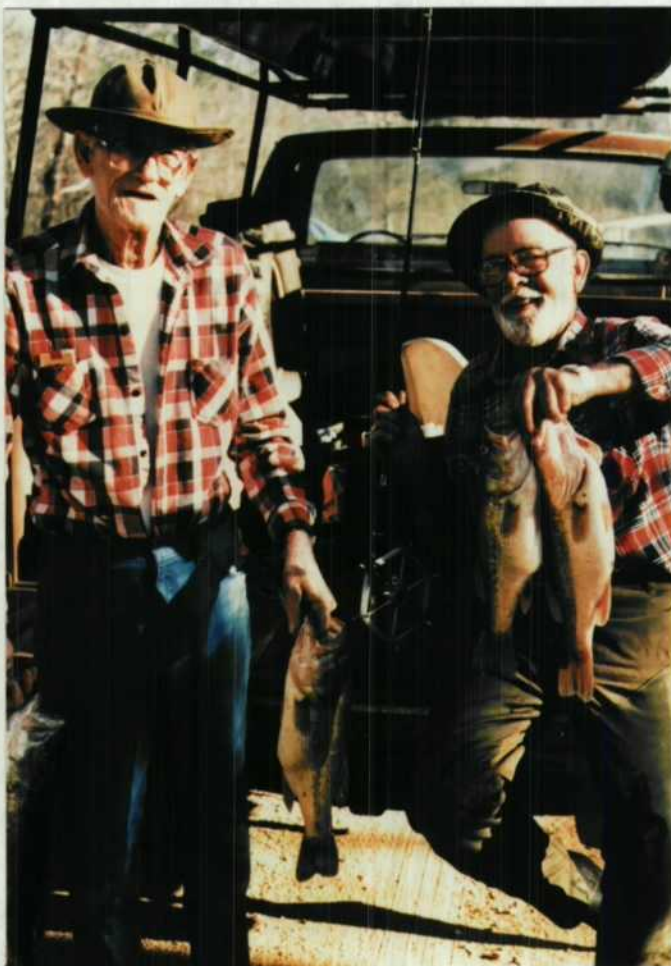
catches for bluegill, crappie, and largemouth bass. During the early spring flood, bass fishing was a bonanza for local fishermen. In some areas, fishermen stood almost shoulder-to-shoulder and caught bass as water rushed through culverts and crested road shoulders.



The spring backwater flooding resulted in a frenzy of fishing activity by the local folks. The Pine Island road (above) was literally shoulder-to-shoulder with bass fishermen before we had to close it to vehicles due to high water.

(3/2/87; RJB; #87-7-1)





These two old-timers showed what it's all about.  
(3/4/87; RJB; #87-7-6)

This was the sixth consecutive year we have required special use permits (SUP's) for commercial fishing in refuge waters, and the second year we have charged a \$25.00 fee. A total of 72 commercial fishing SUP's was issued for calendar year 1987, eight more than was issued in 1986.

Competitive fishing tournaments continued to be popular on Felsenthal. SUP's carrying a minimum charge of \$35.00 are required for all tournaments. As in the past, we do not allow the tournaments to originate from refuge landings and we require a comprehensive catch data form be completed. The regional policy issued in 1986 prohibiting fishing tournaments for money and prizes on refuge-controlled waters was recinded late this year. A total of 10 tournaments was held on the refuge this year compared to 14 in 1986.



# 10. Trapping

Forty-eight public trapping permits were issued for the 1986-87 season, up four from the previous year. The season ran from 12/6/86 through 1/25/87. The 1987-88 season began on 12/6/87, and ran through 1/31/88. A total of 58 permits was issued, ten more than the 1986-87 season. A \$25.00 fee is charged for trapping permits on Felsenthal NWR and trapping reports are required at the end of the season. We are still receiving trapping reports for the 1987-88 season; therefore, results from this season will appear in next year's Annual Narrative. Fur harvest for the 1986-87 season was up considerably from the previous year even though number of trapper visits was down significantly. A summary of Felsenthal's trapping program appears in the following tables.

## SUMMARY OF PUBLIC FURBEARER TRAPPING PROGRAM

1982-83 through 1986-87

### Felsenthal NWR

	<u>1982-83</u>	<u>1983-84</u>	<u>1984-85</u>	<u>1985-86</u>	<u>1986-87</u>
No. Trapping Permits Issued	93	59	89	44	48
No. Permittees Who Reported	63 (67.7%)	55 (93.2%)	71 (79.7%)	36 (81.8%)	36 (75.0%)
No. Permittees Who Reported & Actually Trapped	24 (38.1%)	35 (63.6%)	49 (69.0%)	29 (80.5%)	33 (91.7%)
No. Permittees Who Reported but did not Trap	39 (61.9%)	20 (36.4%)	22 (31.0%)	7 (19.4%)	3 (8.3%)
No. Trapper Visits	304	482	1,248	1,550	793
No. Activity Hours	1,216	1,446	4,992	6,200	3,172

## PUBLIC TRAPPING HARVEST SUMMARY

1985-86 and 1986-87

Felsenthal NWR

<u>Species</u>	<u>1985-86 No. Trapped</u>	<u>1986-87 No. Trapped</u>
Raccoon	953	2,166
Opossum	130	258
Beaver	63	107
Mink	97	202
Gray Fox	0	3
Skunk	0	14
Coyote	0	1
Bobcat	2	0
Nutria	4	56
Otter	9	24
Muskrat	13	18

11. Wildlife Observation

Most of the wildlife observation on Felsenthal occurs incidental to hunting and fishing activities. We expect this activity to increase following completion of the new headquarters visitor's center complex in the summer of 1988. We do get a number of serious bird watchers in the spring in hopes of catching a glimpse of the endangered red-cockaded woodpecker.

12. Other Wildlife Oriented Recreation

Camping occurs on the refuge primarily in conjunction with our hunting and fishing programs. Camping was limited to ten designated primitive campgrounds located at strategic points throughout the refuge. Two campgrounds open in 1986 (Wildcat in Ashley County and the Pipeline in Bradley County) were closed to camping this year. After the two

privately-owned Class A campgrounds adjacent to the refuge become operational (Crossett Harbor and Grand Marais Recreational Site), several more primitive refuge campgrounds will be eliminated. Both areas are scheduled for completion late in 1988. Restricting camping to designated areas has been well accepted by the public and has vastly improved our ability to manage our hunting and fishing programs.



You see all kinds of things on refuges. This genuine native-American made tepee was used by feral hog hunters at Jones Lake.

(12/28/87; LLK; #87-38-1)

There appears to be a growing interest in wildlife photography, especially with the recently enlarged permanent pool and increasing waterfowl use associated with the 21,000-acre GTR.



Picnicking primarily occurs as a secondary activity associated with hunting, fishing, and occasionally, wildlife observation.

#### 15. Off-Road Vehicling

No sanctioned off-road vehicle (ORV) use currently occurs on Felsenthal NWR. Off-road vehicling is limited to the use of high-flotation all-terrain vehicles (ATV's) such as three-wheelers, four-wheelers, and "Hustlers" on designated trails strategically located throughout much of the refuge. We've tried to achieve a reasonable balance between providing public access, especially to the numerous remote hunting and fishing areas and protecting the resource. This year, for the first time, ATV's were restricted to seasonal use. Trails marked in yellow (approximately 55 miles) were open from 10/1 through 1/31 during refuge hunting and trapping seasons. Trails marked with blue paint (approximately five miles) were open year-round for access to remote fishing areas. Also this year, the final edition of the Off-Road Vehicle Management Study was submitted to the Regional Office for review and approval. Formal approval is pending.

#### 16. Other Non-Wildlife Oriented Recreation

Although not encouraged, waterskiing, swimming, and recreational boating are popular activities on the Ouachita and Saline Rivers, particularly during the warmer months and on holidays. Another activity of local interest is the picking of mayhaw berries. This activity occurs primarily in late May, mostly concentrated in the Jones Lake area. Local berry pickers make a jelly from the mayhaw fruit which has a unique flavor all its' own.

#### 17. Law Enforcement

The conversion of Larry King from Biological Technician to full-time Refuge Law Enforcement Officer in November of last year added an extra dimension to the refuge law enforcement program. In addition to having State wildlife enforcement authority, Officer King obtained a County Deputy Commission from two of the three counties (Ashley and Union) in which the refuge lies. This gives us extra leverage and quicker disposition of cases.

One case of particular interest was a refuge fishing trip that turned into a drinking party. Thirteen individuals (11 minors and 2 adults) were taken into custody and transported to the Union County Sheriff's office. Four vehicles were seized and search warrants obtained. Marijuana and drug paraphernalia were found in two vehicles. Because of the ages (ranging from 15-22) of individuals involved, Officer King charged them under his deputy commission and got a very acceptable prosecution in Municipal Court. Assistance was provided by the Ashley and Union County Sheriffs Departments.



(8/28/87; RJB; #87-27-15)

These young people (above) were sentenced to serve from 20 to 30 hours of public service on the refuge for involvement in illegal alcohol and/or drug possession. Charges were filed by Refuge Officer Larry King through his Union County Deputy Commission. Results of the group's payment to society were very evident (below).



(9/9/87; RJB; #87-29-3)

An addition to our law enforcement equipment included purchase of two 80-watt, 80-channel, programmable mobile radios. They replaced two 25-watt units that were very unreliable. The new units have proven to be very effective.

The second recorded fatality in the history of the refuge occurred on December 26 when a 16-year old duck hunter was accidentally shot in the chest by his companion (also 16) who was attempting to unload his shotgun. Both youths were hunting from a boat in deep water in the southeast portion of the refuge when the accident occurred.

In September, Officer King was invited to participate in a "Red Handle Course" set up at the Arkansas Game and Fish Commission Training Center in Little Rock. The course consisted of practical exercises in which cotton balls were fired instead of live ammunition. These exercises proved to be extremely beneficial with each participant being video taped. Seeing one's personal reaction and the reaction of other officers under fire was truly a learning experience and often quite amusing. Hopefully, some training of this type can be incorporated into our refuge law enforcement training.

The following three charts summarize the nature and disposition of the 117 on-refuge cases made by refuge personnel in 1987. No on-refuge cases were made by State wildlife officers this year. Formal warnings were issued only when there were extenuating circumstances.



## FEDERAL COURT CASES AND OFFICIAL WARNINGS

## Felsenthal NWR - 1987

<u>Offense</u>	<u>No. of Cases</u>	<u>Disposition</u>	<u>Fine</u>	<u>Total Fines Collected</u>
Camping outside designated area	3	2 Forfeitures 1 Warning	\$100	\$200
Fishing closed area	2	Forfeiture	\$100	\$200
Vehicle off designated road	6	3 Forfeitures 2 Pending 1 Warning	\$100	\$200
ATV off designated trail	15	2 Forfeitures 10 Pending 3 Warnings	\$100	\$200
Littering	3	2 Forfeitures 1 Warning	\$100	\$200
Illegal possession of firearm	4	2 Forfeitures 1 Pending 1 Warning	\$ 50	\$100
Transporting loaded and uncased firearm	4	3 Pending 1 Warning	\$ 50	-
Loaded firearm in camp	2	Pending	\$100	-
Hunting in closed area	5	Pending	\$100	-
Possession of lead shot in steel shot zone	5	2 Pending 3 Warnings	\$100	-
Possession of untagged deer	1	Pending	\$100	-
No hunter orange	1	Pending	\$ 50	-
Over limit waterfowl	2	1 Forfeiture  1 Pending	\$200  -	\$200
TOTAL	53	(involved 53 individuals)		\$1,300

## STATE COURT CASES

Felsenthal NWR - 1987

<u>Offense</u>	<u>No. of Cases</u>	<u>Disposition</u>	<u>Fine</u>	<u>Total Fines Collected</u>
Fishing w/o license				
resident	3	Forfeitures	\$ 25	\$ 75
non-resident	3	Forfeitures	\$ 50	\$150
Insufficient PFD's	1	Guilty	Fine	-
	11	Forfeitures	Suspended \$ 25	\$275
Improper boat registration	1	Forfeiture	\$ 25	\$ 25
Littering	4	Forfeitures	\$100	\$400
	1	Guilty	\$ 50	\$ 50
Commercial fishing w/o permit	1	Guilty	\$ 50	\$ 50
Commercial fishing closed season	1	Guilty	\$ 50	\$ 50
Camping outside designated area	2	Guilty	\$ 25	\$ 50
	1	Forfeiture	\$ 75	\$ 75
Vehicle off designated road	1	Forfeiture	\$ 75	\$ 75
ATV off designated trail	4	Forfeitures	\$ 50	\$200
Non-supervision of child	1	Forfeiture	\$ 75	\$ 75
Failure to identify traps	1	Forfeiture	\$ 25	\$ 25
Failure to run traps daily	1	Guilty	\$300	\$300
Trapping out of season	1	Guilty	\$200	\$200
Trapping with aid of sight bait	1	Forfeiture	\$100	\$100
Taking furbearers w/o license	1	Forfeiture	\$ 50	\$ 50
Unplugged gun	2	Forfeitures	\$ 50	\$100

Overlimit waterfowl	1	Forfeiture	\$200	\$200
	1	Forfeiture	\$100	\$100
Deer hunting w/o quota permit	1	Forfeiture	\$250	\$250
TOTAL	45 (involved 42 individuals)			\$2,875



## COUNTY COURT CASES

Felsenthal NWR - 1987

<u>Offense</u>	<u>No. of Cases</u>	<u>Disposition</u>	<u>Fine</u>	<u>Total Fines Collected</u>
Disorderly conduct	1	Forfeiture	\$100	\$100
Public intoxication	1	Forfeiture	\$ 50	\$ 50
	3	Guilty	10 hrs*	30 hrs
Minor in possession of alcohol	10	Guilty	20 hrs*	200 hrs
Possession of marijuana	1	Guilty	\$100	\$100
	1	Guilty	20 hrs*	20 hrs
Possession of drug paraphernalia	1	Guilty	10 hrs*	10 hrs
	1	Guilty	\$100	\$100
TOTAL		19 (involved 14 individuals)		\$350 + 260 hrs. service work

\* Service work to be performed on refuge



Refuge Officer Larry King investigating illegal camp (outside designated area) at LaPile Creek. "Book 'em Danno!"

(6/5/87; RME; #87-17-14)





These three deer, illegally killed in a closed area,  
were seized by Officer King.  
(11/27/87; RJB; #87-37-1)

#### 19. Concessions

In 1987 we issued one SUP for an individual to operate a hunting guide service and one SUP to operate a hunting and fishing guide service on Felsenthal. A \$50 fee per calendar quarter is charged for a hunting guide SUP and a \$100 fee per calendar quarter is charged for a hunting and fishing guide service. We strongly suspect that other guide services for profit occur but have yet to confirm it.

## I. EQUIPMENT AND FACILITIES

### 1. New Construction

This year the COE completed construction of recreational access facilities at Shallow Lake (Phase II) and Eagle Lake plus construction of three concrete low water crossings (fords) at Pereogeethe Lake. The 1.8 miles of access road and two-lane concrete bridge (Phase II) of the Shallow Lake project was completed and turned over to the Service for opening on July 4. The three concrete fords on the Pereogeethe Lake access road were accepted on September 29. The 1.0 mile Eagle Lake access road, parking area, and boat ramp were completed October 16. With this, construction was completed on all five refuge recreational access facilities. A summary of all recreational access construction on Felsenthal NWR follows.

#### SUMMARY OF RECREATIONAL SITES CONSTRUCTED BY THE U.S. ARMY CORPS OF ENGINEERS ON FELSENTHAL NWR

<u>Project Name</u>	<u>Facilities Included</u>	<u>Prime Contractor</u>	<u>Year Completed</u>	<u>Cost</u> <sup>1/</sup>
(1) Pine Island Recreational Access	6.4 miles gravelled road, three 2-lane concrete bridges, one 60" culvert, 75-vehicle gravelled parking lot, 5-lane concrete boat ramp and 2,000-foot boat access canal	Mobley General Contractors Morrilton, AR	1986	\$1,342,600
(2) Jones Lake Recreational Access	1.8 miles gravelled road, 30- vehicle gravelled parking lot and 2-lane concrete boat ramp	Potashnick-Harrison Cape Girardeau, MO	1986	\$ 268,900
(3) Shallow Lake Recreational Access (Phase I & II)	2.6 miles gravelled road, one 2-lane concrete bridge, 60- vehicle gravelled parking lot, 5-lane concrete boat ramp and 4,000-foot boat access canal	Potashnick-Harrison Cape Girardeau, MO (Phase I & II)	1987	\$1,241,700
(4) Pereogeethe Lake Recreational Access (Phase I & II)	0.4 miles gravelled road, three concrete low water fords, 30- vehicle gravelled parking lot, and a 2-lane concrete boat ramp	Four-F Corporation Memphis, TN (Phase I) and CANNCO Contractors Lake Village, AR (Phase II)	1987	\$ 339,200
(5) Eagle Lake Recreational Access	1.0 mile gravelled road, one 20-vehicle and one 10-vehicle gravelled parking lot, and 2-lane concrete boat ramp	Tri-County Construction Company, Inc. Lake Village, AR	1987	\$ 169,800

<sup>1/</sup> Cost figures supplied by U.S. Army Corps of Engineers



Responsibility for these facilities has been turned over to the FWS, including maintenance of 12.3 miles of access roads, four concrete bridges, three low-water crossings (fords), five boat ramps, five parking lots, and 17,500' of boat access canals. In addition to this, the COE completed construction of four off-refuge boat launching areas (three leading into the refuge and one just south of the Felsenthal Lock and Dam) giving the public access to the Ouachita River.



Pre-final inspection of 300-foot long, two-lane concrete bridge across LaPile Creek completing Phase II of the 1.2 million dollar Shallow Lake recreational access.

(7/1/87; RJB; #87-21-7)





Construction of one of three low-water concrete crossings or fords at Pereogeethe Lake recreational access. This supplemental work by the Corps should drastically reduce maintenance on the gravelled access road which completely washed out early in 1986.

(2/4/87; RJB; #87-2-9)

The construction highlight of the year was the start of our Office/Visitor Center/Maintenance Complex. The project went out for bids on 2/6 and the contract was awarded in March to Hampton and Crain Construction Company of El Dorado, AR, with the low bid of \$877,462. Groundbreaking ceremonies were held on 5/15 with approximately 55 people in attendance. Assistant Regional Director Harold Benson represented the FWS and was one of several guest speakers. The keynote address was delivered by Congressman Beryl Anthony. Following the ceremony, participants were given a boat/bus tour of the refuge complete with lunch. The entire refuge staff did an outstanding job with the tight schedule of events coming off like clockwork.





(5/15/87; LDW; #87-14-7)

After over 12 years of operating out of a trailer, groundbreaking ceremonies for our new headquarters complex were held on May 15. An impressive array of dignitaries were among the 55 folks participating including our keynote speaker, Congressman Beryl Anthony.



Finally, as the end of the year approached, the 4,800-square foot Office/Visitor Center begins to take shape.  
(11/17/87; MAH; #87-36-2)





The maintenance complex consists of a 4-bay shop, fueling facility, 40' x 100' open equipment storage building and gravelled yard. Hopefully, three additional buildings (two for equipment and one for oil and paint storage) will be added if funds allow.

(10/9/87; RJB; #87-30-12)



Engineering Construction Representative Otis Pauley inspecting faulty concrete work on entrance road culvert wingwalls.

(8/31/87; RJB; #87-28-8)

## 2. Rehabilitation

Rehabilitation projects this year included: (1) hauling 40 cubic yards of "B" stone to make fords across low spots on the Prairie Island road, (2) installing a 15-inch drain pipe with cap in the Locust Ridge pond dam, (3) installing vents in the skirting around the office trailer, (4) equipping of the Eagle Lake sub-headquarters with a septic tank, drain field, hot water tank and plumbing, and (5) making a temporary check station pull-off on the new Shallow Lake road with leftover contractor gravel and on-hand materials.

Another project which might be considered rehabilitation was the completion of 10 miles of cadastral surveying - three miles by Steve Anderson, Surveyor with Regional Office Realty, and seven miles by Watson Associates of El Dorado who came in with a low bid of \$10,231. Felsenthal had never had an official cadastral survey because the land was purchased by the COE and then turned over to the Service with the COE taking no further responsibility. This year's surveys showed that where our neighbors in the Jones Lake area were screaming that our boundary had been posted a few feet off, that it was indeed off. Where our neighbors were quiet, we had shorted ourselves as much as 300 feet in the "by guess and by gosh" posting that had been done to get by when COE turned the land over to us.





As was feared from the start, maintenance demands associated with the 12+ miles of newly constructed recreational access roads have only just begun. The Corps of Engineers agreed to rectify this severe erosion problem along the Pine Island road even after the project was turned over to us.

(3/2/87; RJB; #87-7-5)

#### 4. Equipment Utilization and Replacement

Equipment sharing continued to be a regular activity at Felsenthal. Our dump truck was borrowed by Yazoo, D'Arbonne, and Holla Bend NWR's this year and was gone approximately four months. The low-boy transport was only borrowed a few times this year.

Equipment we borrowed was primarily related to waterfowl habitat management projects. A heavy duty rotary tree cutter, made by Brown, was borrowed from D'Arbonne to finish the heaviest part of the restoration of the 70+ acre "bean field" on Felsenthal. It made mincemeat out of thick stands of willow, water elm, buttonbush, and persimmon up to 6" in diameter that had taken over the field, but left many sharp stems that may be hazardous to tires in the future. A rice levee plow was borrowed from Yazoo to make contour levees in the field after it was cleared for moist soil management. White River's large John Deere farm



tractor was borrowed for disking and to pull the levee plow. We also borrowed D'Arbonne's loader/backhoe for a short time to load gravel and barricade a hazardous road into Fishtrap Lake that had been closed.

Pound-for-pound, the most expensive item to maintain seems to be our very useful, but fragile, amphibious Hustlers (6-wheelers). We spent \$2,033 for parts this year to keep them in working order. Kyle Cheeseman essentially rebuilt two Hustlers this year for approximately \$650 each. He developed some design modifications to shore up the frame, motor mounts, and shear pins and we've had no further problems with those particular areas, but the Hustlers are still a high maintenance machine.

Other major equipment maintenance costs this year were: \$1,924 for the dump truck, primarily to replace tires; \$804 for water pump and muffler on the low-boy; \$800 for fire truck brakes and cylinders; \$700 to repair and replace worn out trailer tires; \$722 for rotary mower parts; \$500 for repair of the Eagle Lake subheadquarters well and pump; \$475 for TD-15 'dozer water pump and hoses; and \$300 to replace worn tires on the JD-4040 tractor with wider rims and tires.

To help meet some of our many needs to keep our ever-expanding operation going on our two relatively new refuges, we began to look more closely at surplus property in 1987. Kyle Cheeseman spotted a Hustler available from Mississippi State University that has worked well for us with a little of Kyle's fine tuning. Larry West cultivated contacts with the Red River Arsenal Army Depot where everything from new radial truck tires to aluminum foot bridge material for water control structures and diesel power units for pumps has been found. Late in the year, a payloader in good condition was frozen, so we may finally get something with which to load our dump truck besides our little farm tractor bucket. We also found and froze 8,000 tons of #1 riprap located in Pine Bluff, AR, that was excessed by the COE. It has to be moved by the end of FY88 or we will have to turn it back to GSA for sale on the open market so they can sell the land on which the riprap is stockpiled. Savings to the government from surplus property could be substantial, but, perhaps more importantly to this station, we may be able to start doing some things now that we might otherwise have to wait many years to do.

No new equipment was purchased at Felsenthal this year out of O&M funds, but we did purchase the following items out of fire, special add-on, end-of-year, or discretionary Regional Office funds: (1) Ford fire equipment transport truck - \$52,400 (not yet received); (2) fire reclaim plow and V-blade - \$15,000; (3) 4x2 and 4x4 pickup trucks (not yet received) - \$19,000; (4) two Suzuki 4-wheel cycles - \$6,770; (5) IBM PC/AT computer with basic software (Regional purchase) - \$5,000; (6) two 80-watt Midland high-band radios for law enforcement - \$1,900; and two custom built trailers for hauling ATV's - \$1,100.



These Suzuki 4x4 4-wheelers with heavy duty Warn winches are proving to be our most useful (and dependable) vehicle for off-road use. Kyle Cheeseman (left) and Larry West preparing to "put 'em to the test."

(9/22/87; RJB; #87-30-2)

##### 5. Communications Systems

Bids for a new telephone system were solicited and telephones will be installed in concert with the headquarters completion. Installed cost of the system is to be \$5,536.78 and comes out of the headquarters construction fund. Meanwhile, we received a waiver to allow us to continue renting our present phones until the move takes place.

Radio maintenance costs with our aging equipment exploded this year to over \$4,500. To combat this, we entered into a radio maintenance contract with Reynolds Radio Service of Warren. Two 80-watt Midland high-band radios were purchased for law enforcement use this year with special add-on ARMM's funding. These radios, installed in our two primary law enforcement vehicles, give us 24-hour communication with local police, the counties, and the Arkansas Game and Fish Commission.

## 6. Computer Systems

We received an IBM PC/AT personal computer, the parts of which started trickling in from early September until now. The system was purchased via a Regional group bid except for the tractor drive for the printer which we purchased ourselves. The tractor drive was necessary to keep the margins from moving on the printer. Our first real use of the computer is the composition of this Annaul Narrative Report by Mary Hollis. She taught herself to use the WordPerfect software with start-up assistance over the telephone from Al Impellitteri.

## 7. Energy Conservation

The following chart summarizes the refuge's fuel consumption and mileage over the past six years.

### FUEL CONSUMPTION AND MILEAGE

Felsenthal NWR - 1982-1987

<u>Year</u>	<u>Miles</u>	<u>Gasoline (Gallons)</u>	<u>Diesel (Gallons)</u>
1987	128,483	7,103	4,000
1986	93,519	6,615	3,670
1985	104,100	7,240	3,030
1984	104,283	5,475	2,200
1983	56,375	4,937	2,209
1982	67,937	5,830	1,678

Full staffing of 11.6 FTE's in 1987 versus only 9.7 FTE's in 1986, a 17% increase, explains the 7% increase in gasoline used in 1987. We continue to try to use the most economical vehicle available on trips to meetings, to town, and wherever possible as a fuel saving measure. Other measures include combining trips, using ATV's instead of 4x4's where possible, twice-a-year maintenance checks, and vehicle individual responsibility assignments.



## 8. Other

Approximately 18 miles of boundary at Felsenthal were reposted and repainted during the summer by the YCC crew and Felsenthal staff.

The campgrounds at Wildcat (Ashley County) and the Pipeline (Bradley County) were eliminated this year by painting out campground boundaries, removing signs, and removing them from our leaflet map. The boundary of Locust Ridge campground was modified to give a greater buffer to red-cockaded woodpecker cavity trees. The Eagle Lake campground boundary was also adjusted due to construction of the boat launch facility.

ATV trails had some minor additions this year to eliminate concurrent use of ATV's and conventional vehicles on improved roads. We also eliminated about seven miles of trails by removing signs and blacking out the trail marking trees in order to expand walk-in only areas. This is a net reduction of five miles of ATV trails. The remaining 60 miles of ATV trails were cleared of debris, repainted and resigned as needed by Biological Technician Robert Ellis.

The Arkansas Highway and Transportation Department let an estimated \$400,000 contract for safely removing the U.S. Highway 82 bridge across the Ouachita River. For many local folks, demolition of the historic structure, constructed in the early 1930's, was a sad occasion. The six million dollar replacement structure, located just downstream, was completed in the summer of 1986.



Arkansas Highway and Transportation Department demolition contractors preparing to remove a 50+ year old historic landmark, the Highway 82 - Ouachita River bridge.

(7/13/87; RJB; #87-21-13)

## J. OTHER ITEMS

### 1. Cooperative Programs

The refuge participated in the statewide ocular mast survey sponsored by the AGFC (see Section D.5).

A refuge staff member, generally Project Leader Bob Bridges, participated in the monthly meetings of the Felsenthal Committee of the Crossett Chamber of Commerce in a non-voting capacity. This group has been extremely active in participating in promoting the refuge and was largely responsible for securing over ten million dollars for the COE

to construct all on- and off-refuge recreational access facilities. The Committee has taken the lead in developing public use regulations for the soon-to-be Crossett Harbor Recreational Site. An added benefit to the refuge this year was the Committee's adopting a two-mile stretch of U.S. Highway 82 that includes our new headquarters entrance where they will be picking up litter and keeping that area clean on a regular basis.

## 2. Other Economic Uses

Special Use Permits were issued to Mr. Tommy Miller and Mr. Don Pharr for hunting and fishing guide services for 1987 (see Section H.19).

With the depressed oil market conditions, very little oil extraction/exploration activity occurred on Felsenthal NWR during 1987.

## 3. Items of Interest

Tim Kessler, Editor of The Ashley News Observer, interviewed Biologist John Robinette and Manager Bob Bridges for a feature article entitled "Felsenthal - The Year In Review." The well prepared article, complete with photos, appeared in the newspaper during the week of 2/23.

One of the three remaining houseboats on Felsenthal was sold early in the year. In compliance with our houseboat policy and special use permit conditions, the structure had to be removed from the refuge. This was done on 3/15, leaving only two "grandfathered" houseboats remaining on the refuge.





An end of another era gets closer. The houseboat in the foreground was sold and removed from the refuge early in the year. Only two "grandfathered" boats/floating structures remain in accord with our approved houseboat policy.

(2/9/87; RJB; #87-3-7)

Larry and Rosemary West became the proud parents of a baby girl on 3/4. Christina Reese West began her life with no wasted time as she was born only 20 minutes after her mother's arrival at the local hospital.

On 3/16 Bob Bridges travelled to Little Rock for a Executive Board meeting of the Arkansas Chapter of The Wildlife Society. Bob completed his term as Chapter President at the end of the calendar year.

District Biologist Ray Aycock was at refuge headquarters on 3/16 to discuss resource management projects with the Felsenthal staff and to tour the refuge by boat during high water conditions.

Larry West and Bob Bridges attended the Project Leaders Meeting in Savannah, GA, from 3/30-4/3. Upon their return, an award was presented to the Felsenthal staff for their efforts in banding over 1,500 mallards during their first season of on-refuge waterfowl banding.

Ruth McDonald received an award for Outstanding Performance from the Arkansas Tree Farm Association.

Record public use occurred on Felsenthal in April with over 37,000 visits recorded for the month.

During the week of 4/13 Refuge Supervisor John Oberheu was at Felsenthal to conduct a public use and law enforcement inspection.

Refuge Revenue Sharing checks were delivered in April with Ashley County receiving \$36,038, Bradley County \$20,722, and Union County \$29,732. This was the first time the revenue sharing checks included both Overflow and Felsenthal NWR's. Heretofore, only Ashley County received revenues for fee-title lands within Overflow NWR. Transfer of lands within Felsenthal NWR from the COE to the FWS entitled Bradley and Union counties to receipts. Favorable press, including regional television coverage, was received.

On 4/28 a public meeting was held in El Dorado concerning the flooding and destruction of 10,000 acres of bottomland hardwood timber on Felsenthal Refuge. Three local citizens of El Dorado called and organized the meeting. They were concerned about habitat loss when the permanent pool was raised to 65' MSL. Approximately 70 people were present at the beginning of the meeting, but by the time it was over it was apparent that most folks accepted the water management regime.

On 5/21 John Robinette gave a presentation to 50 members of the Arkansas Chapter of The Wildlife Society on the recently completed Muzzleloader Crippling Rate Study conducted on Yazoo NWR.

On 5/18-20 Mr. Carroll Ryan, Refuge Manager of Tennessee NWR, visited Felsenthal and Overflow Refuges. He, along with Ray Aycock, assisted in the initial planning process for constructing and managing moist soil units on the refuges.

During June, the refuge staff assisted El Dorado attorney Worth Camp with revisions of a detailed recreational map, primarily of the refuge, that he will be publishing for sale in local retail outlets.

Bob Bridges attended retirement ceremonies for Mr. Grady Mitcham, COE Project Engineer for the Felsenthal Lock and Dam and recreational development projects on 6/12.

On 7/15 an update of refuge objectives for Felsenthal and Overflow was submitted to RO.

Dr. Eric Sundell, botanist from the University of Arkansas at Monticello, toured the refuge on 6/12 and 8/5 to collect and identify plants for a refuge plant list.

Members of the refuge staff met with the COE, Environmental Protection Agency, and the Arkansas Highway and Transportation Department to discuss the long awaited rehabilitation of U.S. Highway 82 across the refuge. Environmental impacts, management access, and public use were among the subjects discussed involving this major construction project.

Larry Threet, John Robinette, and Bob Bridges attended the annual coordination meeting between the FWS and the AGFC on 9/24-25 in Dardanelle which was hosted by Holla Bend NWR.

On 10/14 Bob Bridges and Larry West met with Linda Sweeney, Congressman Beryl Anthony's congressional aide in El Dorado, to discuss areas of concern and the refuge's future development plans.

In November, 50 wood duck boxes were constructed by a shop class of Rogers Junior High School in El Dorado with materials supplied by the refuge.

On 11/14 John Robinette was interviewed by The Ashley News Observer concerning the results of the October muzzleloader hunt on Felsenthal.

A small female bear which had been electrocuted was received from White River NWR in December. We may be able to use the specimen in the new Visitor Center exhibits.

On 12/10 a followup meeting was held with refuge personnel and personnel from the AHTD concerning the planned renovation of U.S. Highway 82 across Felsenthal Refuge and the possible extension of State Highway 52 across Overflow Refuge.

John Oberheu was at Felsenthal to conduct a refuge inspection in mid-December. Our annual Christmas party was held while Mr. Oberheu was in town at which time he recognized two of our volunteers, Mr. Jack Lee and Mr. Clyde Mitchell, with a letter of appreciation from Regional Director Jim Pulliam.





Refuge Supervisor John Oberheu shared a few "pearls of wisdom" with the staff during his formal refuge inspection in mid-December.  
(12/15/87; RJB; #87-37-8)

#### 4. Credits

Introduction, Sections A, B, C, D.5, G (except G.16), H (except H.17), editing & proofreading - John Robinette

Section D (except D.5), E.8, K, photo layout, editing, and proofreading - Bob Bridges

Sections E.1 and E.5 - Ann Laney

Sections E.2, E.4, E.6, typing, and proofreading - Mary Hollis

Section F - Larry Threet

Section G.16 and H.10 - Robert Ellis

Section H.17 - Larry King

Sections I & J - Larry West

Assembly - Mary Hollis and Ruth McDonald

#### K. FEEDBACK

For the "scorekeepers", I've got one positive and one negative concern. On the positive side, it's encouraging to see the U.S. Fish and Wildlife Service putting more and more emphasis on habitat management, especially for waterfowl. Many of the "newer" refuges, especially those in the Mississippi Delta established since the mid- to late 1970's, are finally getting long overdue recognition . . . just pass out the bucks and we'll provide for the ducks!

Computers . . . exciting but somewhat scary to some of us soon-to-be "old timers." What potential they appear to offer, especially at the field level. Now that our Region has made the commitment, two things concern me. One is that we don't become a slave to the machine and, secondly, that we receive proper and timely training in their use.

# Refuges give county \$36,000 in funding

A check in the amount of \$36,038 was presented to Ashley County Judge Don Hartley on Monday by Larry West, assistant manager of Felsenthal and Overflow National Wildlife Refuges.

West explained that the funds were provided through the Refuge Revenue Sharing Act (Public Law 95-469) and may be used for "any governmental purpose."

Under this law, annual payments are made to any county in which national wildlife refuge lands exist that are owned in fee title by the U.S. Fish and Wildlife Service. The county is responsible for proportionally distributing the payments to those units of local government that have incur-

red a loss of tax revenue due to the existence of federal refuge lands.

The amount of revenue sharing is based upon valuation of the acreage within the refuge. "Technically," West explained, "the exact amount a county receives each year is determined by whichever of the following is greater: (1) an amount equal to 75 cents per acre; (2) an amount equal to three-fourths of 1 percent of the fair market land value; or (3) an amount equal to 25 percent of the net receipts collected from the sale of refuge products such as timber, oil and gas royalties, or permit fees.

Monday's check was based on

the approximately 26,000 acres of government-owned land within the Ashley County portions of Felsenthal and Overflow refuges, both vital waterfowl areas.

West explained that the substantial increase in refuge revenue payments this year over previous years was primarily due to the recent transfer of title of the 65,000-acre Felsenthal NWR to the U.S. Fish and Wildlife Service from the U.S. Army Corps of Engineers. Last year's appropriation of \$25,448 was based strictly on the Overflow NWR land.

As for the future, the U.S. Fish and Wildlife Service is hopeful that several thousand additional acres will be acquired at Overflow over the next few years which could increase refuge revenue payments to Ashley County.





*Refuge Gives County Funds*

A check for \$36,038 was presented Monday to Ashley County Judge Don Hartley by Larry West, assistant manager of Felsenthal and Overflow National Wildlife Refuges, representing in-lieu-of tax funds.

# The Ashley News Observer

CROSSETT, ARKANSAS — WEDNESDAY, MAY 20, 1987

## ***FNWR ceremony held Friday***

Several dignitaries — including keynote speaker U.S. Rep. Beryl Anthony — visited Crossett Friday to participate in groundbreaking ceremonies for Felsenthal National Wildlife Refuge's 4,800-square-foot visitors center and headquarters.

Felsenthal NWR Manager Bob Bridges said the center and related maintenance buildings will sit on an 88-acre tract located west of the current facilities. Hampton and Crain is the general contractor for the project, which is should be completed within two years.

As the keynote speaker, Anthony said those visiting the center will see "an historical presentation of what our heritage is."

"This will be an opportunity for visitors who come in and our families who are here to see what our past has been — and what our future will be," he added.

Noting the impact that Felsenthal and Overflow refuges have in wildlife management, Anthony said negotiations are currently underway with Mexico and South American countries to gain cooperation in preservation of wildlife habitats.

If the negotiations are successful, Felsenthal and other areas along flyways will see improvement in bird populations, he added.

Anthony said the cooperation of local entities was essential in gaining the refuge and its facilities. He commented that 39 cents of every tax dollar goes toward retiring the national debt, putting more pressure on local governments to provide funding for such projects as those found at Felsenthal.

"One of the worst things we can do is have the (Crossett) harbor developed and then not have the funds to operate and maintain it," said Anthony, adding that federal constraints on funding will become more evident in the next few years.

In fact, Anthony said, pressure on the federal government's funds is so great now that fee systems are being established for national parks and national wildlife refuges "because we need the revenue."

Turning to the expected surge in tourism as recreational facilities are completed at Felsenthal, Anthony said, "I just have one concern — that we're going to have so many people come here that we won't know how to

*See GROUND, Page 7A)*

# GROUNDBREAKING-

deal with them."

Earlier in the ceremonies, after state Sen. Jim Scott gave the invocation, Harold Benson, assistant regional director of the U.S. Fish and Wildlife Service, said, "I earnestly believe the Felsenthal headquarters complex will be among the best in the U.S."

"We're only just beginning to see the magnitude of the fisheries resource," he said, adding the refuge also has over 200 cultural resource sites and one of the highest concentrations of the endangered red-cockaded woodpecker.

Tom Streetman, chairman of the Crossett Area Chamber of Commerce's Felsenthal Committee, added, "The construction of this facility will be another step in pursuit of the dream of having the refuge utilized for fishing, hunting, bird-watching and general enjoyment of the recreational facilities."

Don Floyd, representing U.S. Sen. Dale Bumpers, read a letter in which Bumpers wrote, "Felsenthal is a first-class operation and I am confident that it will be a sound investment for the federal government and southeast Arkansas."

Carmie Henry, representing U.S. Sen. David Pryor, said, "The Felsenthal National Wildlife Refuge will one day become nationally known," adding it will become an important factor "in the economic fabric and recreation habit" of the area.

State Sen. Jody Mahoney said he hoped funding could be gained for a water containment structure at Overflow NWR. He said he was pleased with progress made so far by the U.S. Corps of Engineers on recreational facilities.

"I think we need an expanded system to inform the public of what we have here on the refuge," Mahoney said.

Following the remarks, the dignitaries, along with Miss Ashley County Jona Garner, took golden shovels in hand to perform the symbolic ground-breaking for the building.

Immediately afterward, some members of the group boarded a chartered bus provided by the National Guard and proceeded to Crossett Port, where they boarded the tow barge, "Second Chance."

Going downriver, Bridges pointed out that the Corps of Engineers may construct four to five bendway cuts to take out some of the oxbow lakes.

In other areas, signs of primitive campsites accessible by water only were present. Bridges said camping is allowed on the refuge "in conjunction with sanctioned wildlife activities."

In noting the impact of lowering the water table, the refuge manager commented, "We will lose some of the residual stands" of timber, other than cypress, below the 65-foot level "more or less."

Meandering down the river yet further, a great blue heron was seen in flight—slowly flapping its giant wings and going from one short flight to another. It watched quietly as the barge made its final turn just short of the Felsenthal Lock and Dam and landed at a five-lane boat ramp in the upper pool.

Another form of fauna was seen just before landing, as a banded water snake slithered about in the water close to the barge.

After all had boarded the bus, Bridges pointed out some of the construction at the Felsenthal Lock and Dam Recreational Access Site, including comfort stations and a recently-paved parking lot.

Going through the town of Felsenthal, the bus turned onto the road going to Shallow Lake. Bridges described archeological sites which caused the road to be built up higher in order to preserve the sites.

A red-cockaded woodpecker colony's habitat was observed, although few birds were seen on Friday. Bridges noted the red-cockaded woodpecker is the only North American woodpecker which nests in live pine trees.

Refuge personnel and Youth Conservation Corps workers remove hardwood during the year from the colonies to help accommodate the woodpeckers, which are an endangered species.

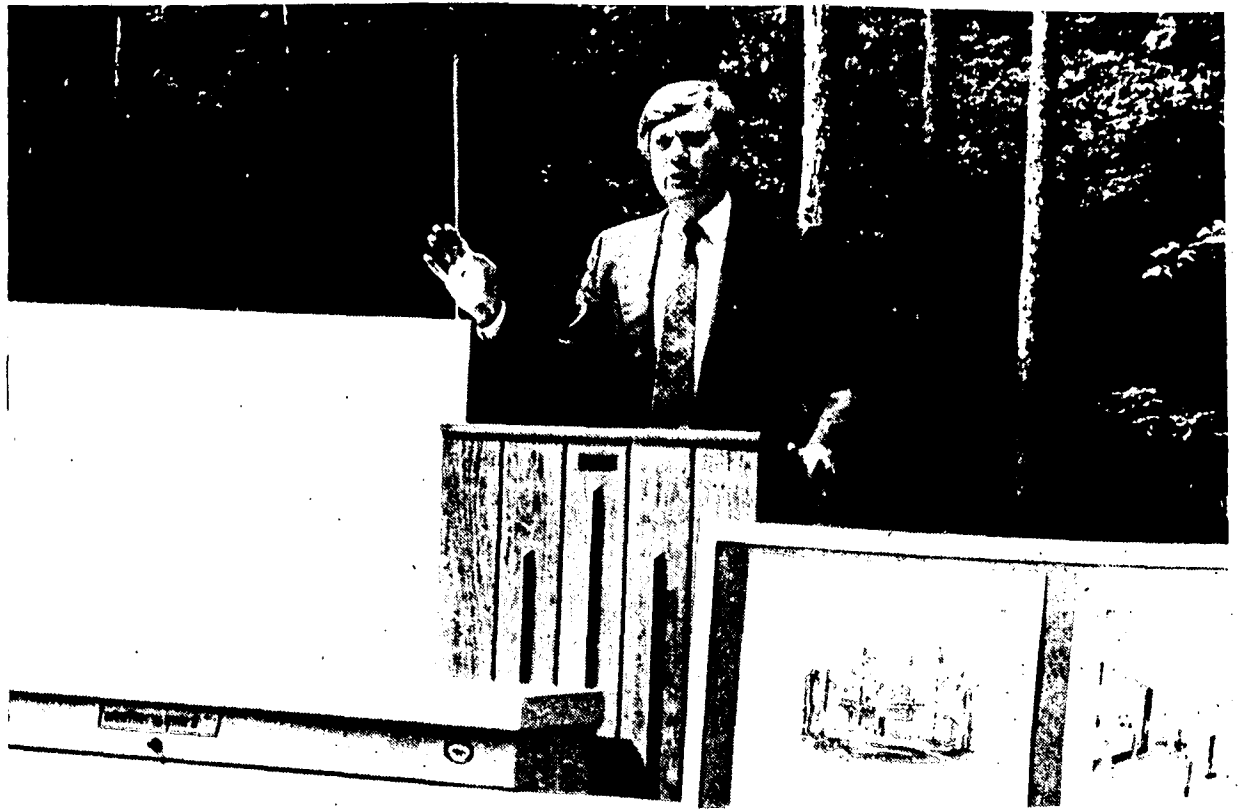
Another type of bird, the turkey, was said to have a thriving population nearby. While hunting is not allowed as of yet on the refuge, care has been taken to maintain ample browse for turkeys.

Bridges said a 4,000-foot channel was constructed to help gain access to Shallow Lake. Other construction seen in the area included a new road and a new bridge, still under construction.

Part of the reason for the barge and bus tour was to acquaint area officials with the benefits of the refuge.

While Anthony was unable to participate in the tour, Mahoney; Scott Henderson, chief of the fisheries division of the Arkansas Game and Fish Commission; Felsenthal Mayor Allen Hobbs; former Mayor J.T. Young; Bradley County Judge Joe Fowler; Ashley County Judge Don Hartley; Larry Goodson, Corps of Engineers; Homer Pirtle, administrative aide to Anthony; Ovid Switzer, Parks and Tourism commissioner; Grady Mitcham, Felsenthal project engineer with the Corps of Engineers; and Felsenthal Committee members Eddie Holt, Pat Owens, Henry White and Bill Runyan, were among those present.





*Anthony Keynote Speaker*

U.S. Rep. Beryl Anthony was the keynote speaker Friday at groundbreaking ceremonies for the Felsenthal National Wildlife Refuge headquarters and visitors center and maintenance building complex. The site is located west of the current headquarters.



*Turning The Dirt*

Within the parameters of a marked-off area for the future visitors center/headquarters building at Felsenthal National Wildlife Refuge, several dignitaries, including U.S. Rep. Beryl Anthony, broke the ground using golden shovels.

# Bass Club helps pick up litter left by others at Felsenthal

By Jack Lee  
Volunteer Editor

Mike Barnett, president of Crossett Bass Club, reports that his group ends the day's fishing by picking up refuge litter. There are usually about 15 boats participating. Refuge management extends its thanks to this thoughtful group, and to all who help keep this area clean for the next person.

\*\*\*\*\*

Larry West, Felsenthal Refuge assistant manager, is enthusiastic about the moist soil management program initiated on the refuge this year. The 80-acre "bean field" is being contoured and managed to produce native plants that waterfowl need for winter survival.

By providing a greater variety of food, waterfowl will be able to utilize the refuge for a longer

winter stay. The bottomland field, once cleared for soybeans, had reverted to brushland with less value to waterfowl.

With the present program, the wild native crop should produce excellent waterfowl food. It will be made available to them by controlled wintertime flooding. It is hoped that the native plants will flourish without having to be re-established.

\*\*\*\*\*

The refuge summer Youth Conservation Corps (YCC) has completed its eight-week course.

The group provided that "something extra" to perform chores that seldom find their way into the budget.

The group benefitted by becoming aware of the problem caused by litter — since the group had to pick it up. Another activity consisted of paint-marking trees to identify refuge boundary lines and red-cockaded woodpecker nesting sites. The course wound up by providing clerical help in sorting requests for quota gun deer hunt applications.

## *Steel shot refuge rule to be enforced this year*

By Jack Lee  
Volunteer  
Correspondent

Bob Bridges, manager of Felsenthal and Overflow Refuges, reminds hunters that beginning this year, they must use steel shot on the refuges, and that they need to start practicing with it early. He says practicing with clay pigeons or doves may help hunters get a feel for any difference between steel shot and lead shot used previously.

Steel shot will be required under the following conditions: On Overflow Refuge for *all* small game and waterfowl; on Felsenthal for all small game hunted in areas subject to overflow, plus all waterfowl. Hunters may not carry lead shot on their person while hunting in lead shot restricted areas.

Much as been written about the similarities and differences between steel and lead shot. Here is some information that we most often see in print.

- Steel shot produces a tighter pattern than lead shot, with no helpful halo of deformed pellets surrounding the pattern.

- The same gun chokes that produce a 30-inch diameter pattern with lead shot produces only a 24-inch diameter pattern with steel shot. Since steel is lighter than lead shot, many more pellets of a given size are in a steel charge than a lead charge of the same weight.

- Recommendations include using an improved cylinder choke or modified choke gun; using steel shot that is two sizes larger than the lead shot previously us-

ed; and practicing with steel shot before going waterfowling.

In the September issue of *Field and Stream*, Bob Brister, shooting editor, said the most common problem for new steel shooters is "trying to hit with too tight a choke and worrying too much about compensating between lead and steel."



MONDAY, SEPTEMBER 28, 1987

# **Felsenthal Refuge draws for permits on Sept. 12**

**By Jack Lee  
Volunteer Editor**

Prospective hunters presented 4,117 applications for the 2,400 available 1987 Felsenthal Refuge quota deer hunt permits.

This compares with the 1986 total of some 3,300 applications for the same number of permits. Successful applicants were selected at random in a public drawing at the refuge office on Sept. 12. A total of 180 defective applications were rejected.

Three two-day either-sex hunts are scheduled this year. The first hunt, in October, will be for muzzleloader, black powder guns only, while the following two hunts, in November, will be for modern firearms.

The most popular of the three hunts is the muzzleloader hunt, Oct. 30 and 31, which attracted 1,571 applications for the 900 available permits, followed by 1,334 applications for the first

gun hunt on Nov. 13 and 14, with 700 available permits.

The Thanksgiving hunt on Nov. 27 and 28 attracted 1,032 applications for the remaining 800 available permits. A number of prospective hunters submitted duplicate applications in an apparent attempt to increase their chances of being drawn. All duplicate applications were rejected.

Overflow Refuge this year has only a muzzleloader deer hunt scheduled, Oct. 16 and 17. The number of applications balanced the 200 permits available for the hunt.

Refuge biologist John Robinette explained that the two quota deer hunts are designed to provide the information necessary for planning future hunts.

The objective is to balance herd size with available food and living space. All deer killed are checked for age, weight, sex, antler development and amount of fat—an index of the animal's physical condition.

An important management concern is that the desired ratio of the sexes be attained. This is accomplished through the use of either-sex hunts as needed.

# 1987~88 Hunting and Fishing Regulations



## FELSENTHAL National Wildlife Refuge

Take Pride  
in Your Refuge!  
Report Violations

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE

Felsenthal National Wildlife Refuge  
P.O. Box 1157  
Crossett, Arkansas 71635

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300



POSTAGE AND FEES PAID

U.S. DEPARTMENT OF THE INTERIOR

INT 423



# Signs Protect Visitors and Resources

Millions of people visit National Wildlife Refuges every year. Millions! In order to both protect wildlands and wildlife and provide visitors with an enjoyable experience on refuges, certain regulations are necessary. Please respect the following signs and help us take care of your refuge.



This sign delineates the refuge boundary. You may enter the area only on designated access routes.



This area closed to ALL public entry.



Entrance to primitive camping area. Camping permitted only in conjunction with on-refuge wildlife oriented activities and in designated areas.



Road open to vehicles. All roads closed unless signed as open.



This sign is used to designate all-terrain vehicle trails for high flotation vehicles with a maximum tire pressure of 5 p.s.i.

## THE REFUGE

Felsenthal National Wildlife Refuge, established in 1975, is located in the Felsenthal Basin of south central Arkansas. This extensive and natural depression is crisscrossed by an intricate system of sloughs, bayous and lakes which comprise the majority of Felsenthal's 65,000 acres. These wetland areas in combination with the expansive bottomland hardwood forests and pine forests of the higher ridges support a wide diversity of wildlife.

Public hunting and fishing is permitted on approximately 65,000 acres during specific times of the year. To ensure your safety and enjoyment while visiting Felsenthal, please take the time to become familiar with the following regulations.

## GENERAL REGULATIONS

Hunting and fishing regulations are designed to protect the sportsman and wildlife populations. All hunting and fishing will be in accordance with State and Federal regulations. Sportsmen should consult the Arkansas Game and Fish Commission regulations. Special refuge regulations also apply. Only those species listed in this brochure may be taken. All other wildlife is protected. Refuge hunts may be closed due to flooding.

**Permits - PERMITS REQUIRED FOR ALL REFUGE HUNTS.** The general hunt permit attached to this brochure serves as your permit for all hunting except the quota deer hunts. The permit must be carried on the hunter's person and is not valid until signed.

To apply for a quota deer hunt permit, a special application form, available at the refuge office, must be used. Completed application must be received at the refuge office by 3:30 PM, September 1, 1987 to be considered.

Permits are not required for sport fishing, frogging or taking of turtles and crawfish for personal use. Special permits for trapping and commercial fishing are available at the refuge headquarters for a \$25.00 fee.

**Waterfowl Sanctuary** - Closed to all public entry during waterfowl hunting season with the exception of the main channel of the Ouachita River and the borrow pits along U.S. Highway 82, which are open for navigation and fishing (see map).



**Firearms** - Permitted only during refuge gun hunting seasons. Firearms in campgrounds and being carried in any vehicle or boat under power must be unloaded and encased or dismantled. Target practice prohibited. Firearms larger than .22 caliber rimfire, slugs and buckshot are permitted only during the refuge deer gun season.

**Ammunition** - Use or possession of lead shot is permitted only while hunting in upland habitat. Upland habitat is defined as any land area consisting primarily of pine timber or open fields and not subject to flooding (generally above 72 feet mean sea level - see map). Hunting deer with legal ammunition and hunting small game, furbearers or feral hogs with .22 caliber rimfire ammunition is permitted in open areas refugewide.

**Motorized Vehicles** - All motor vehicles (except certain types of all-terrain vehicles described below) are restricted to roads and campgrounds designated by signing and indicated on the refuge map. **ALL ROADS CLOSED UNLESS SIGNED AS OPEN.** Standard manufacturer's high flotation all-terrain vehicles or ATV's (such as 3-wheelers, 4-wheelers and "Hustlers") with a maximum tire pressure of 5 p.s.i. are permitted on trails designated by all-terrain vehicle signs and marked with yellow or blue paint. Blue painted trails are open year-round for access to remote fishing areas. Yellow painted trails are open only from October 1 - January 31 during refuge hunting and trapping seasons. ATV's are allowed only to reach areas open to hunting, fishing and trapping. ATV's are not allowed on any improved or gravel road open to conventional vehicles.

**Camping** - Camping in the primitive refuge camping areas is permitted only in conjunction with on-refuge wildlife-oriented activities and in designated areas (see map). Camping area entrances are marked by signing and boundaries are marked with orange paint. Campers may stay no more than fourteen consecutive days in any campground. Camps must be occupied daily and disturbances, including the use of generators, is prohibited after 10 PM. Camping on the refuge while hunting off the refuge is not permitted.

**Fires** - Permitted only in camping areas and must be attended. Only downed wood may be

used for fires. **CAUTION:** During periods of high fire danger all fires may be prohibited.

**Littering** - Laws against littering are strictly enforced!

**Animals/Pets** - Dogs are permitted for hunting migratory birds, quail and raccoon during designated seasons only. Squirrel and rabbit hunting with dogs is permitted January 1-31. All other dogs and pets must be confined or on a leash.

Horse travel is permitted on designated roads and trails open for motor vehicle travel to reach areas open to hunting, fishing or trapping, except during the refuge deer gun hunts when all horse travel is prohibited.

**Baiting** - and hunting over bait is prohibited.

**Hunting from Roads** - and trails that are open to motorized vehicles is prohibited.

**Spotlighting** - artificial light may not be used to locate wildlife.

**Artifacts** - No person shall search for or remove any object of antiquity, including arrowheads, pottery or other artifacts.

**Adult Supervision** - All hunters under age 16 must be closely supervised (in sight and in normal voice contact) by an adult at least 21 years of age responsible for their conduct. The minimum age for hunting is 12 years old.





All hunters born after December 31, 1968 must have successfully completed an approved Hunter Education Course and have on their person valid proof thereof.

## **SPECIFIC HUNTING REGULATIONS**

### **Migratory Game Bird**

Duck and Coot - State seasons (except special teal season closed). Hunting ends at noon each day. Only portable blinds are permitted. Blinds, boats and decoys must be removed each day either to a designated area (consult refuge manager) or from the refuge. Use or possession of lead shot prohibited.

Woodcock - State season through January 31, 1988.

### **Small Game and Furbearer**

Small game hunting is prohibited during all deer gun and muzzleloader hunts. Use or possession of lead shot permitted only while hunting in upland habitat (see map).

Squirrel - October 3, 1987 - January 31, 1988. Spring season closed.

Rabbit - October 3, 1987 - January 31, 1988.

Raccoon and Opossum - December 1-31, 1987 during the hours of darkness only. Bag limit is three raccoons per hunter per night.

Quail - November 21, 1987 - January 31, 1988.

Beaver, Nutria, and Feral Hog - May be taken without the aid of dogs during any daytime refuge hunt with weapons legal for that hunt. Possession of a hog and dog together prohibited. No bag limits.

### **Big Game**

Only portable stands may be used. Stands may be erected two days before each hunt and must be removed within two days after each hunt. Dogs and crossbows are prohibited except as provided below. State bag limits apply.

It is unlawful to drive or screw a nail, spike or other metal object into a tree or to hunt from any tree in which such an object has been driven.

Deer (Archery) - October 1 - December 31, 1987 except closed during quota deer hunts. Either sex.

Deer (Muzzleloader) - October 30-31, 1987. Either sex. Quota permit required. Crossbows permitted. Deer must be checked at refuge check station on same day killed.

Deer (Gun) - November 13-14 and November 27-28, 1987. Either sex. Quota permit required. Crossbows and muzzleloaders permitted. Deer must be checked at refuge check station on same day killed.

Possession of any deer or firearm on the refuge during a quota deer hunt is illegal without a valid quota deer hunt permit.

## **SPORT FISHING AND FROGGING REGULATIONS**

Sport fishing, frogging and taking of turtles and crawfish permitted in all refuge waters in accordance with State regulations. Fishing, frogging and taking of turtles and crawfish within the waterfowl sanctuary during the waterfowl hunting season is restricted to the main channel of the Ouachita River and borrow pits along U.S. Highway 82. Trotlines must be secured with cotton line.

## **NEED ADDITIONAL INFORMATION?**

For more copies of this leaflet or other specific information write or call the address below. Leaflets are available at refuge headquarters.

**Felsenthal National Wildlife Refuge**  
P.O. Box 1157  
Crossett, Arkansas 71635

Office Hours: Monday - Friday, 7:00 AM - 3:30 PM

Telephone: (501) 364-3167

### **Felsenthal National Wildlife Refuge**

#### **1987-88 General Hunt Permit**

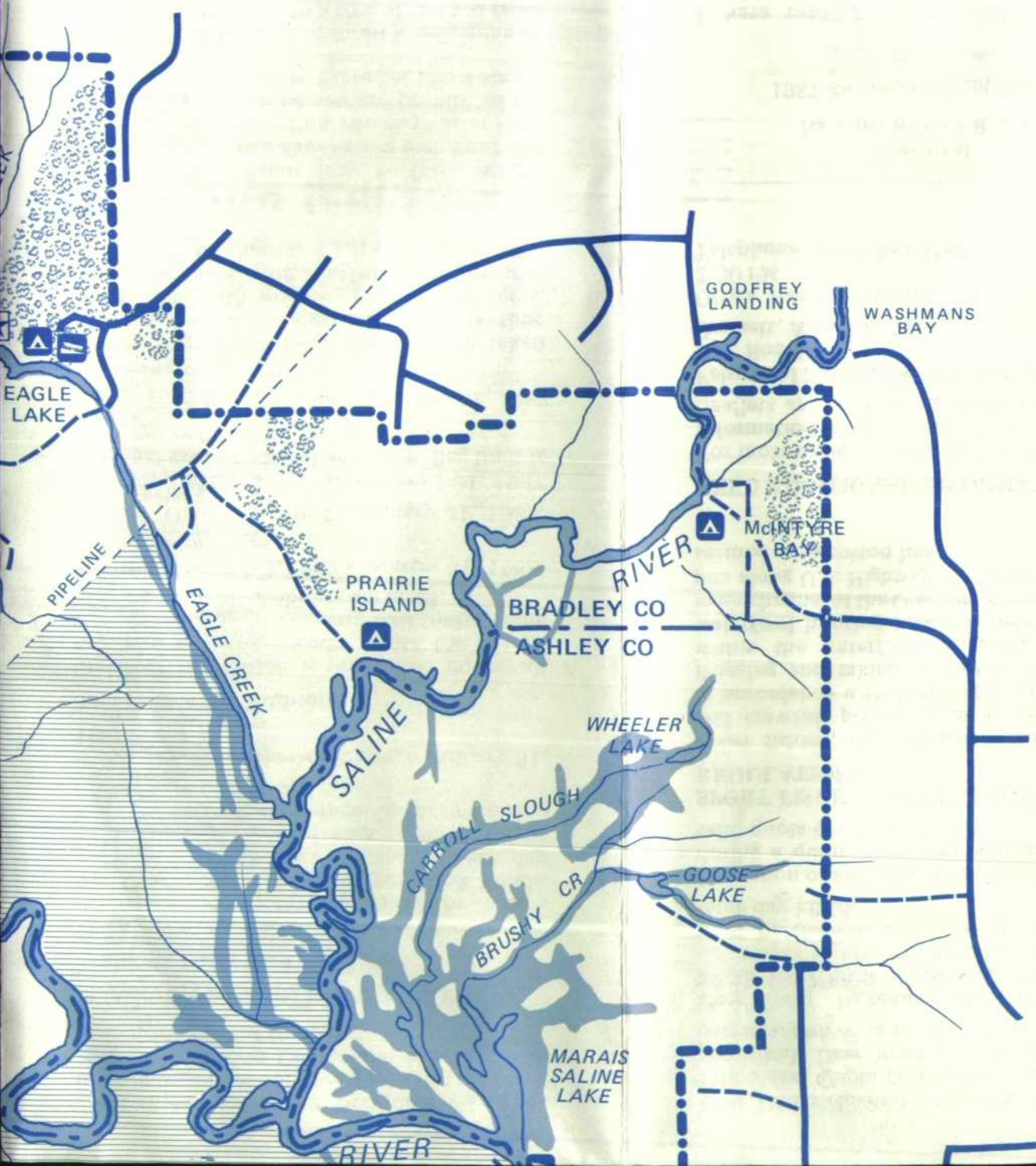
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I have read and understand these refuge regulations.

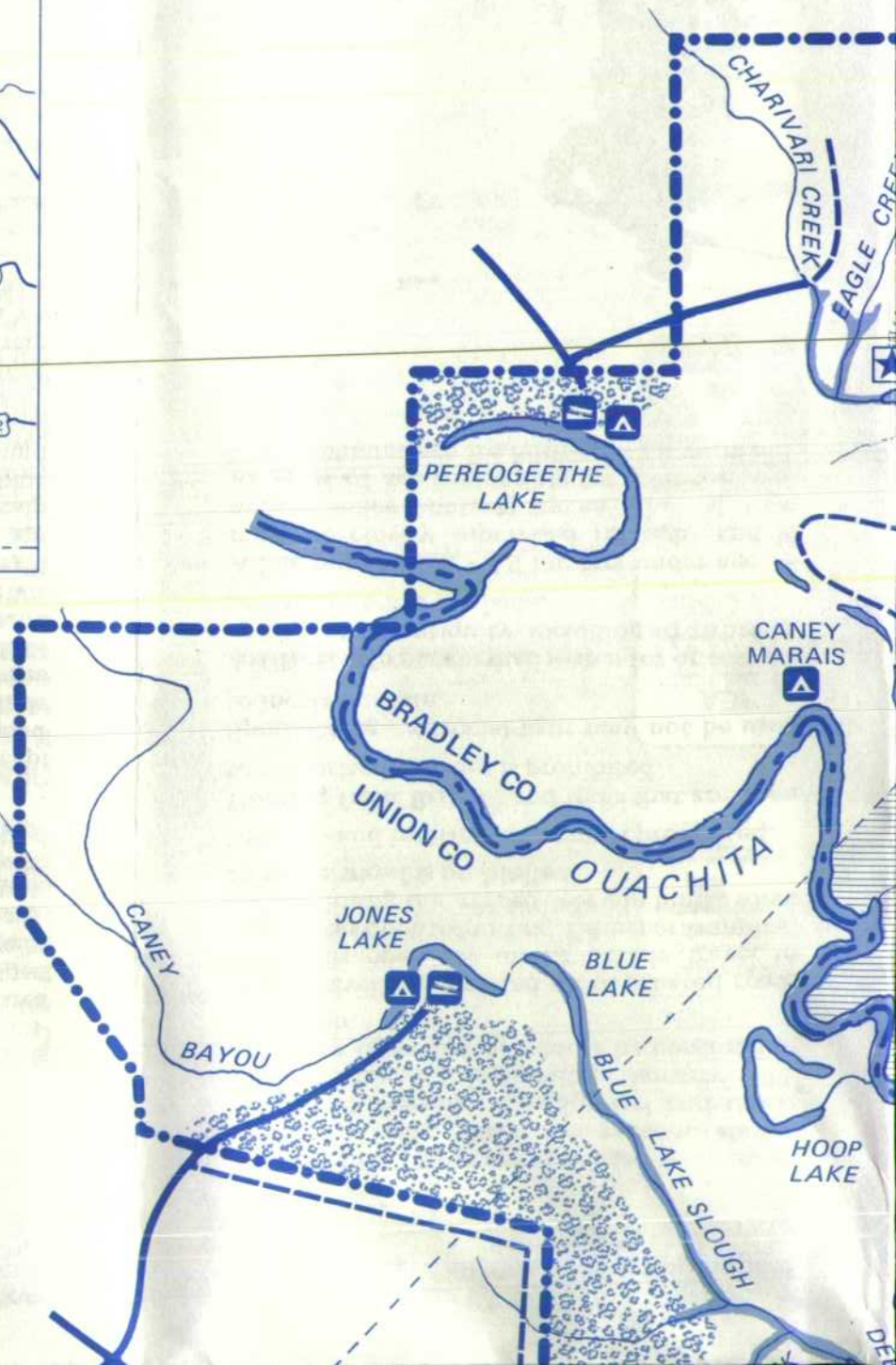
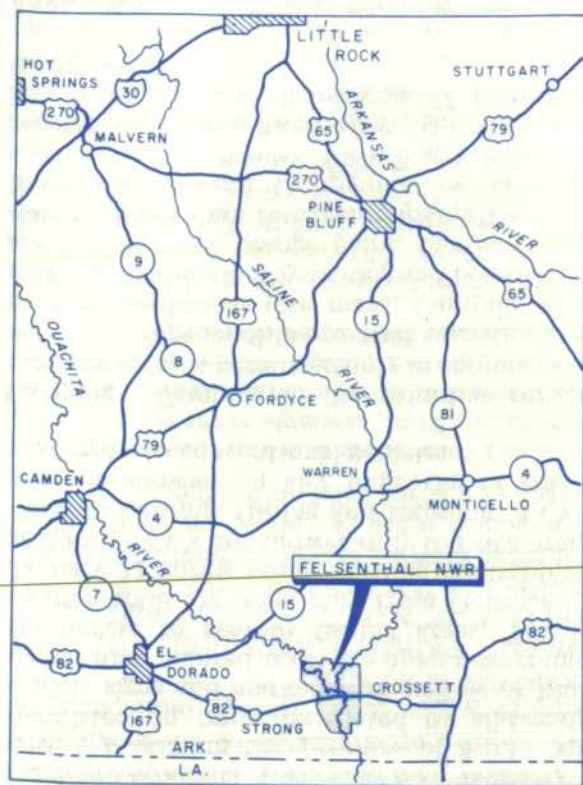
Signed \_\_\_\_\_

DEPARTMENT OF THE INTERIOR  
U.S. Fish and Wildlife Service  
RF-43570-8 - July 1987



















# LEGEND

-  Refuge Boundary
-  Improved Road
-  Unimproved Road
-  Waterfowl Sanctuary
-  Permanent Pool (65 ft. contour)
-  Upland Area (primarily pine timber/open fields)
-  Boat Access Canal
-  Area Closed (in square)
-  Primitive Camping Area
-  Improved Boat Ramp

To Strong  
6 Miles

LAPPOILE

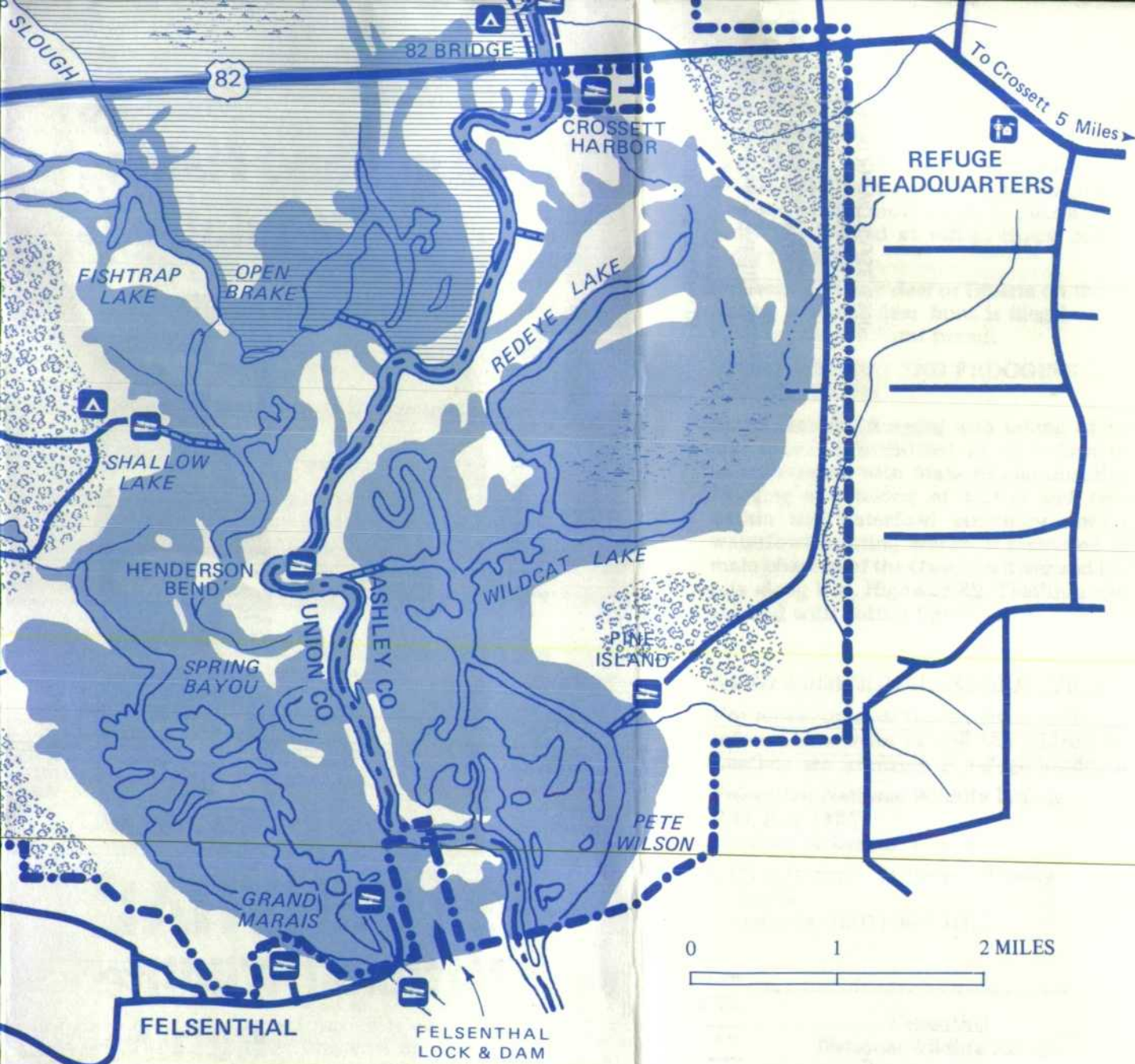
LOCUST RIDGE

Check Station

LAPILE

CR





# **FELSENTHAL**

## **National Wildlife**

### **Refuge**



## For Additional Information Contact:

Refuge Manager  
Felsenthal NWR  
P.O. Box 1157  
Crossett, Arkansas 71635

Phone: (501) 364-3167

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



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE

RF-43570-1 - June 1985

# FELSENTHAL National Wildlife Refuge



ARKANSAS



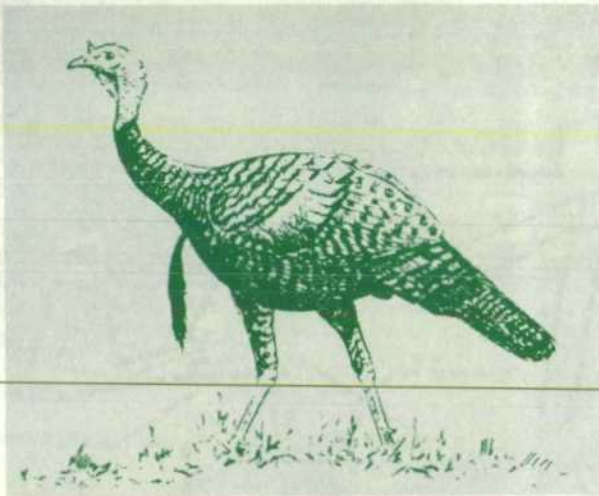
## We Need This Refuge

### Felsenthal Refuge

Felsenthal National Wildlife Refuge was established in August, 1975, to help offset the environmental impacts of the U.S. Army Corps of Engineers' Ouachita-Black Rivers' Navigation Project. This 65,000-acre refuge is located in the Felsenthal Basin, an extensive natural depression that is crisscrossed by an intricate system of creeks, sloughs, bayous, rivers and oxbow lakes.

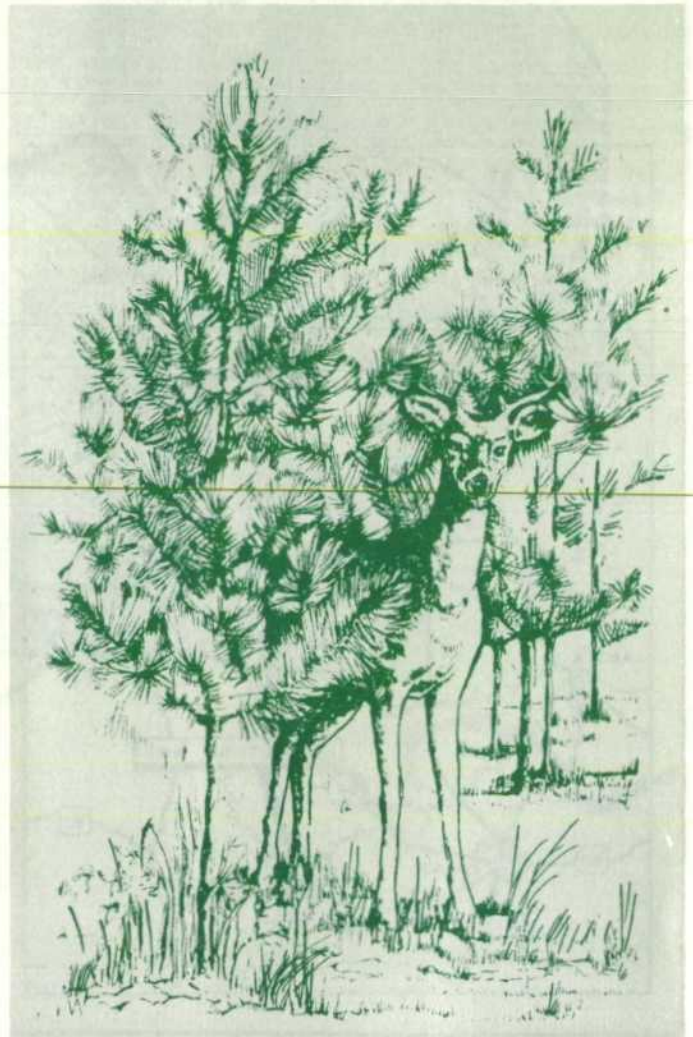
Major road access to Felsenthal is via U.S. Highway 82 which runs east/west roughly bisecting the refuge. The refuge headquarters is located about five miles west of Crossett, Arkansas along this public thoroughfare.

- To provide habitat for the enhancement of resident and migratory waterfowl;
- To provide habitat and protection for endangered and threatened species;
- To provide quality outdoor recreational opportunities; and
- To protect a rich heritage of cultural resources.



### A Look into The Past

The area which Felsenthal now occupies is rich in history. As long as 5,000 years ago, the area was inhabited by the Caddo Indians who hunted, fished and trapped in places that are still popular today. Felsenthal has some of the most significant and well-preserved archeological resources in the region. Seasonal fishing camps along the Ouachita and Saline Rivers, temple mounds with ceremonial plazas and villages with as many as 200 structures are evidence of once thriving Indian communities.





# Refuge Residents

Felsenthal is home for a myriad of wildlife species. Due to diversity of habitat and seasonal changes, a variety of wildlife can be seen year-round.

Four endangered species live on Felsenthal Refuge all or part of the year: the bald eagle, red-cockaded woodpecker, American alligator, and wood stork. Two of these, the woodpecker and alligator, are year-round residents. The woodpecker prefers the open pine stands of the uplands and the alligator favors the rivers, lakes and sloughs. The bald eagle and wood stork are both transient species. Winter offers rare glimpses of our national symbol and the wood stork or "ironhead" can sometimes be seen during the late summer and early fall. A variety of mammals and other game species reside on Felsenthal such as white-tailed deer, squirrel, rabbit, turkey and quail. Furbearers include raccoon, opossum, bobcat and beaver, to name a few.

An assortment of bird life can be discovered throughout the year. Upon the arrival of warm weather, the elegant marsh and wading birds such as egrets, herons and anhingas can be sighted along the rivers, sloughs and lakes. Fall and winter bring about a change in the avian scene as waterfowl migrate south. Those that use the Mississippi Flyway and stop here include mallards, wigeon, gadwall and teal, among others. The only waterfowl that nest on the refuge are the wood duck and hooded merganser.

## A Place for Wildlife

Three basic habitats are found on Felsenthal - bottomland hardwoods, permanent water and uplands.

Approximately 40,000 acres consist of bottomland hardwood forest. Primary drainage for the area is provided by the Ouachita and Saline Rivers, whose backwaters flood these adjacent low-lying bottomlands.

The largest body of water is the 15,000-acre permanent pool located primarily in the southern portion of the refuge. One of the largest seasonally-flooded bottomland areas, or greentree reservoirs, in the world is created during the winter and early spring. These shallowly flooded woodlands provide a rich and abundant food supply for wintering waterfowl. These same waters are also ideal spawning habitat for many species of sport and commercial fish.

The remaining 10,000 acres, classified as croplands, are located mainly along the outer edges of the refuge. These areas of high ground consist of pine ridges, upland hardwoods and open spaces. The uplands provide much needed habitat for many refuge residents, especially during the winter months when the greentree reservoir is flooded.



## Managing for Wildlife

A number of management practices are conducted to achieve the needed diversity of habitat. Prescribed or controlled burning and timber harvest in the pine uplands benefit refuge residents such as the endangered red-cockaded woodpecker and numerous other upland species. Selective timber harvest in the bottomlands improves overall wildlife habitat resulting in increased food production and cover.

Water levels are raised and lowered seasonally in the greentree reservoir. This water management encourages the growth and production of plants and invertebrates which benefit wintering waterfowl and fish populations.

Fields, clearings and other wildlife openings scattered throughout the woodlands are managed in various ways. Some are planted with wildlife foods and others are mowed, disked or burned to provide open areas of diverse habitat in the vast forest.



OPPELSTON  
MILITARY  
Activities

## Rules to Remember

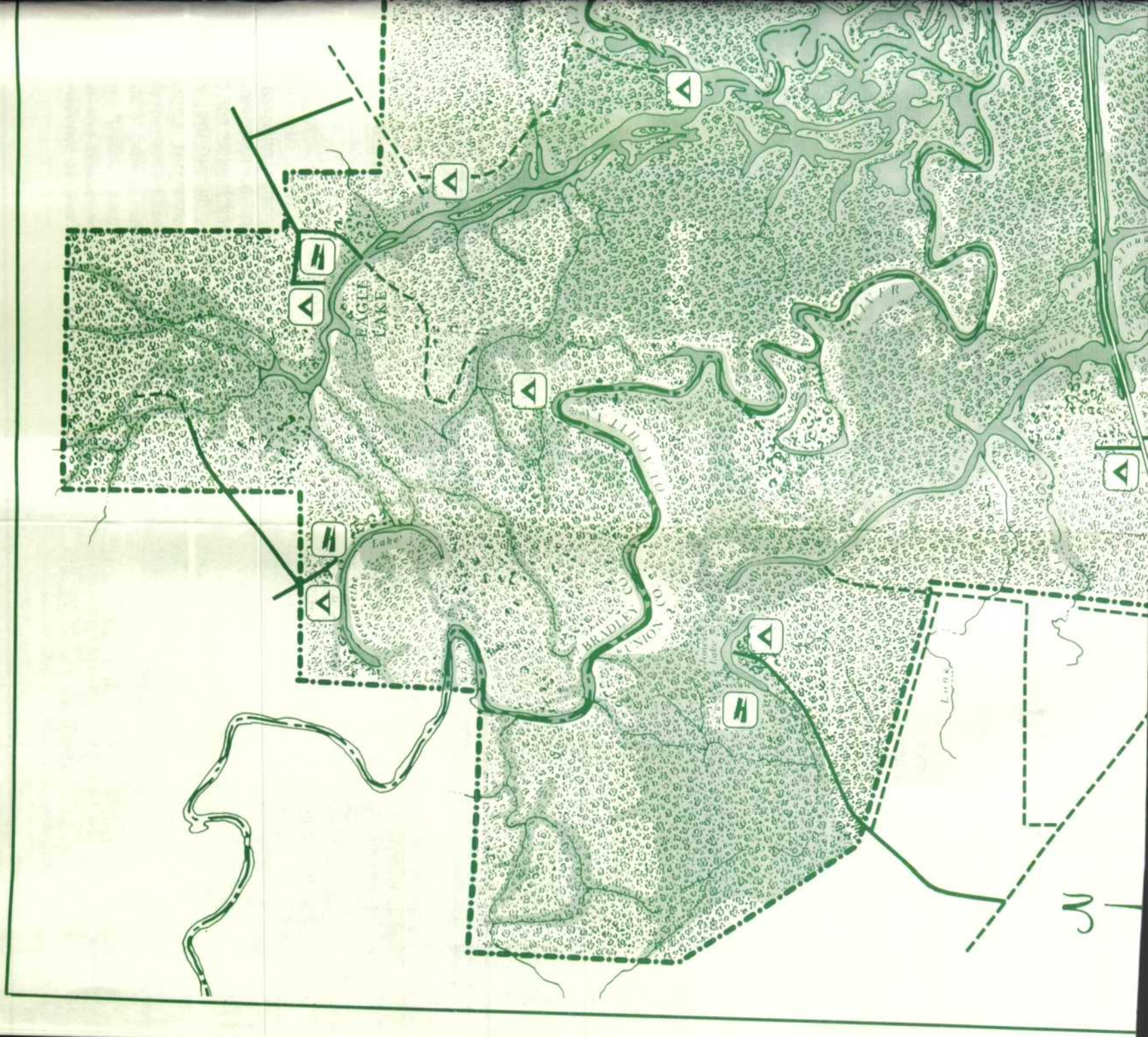
Public use is permitted during daylight hours only unless otherwise authorized.

Motorized vehicles are permitted only on roads signed as open.

Firearms are permitted only during refuge hunts, and must be unloaded and encased or dismantled when transported.

Remove all trash. Littering is prohibited.







# Enjoy Your Visit ...

A wide variety of recreational opportunities are available at Felsenthal. Ranging from hunting to bird watching, there is something for almost everyone.



## Fishing

Fishing is permitted year-round in refuge waters in accordance with State and Federal regulations. See current hunting and fishing brochure for additional information.



## Hunting

Hunting seasons are opened for deer, squirrel, rabbit, quail, raccoon, opossum and migratory waterfowl during designated seasons. See current hunting and fishing brochure for additional information. All State and Federal regulations are in effect. Permits are required.



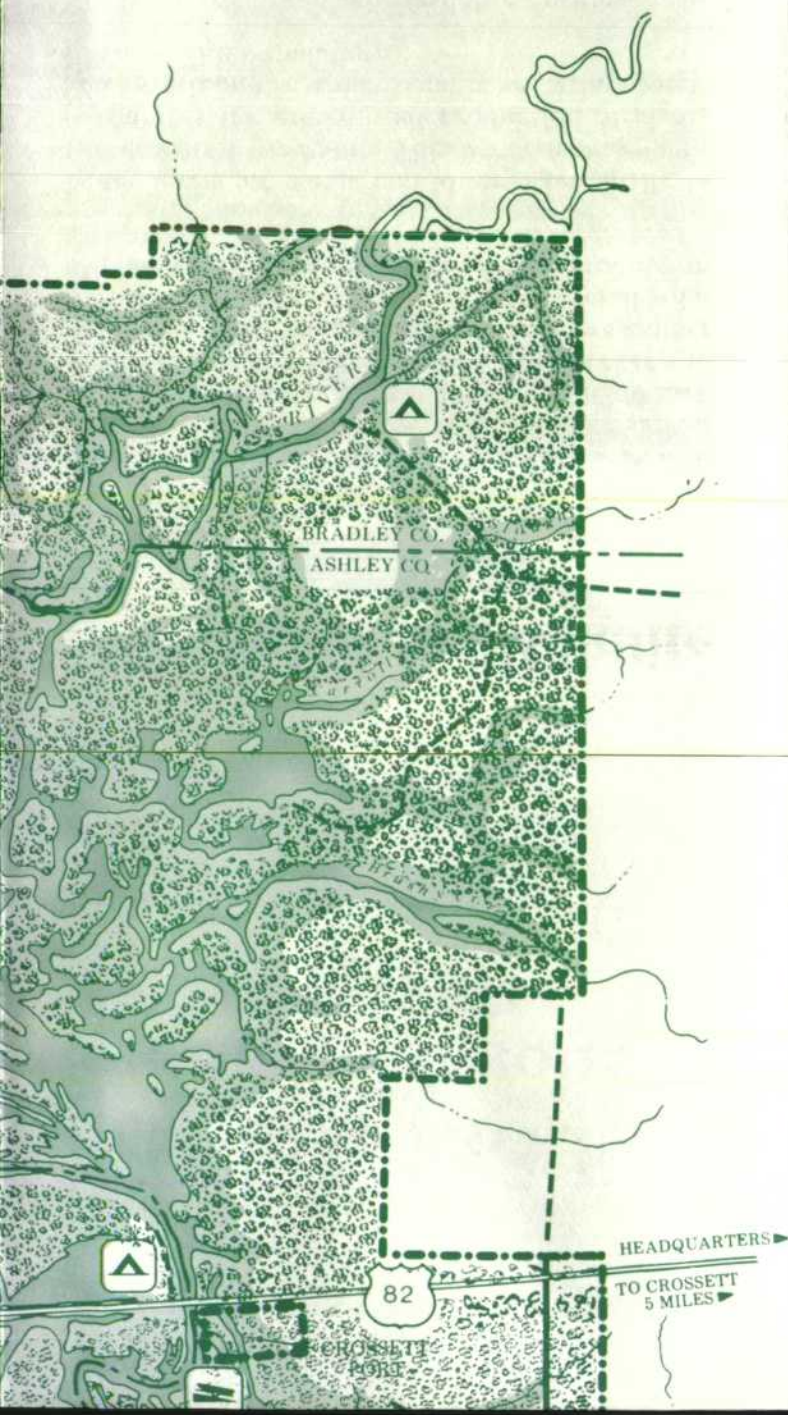
## Wildlife Observation

Hiking, backpacking, photography and bird watching are encouraged. Use of three-wheeler trails and old logging roads that crisscross the refuge can be most rewarding.



## Camping

Primitive camping (including fires) is permitted in designated areas in conjunction with other wildlife-oriented activities such as hunting, fishing or





wildlife observation.

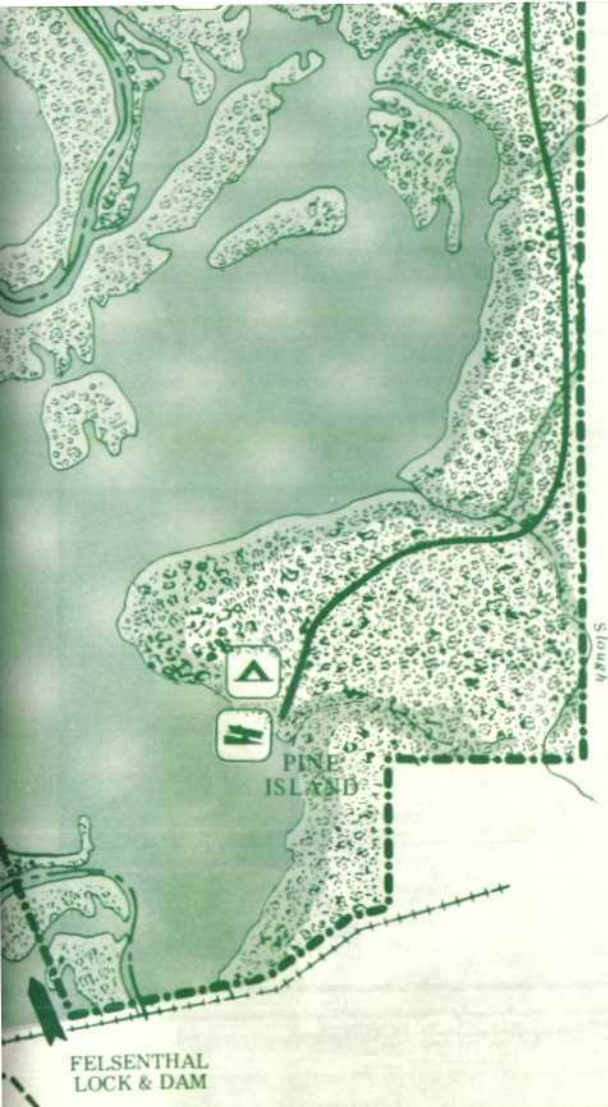


## Boating

Boating and canoeing are permitted in refuge waters in accordance with State and Federal regulations. Boat ramps are located at Pine Island, Shallow Lake, Jones Lake, Pereogeethe Lake and Eagle Lake on the refuge and Crossett Harbor, Grand Marais and Felsenthal Lock and Dam adjacent to the refuge.

## Other Activities

Waterskiing, sunbathing, swimming and picnicking are permitted but not encouraged in designated areas. High flotation off-road vehicles (such as three-wheelers and "Hustlers") and horseback riding are permitted only on designated roads and trails.



Permanent Water



Seasonally Flooded Woodland

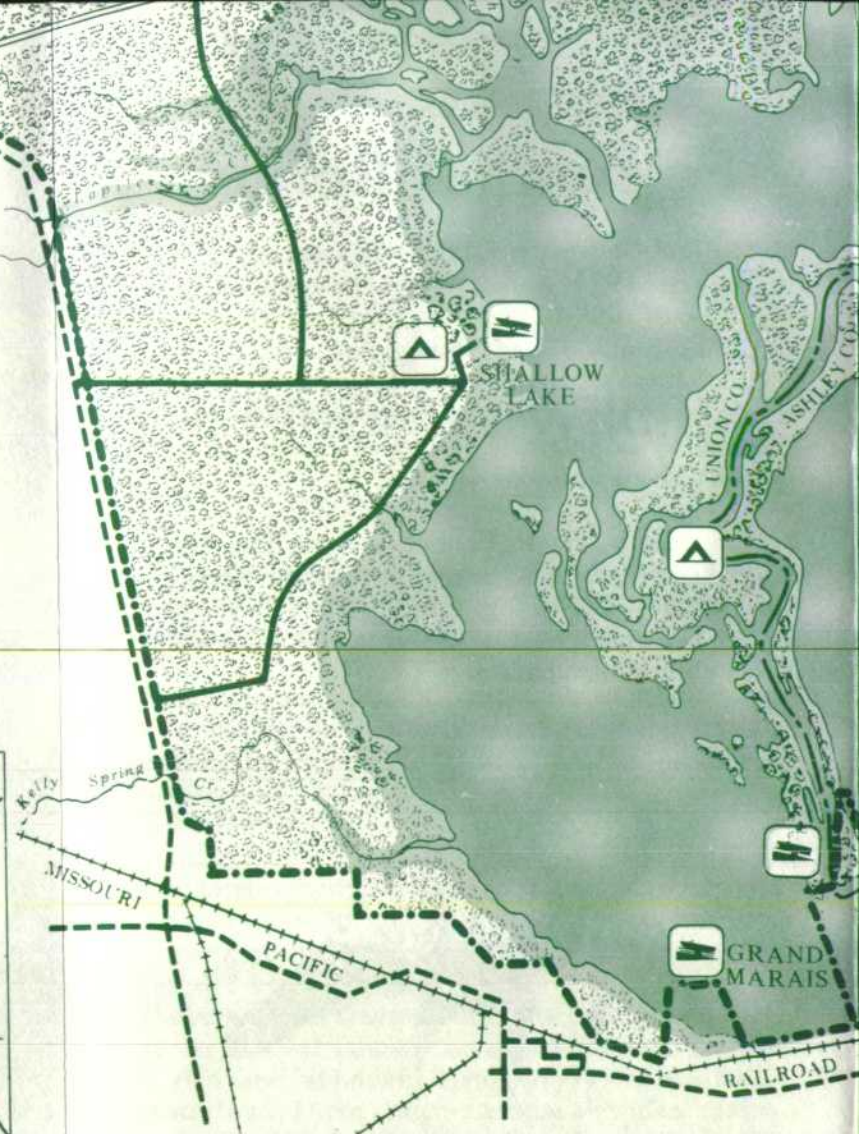
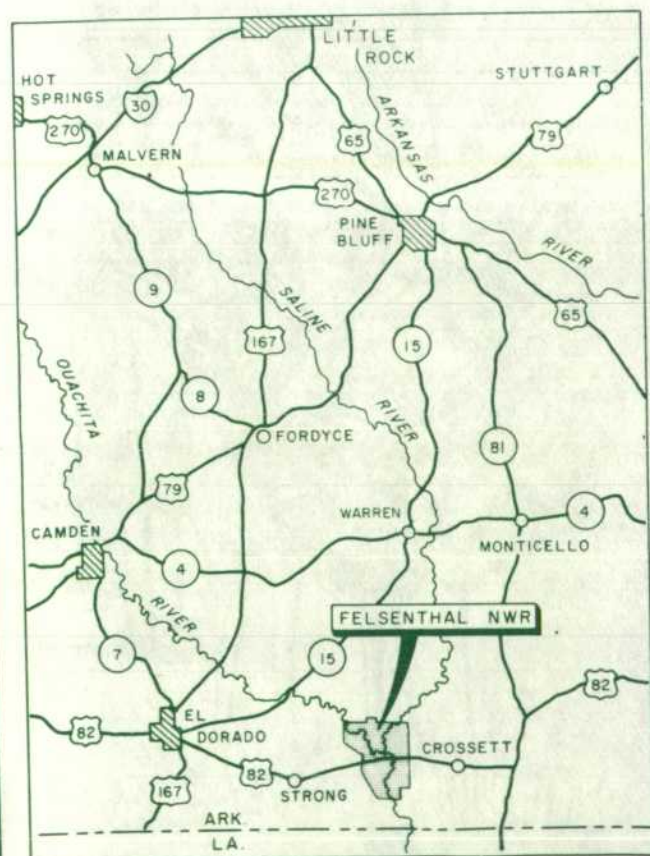
# FELSENTHAL National Wildlife Refuge

ARKANSAS



0 1 2 MILES

TO STRONG, 8 MILES



# LEGEND



Boat Access



Campground



Refuge Boundary

Highway

Unimproved Road

Improved Road



	S	s	F	W
* Blue-gray Gnatcatcher . . . . .	c	c	u	
Golden-crowned Kinglet . . . . .	u		c	c
Ruby-crowned Kinglet . . . . .	c		c	c
Water Pipet . . . . .	u		u	u
Cedar Waxwing . . . . .	c		o	c
* Loggerhead Shrike . . . . .	u	u	u	u
* Starling . . . . .	c	c	c	c
Solitary Vireo . . . . .	u		u	u
* White-eyed Vireo . . . . .	c	c	u	r
Bell's Vireo . . . . .	u	u		
* Yellow-throated Vireo . . . . .	u	u	u	
* Red-eyed Vireo . . . . .	c	c	u	
Philadelphia Vireo . . . . .	o		o	
Warbling Vireo . . . . .	e		e	
* Black and White Warbler . . . . .	u	o		
* Prothonotary Warbler . . . . .	c	c	u	
Swainson's Warbler . . . . .	e	e		
Worm-eating Warbler . . . . .	u		u	
Blue-winged Warbler . . . . .	c		c	
Tennessee Warbler . . . . .	c		c	
Orange-crowned Warbler . . . . .	u		u	u
Nashville Warbler . . . . .	c		e	
* Northern Parula . . . . .	c	c	c	
* Yellow Warbler . . . . .	o	o	o	o
Magnolia Warbler . . . . .	u		u	
Yellow-rumped Warbler . . . . .	c		c	c
Black-throated Green Warbler . . . . .	o		o	
* Cerulean Warbler . . . . .	o	o	o	
* Yellow-throated Warbler . . . . .	a	c	u	
Blackburnian Warbler . . . . .	u		u	
Chestnut-sided Warbler . . . . .	e		e	
Bay-breasted Warbler . . . . .	o		o	
Blackpoll Warbler . . . . .	e			
Pine Warbler . . . . .	c	c	c	c
Prairie Warbler . . . . .		u	u	
Palm Warbler . . . . .	o		o	
Northern Waterthrush . . . . .	o		o	
* Louisiana Waterthrush . . . . .	u	u	u	
* Common Yellowthroat . . . . .	c	c	c	
* Yellow-breasted Chat . . . . .	c	c	c	
* Kentucky Warbler . . . . .	c	c	c	
* Hooded Warbler . . . . .	u	u	o	

	S	s	F	W
Canada Warbler . . . . .	e			
* American Redstart . . . . .	c	c	c	
* House Sparrow . . . . .	c	c	c	c
* Eastern Meadowlark . . . . .	c	c	c	c
* Red-winged Blackbird . . . . .	a	a	a	a
Rusty Blackbird . . . . .	c		o	c
Brewer's Blackbird . . . . .	o		o	c
* Common Grackle . . . . .	a	a	a	a
* Brown-headed Cowbird . . . . .	a	a	a	a
* Orchard Oriole . . . . .	c	c	c	
* Northern Oriole . . . . .	c	c	c	
Scarlet Tanager . . . . .	r		r	
* Summer Tanager . . . . .	c	c	c	
* Cardinal . . . . .	a	a	a	a
Rose-breasted Grosbeak . . . . .	u		u	
Evening Grosbeak . . . . .	u		u	u
* Blue Grosbeak . . . . .	u	u	u	
* Indigo Bunting . . . . .	a	c	c	
Painted Bunting . . . . .	r	r		
Purple Finch . . . . .	u			u
Pine Siskin . . . . .	o		o	o
American Goldfinch . . . . .	c		c	c
Red Crossbill . . . . .	r			r
Rufous-sided Towhee . . . . .	c	u	c	c
Savannah Sparrow . . . . .	u		u	c
Le Conte's Sparrow . . . . .	r		r	r
Vesper Sparrow . . . . .	u		u	u
* Lark Sparrow . . . . .	r	r	r	
Dark-eyed Junco . . . . .	c		c	c
Bachman's Sparrow . . . . .	r	r		
* Chipping Sparrow . . . . .	u	u	u	u
* Field Sparrow . . . . .	c	c	c	c
White-crowned Sparrow . . . . .	c		u	c
White-throated Sparrow . . . . .	a		a	a
Fox Sparrow . . . . .	u		u	u
Lincoln's Sparrow . . . . .	u		o	o
Swamp Sparrow . . . . .	c		c	c
Song Sparrow . . . . .	c		c	c
Lapland Longspur . . . . .	r			r



# N O T E S

LOCATION:

DATE:

OBSERVERS:

WEATHER:

TIME:

TOTAL:

WIND:



## Birds of Felsenthal

DEPARTMENT OF THE INTERIOR  
U. S. Fish and Wildlife Service



	S	s	F	W
* Red-headed Woodpecker . . . . .	a	a	a	a
Yellow-bellied Sapsucker . . . . .	a		u	c
* Hairy Woodpecker . . . . .	u	u	u	u
* Downy Woodpecker . . . . .	c	c	c	c

#### PASSERIFORMES - Perching Birds

* Eastern Kingbird . . . . .	u	c	u	
* Great Crested Flycatcher . . . . .	c	c	c	
Eastern Phoebe . . . . .	u	u	u	u
* Acadian Flycatcher . . . . .	o	o		
* Eastern Wood Pewee . . . . .	c	c	c	
Horned Lark . . . . .				c
* Barn Swallow . . . . .	c	c	c	
Cliff Swallow . . . . .	r	r		
Tree Swallow . . . . .	c	c		
Bank Swallow . . . . .	u	u		
* Rough-winged Swallow . . . . .	c	c	c	
* Purple Martin . . . . .	u	u	u	
* Blue Jay . . . . .	c	c	c	c
* Common Crow . . . . .	u	o	u	u
* Fish Crow . . . . .	c	c	c	c
* Carolina Chickadee . . . . .	c	c	c	c
* Tufted Titmouse . . . . .	a	a	a	a
* White-breasted Nuthatch . . . . .	u	u	u	u
Red-breasted Nuthatch . . . . .			o	
Brown-headed Nuthatch . . . . .	u	u	u	c
Brown Creeper . . . . .	o		o	c
House Wren . . . . .	u		u	u
Winter Wren . . . . .	u		u	u
* Bewicks's Wren . . . . .	u	u	u	u
* Carolina Wren . . . . .	a	a	a	a
Long-billed Marsh Wren . . . . .	o		o	o
Short-billed Marsh Wren . . . . .	o	o	o	
* Mockingbird . . . . .	a	a	a	a
* Gray Catbird . . . . .	c	c	c	
* Brown Thrasher . . . . .	c	c	c	c
* American Robin . . . . .	c	c	c	a
* Wood Thrush . . . . .	c	c	c	
Hermit Thrush . . . . .	o		o	c
Swainson's Thrush . . . . .	e		e	
Gray-cheeked Thrush . . . . .	e		e	
* Eastern Bluebird . . . . .	c	c	c	c

- \* Blue-gray Gnatcatcher .
- Golden-crowned Kinglet
- Ruby-crowned Kinglet
- Water Pipet . . . . .
- Cedar Waxwing . . . . .
- \* Loggerhead Shrike . .

- \* Starling . . . . .
- Solitary Vireo . . . . .
- \* White-eyed Vireo . . .
- Bell's Vireo . . . . .

- \* Yellow-throated V
- \* Red-eyed Vireo .
- Philadelphia Vireo
- Warbling Vireo

- \* Black and White
- \* Prothonotary V
- Swainson's W
- Worm-eating

- Blue-winged
- Tennessee W
- Orange-cro
- Nashville V

- \* Northern
- \* Yellow W
- Magnolia
- Yellow-r

- Black-tl
- \* Cerulea
- \* Yellow

- Black
- Ches
- Bay
- Blair

- Pir
- Pr
- P
- N

- \* Common
- \* Yellow-breasted Chat
- \* Kentucky Warbler . . . . .
- \* Hooded Warbler . . . . .



Felsenthal National Wildlife Refuge, established in 1975 as an enhancement project for the U.S. Corps of Engineers Ouachita and Black Rivers Navigation Project, is managed by the U.S. Fish and Wildlife Service. The refuge is located in south central Arkansas on U.S. Highway 82, approximately 7 miles west of Crossett.

The objectives of this 65,000 acre refuge include the protection and enhancement of habitat for migratory waterfowl and timber management for the endangered red-cockaded woodpecker.

The refuge is crisscrossed by an intricate system of creeks, sloughs, and lakes meandering through extensive bottomland forests with the adjoining higher elevations occupied by pine and upland hardwoods. Wetland habitat varies from the 15,000 acre navigational pool to an additional 21,000 acres scheduled for winter flooding.

Natural flooding often increases waterfowl habitat during late winter and spring. The diverse habitat supports a large variety of birds and other wildlife.

Information concerning accessibility, location, and other information obtained from the refuge headquarters along U.S. Highway 82 between the refuge and Crossett, Arkansas. Additional information can be obtained by writing Refuge Manager, Box 279, Crossett, Arkansas 71635.

This initial refuge bird list contains 218 species that have been observed or are expected to occur by refuge personnel and qualified ornithologists on the refuge or in the surrounding area. Visitors are urged to report any sightings of species present on this list.

#### Legend

- \* Birds expected to nest locally

#### Season Symbols

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

#### Abundance Symbols

- a abundant, very numerous
- c common, certain to be seen or heard in suitable habitat
- u uncommon, present but not certain to be seen
- o occasional, seen only a few times during a season
- r rare, seen only at intervals of 2 to 5 years
- e expected, birds not recorded however suitable habitat present



	S	s	F	W
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## GAVIIFORMES - Loons

Common Loon . . . . .	u		u	u
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## PODICIPEDIFORMES - Grebes

Horned Grebe . . . . .	o		o	o
Eared Grebe . . . . .	o		o	o
* Pied-billed Grebe . . . . .	u	u	u	u

## PELECANIFORMES - Pelicans, Cormorants, Anhingas

White Pelican . . . . .	o		o	
Double-crested Cormorant . . . . .				o
* Anhinga . . . . .	u	u	u	

## ANSERIFORMES - Waterfowl

Whistling Swan . . . . .			r	
Canada Goose . . . . .	o		o	o
Snow Goose . . . . .	o		o	o
Mallard . . . . .	a		a	a
Black Duck . . . . .	o		o	o
Gadwall . . . . .	c		c	c
Pintail . . . . .	c		c	c
Green-winged Teal . . . . .	c		c	c
Blue-winged Teal . . . . .	c		c	o
American Wigeon . . . . .	c		c	c
Shoveler . . . . .	u		u	u
* Wood Duck . . . . .	c	c	c	c
Redhead . . . . .	u		u	u
Ring-necked Duck . . . . .	c		c	c
Canvasback . . . . .	u		u	u
Lesser Scaup . . . . .	u		u	u
Bufflehead . . . . .	u		u	u
Oldsquaw . . . . .			r	
Ruddy Duck . . . . .	u		u	u
Hooded Merganser . . . . .	u	o	u	u
Common Merganser . . . . .	r			

## FALCONIFORMES - Vultures, Kites, Hawks, Eagles, Falcons

* Turkey Vulture . . . . .	c	c	c	c
* Black Vulture . . . . .	c	c	c	c
* Mississippi Kite . . . . .	r	r	r	
* Sharp-shinned Hawk . . . . .	u	u	u	u
* Coopers Hawk . . . . .	o	o	o	o

	S	s	F	W
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* Red-tailed Hawk . . . . .	c	c	c	c
* Red-shouldered Hawk . . . . .	c	c	c	c
Broad-winged Hawk . . . . .	u	u	c	
Golden Eagle . . . . .	r		r	r
Bald Eagle . . . . .			o	o
Marsh Hawk . . . . .	o		o	u
Osprey . . . . .	u		u	r
Peregrine Falcon . . . . .				u
* American Kestrel . . . . .	u	o	o	u

## GALLIFORMES - Quail, Turkey

* Bobwhite . . . . .	c	c	c	c
* Turkey . . . . .	c	c	c	c

## CICONIIFORMES - Herons and Allied Species

* Great Blue Heron . . . . .	c	c	c	c
* Green Heron . . . . .	c	c	c	
* Little Blue Heron . . . . .	a	a	c	
Cattle Egret . . . . .	u	u	u	
* Great Egret . . . . .	o	u	u	
* Snowy Egret . . . . .	u	u	u	
Louisiana Heron . . . . .	r	o		
* Black-crowned Night Heron . . . . .	u	u	u	o
* Yellow-crowned Night Heron . . . . .	u	u	u	
American Bittern . . . . .	u		u	
Wood Stork . . . . .		a	c	
White Ibis . . . . .		r		

## GRUIFORMES - Cranes, Rails, Coots

* King Rail . . . . .	o	r	r	o
Virginia Rail . . . . .	u	u	o	
Sora . . . . .	u		u	
American Coot . . . . .	c	u	c	c

## CHARADRIIFORMES - Plovers, Snipes, Sandpipers & Allied Species

* Killdeer . . . . .	u	u	u	u
* American Woodcock . . . . .	o	o	o	o
Common Snipe . . . . .	c			c
Upland Sandpiper . . . . .	o		o	
Spotted Sandpiper . . . . .	u	u	u	
Solitary Sandpiper . . . . .	u	o	u	
Greater Yellowlegs . . . . .	o	o	o	
Lesser Yellowlegs . . . . .	c	o	c	

	S	s	F	W
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Pectoral Sandpiper . . . . .	c	o	c	
Least Sandpiper . . . . .	o		o	
Semipalmated Sandpiper . . . . .	u		u	
Western Sandpiper . . . . .	u		u	
Herring Gull . . . . .	u		u	u
Ring-billed Gull . . . . .	u		u	u
Least Tern . . . . .	u	u		
Forster's Tern . . . . .	o		o	
Caspian Tern . . . . .	r		r	
Black Tern . . . . .	o		o	

## COLUMBIFORMES - Pigeons, Doves

* Rock Dove . . . . .	u	o	o	o
* Mourning Dove . . . . .	c	c	c	c

## CUCULIFORMES - Cuckoos and Roadrunner

* Yellow-billed Cuckoo . . . . .	c	c	o	
Black-billed Cuckoo . . . . .	r		r	
Roadrunner . . . . .	o	o	o	o

## STRIGIFORMES - Owls

* Screech Owl . . . . .	c	c	c	c
* Great Horned Owl . . . . .	u	u	u	u
* Barn Owl . . . . .	r	r	r	r
* Barred Owl . . . . .	c	c	c	c

## CAPRIMULGIFORMES - Nighthawks

* Chuck-will's widow . . . . .	c	c	u	
* Whip-poor-will . . . . .	u	u	u	
* Common Nighthawk . . . . .	c	c	c	

## APODIFORMES - Swifts, Hummingbirds

* Chimney Swift . . . . .	c	c	c	
* Ruby-throated Hummingbird . . . . .	c	c	c	

## CORACIIFORMES - Kingfishers

* Belted Kingfisher . . . . .	c	c	c	c
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## PICIFORMES - Woodpeckers

* Common Flicker . . . . .	c	c	c	c
* Pileated Woodpecker . . . . .	c	c	c	c
* Red-bellied Woodpecker . . . . .	a	a	a	a
* Red-cockaded Woodpecker . . . . .	u	u	u	u



	S	s	F	W
<b>GAVIIFORMES - Loons</b>				
Common Loon . . . . .	u		u	u

# **PODICIPEDIFORMES - Grebes**

Horned Grebe . . . . .	o		o	o
Eared Grebe . . . . .	o		o	o
* Pied-billed Grebe . . . . .	u	u	u	u

# **PELECANIFORMES - Pelicans, Cormorants, Anhingas**

White Pelican . . . . .	o		o	
Double-crested Cormorant . . . . .				o
* Anhinga . . . . .	u	u	u	

# **ANSERIFORMES - Waterfowl**

Whistling Swan . . . . .			r	
Canada Goose . . . . .	o		o	o
Snow Goose . . . . .	o		o	o
Mallard . . . . .	a		a	a
Black Duck . . . . .	o		o	o
Gadwall . . . . .	c		c	c
Pintail . . . . .	c		c	c
Green-winged Teal . . . . .	c		c	c
Blue-winged Teal . . . . .	c		c	o
American Wigeon . . . . .	c		c	c
Shoveler . . . . .	u		u	u
* Wood Duck . . . . .	c	c	c	c
Redhead . . . . .	u		u	u
Ring-necked Duck . . . . .	c		c	c
Canvasback . . . . .	u		u	u
Lesser Scaup . . . . .	u		u	u
Bufflehead . . . . .	u		u	u
Oldsquaw . . . . .			r	
Ruddy Duck . . . . .	u		u	u
Hooded Merganser . . . . .	u	o	u	u
Common Merganser . . . . .	r			

# **FALCONIFORMES - Vultures, Kites, Hawks, Eagles, Falcons**

* Turkey Vulture . . . . .	c	c	c	c
* Black Vulture . . . . .	c	c	c	c
* Mississippi Kite . . . . .	r	r	r	
* Sharp-shinned Hawk . . . . .	u	u	u	u
* Coopers Hawk . . . . .	o	o	o	o

	S	s	F	W
* Red-tailed Hawk . . . . .	c	c	c	c
* Red-shouldered Hawk . . . . .	c	c	c	c
Broad-winged Hawk . . . . .	u	u	c	
Golden Eagle . . . . .	r		r	r
Bald Eagle . . . . .			o	o
Marsh Hawk . . . . .	o		o	u
Osprey . . . . .	u		u	r
Peregrine Falcon . . . . .				u
* American Kestrel . . . . .	u	o	o	u

# **GALLIFORMES - Quail, Turkey**

* Bobwhite . . . . .	c	c	c	c
* Turkey . . . . .	c	c	c	c

# **CICONIIFORMES - Herons and Allied Species**

* Great Blue Heron . . . . .	c	c	c	c
* Green Heron . . . . .	c	c	c	
* Little Blue Heron . . . . .	a	a	c	
Cattle Egret . . . . .	u	u	u	
* Great Egret . . . . .	o	u	u	
* Snowy Egret . . . . .	u	u	u	
Louisiana Heron . . . . .	r	o		
* Black-crowned Night Heron . . . . .	u	u	u	o
* Yellow-crowned Night Heron . . . . .	u	u	u	
American Bittern . . . . .	u		u	
Wood Stork . . . . .		a	c	
White Ibis . . . . .		r		

# **GRUIFORMES - Cranes, Rails, Coots**

* King Rail . . . . .	o	r	r	o
Virginia Rail . . . . .	u	u	o	
Sora . . . . .	u		u	
American Coot . . . . .	c	u	c	c

# **CHARADRIIFORMES - Plovers, Snipes, Sandpipers & Allied Species**

* Killdeer . . . . .	u	u	u	u
* American Woodcock . . . . .	o	o	o	o
Common Snipe . . . . .	c			c
Upland Sandpiper . . . . .	o		o	
Spotted Sandpiper . . . . .	u	u	u	
Solitary Sandpiper . . . . .	u	o	u	
Greater Yellowlegs . . . . .	o	o	o	
Lesser Yellowlegs . . . . .	c	o	c	

	S	s	F	W
Pectoral Sandpiper . . . . .	c	o	c	
Least Sandpiper . . . . .	o		o	
Semipalmated Sandpiper . . . . .	u		u	
Western Sandpiper . . . . .	u		u	
Herring Gull . . . . .	u		u	u
Ring-billed Gull . . . . .	u		u	u
Least Tern . . . . .	u	u		
Forster's Tern . . . . .	o		o	
Caspian Tern . . . . .	r		r	
Black Tern . . . . .	o		o	

# **COLUMBIFORMES - Pigeons, Doves**

* Rock Dove . . . . .	o	o	o	o
* Mourning Dove . . . . .	c	c	c	c

# **CUCULIFORMES - Cuckoos and Roadrunner**

* Yellow-billed Cuckoo . . . . .	c	c	o	
Black-billed Cuckoo . . . . .	r		r	
Roadrunner . . . . .	o	o	o	o

# **STRIGIFORMES - Owls**

* Screech Owl . . . . .	c	c	c	c
* Great Horned Owl . . . . .	u	u	u	u
* Barn Owl . . . . .	r	r	r	r
* Barred Owl . . . . .	c	c	c	c

# **CAPRIMULGIFORMES - Nighthawks**

* Chuck-will's widow . . . . .	c	c	u	
* Whip-poor-will . . . . .	u	u	u	
* Common Nighthawk . . . . .	c	c	c	

# **APODIFORMES - Swifts, Hummingbirds**

* Chimney Swift . . . . .	c	c	c	
* Ruby-throated Hummingbird . . . . .	c	c	c	

# **CORACIIFORMES - Kingfishers**

* Belted Kingfisher . . . . .	c	c	c	c
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# **PICIFORMES - Woodpeckers**

* Common Flicker . . . . .	c	c	c	c
* Pileated Woodpecker . . . . .	c	c	c	c
* Red-bellied Woodpecker . . . . .	a	a	a	a
* Red-cockaded Woodpecker . . . . .	u	u	u	u

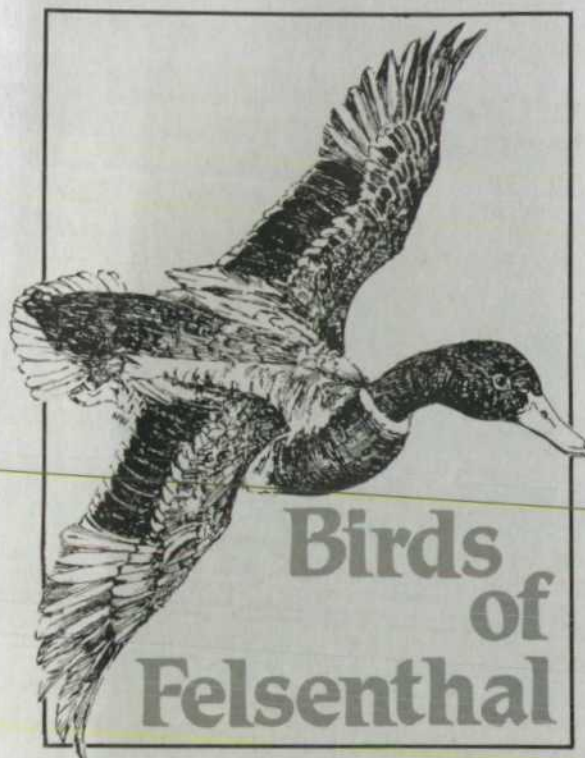


S s F W

* Red-headed Woodpecker. . . . .	a	a	a	a
Yellow-bellied Sapsucker . . . . .	a		u	c
* Hairy Woodpecker. . . . .	u	u	u	u
* Downy Woodpecker. . . . .	c	c	c	c

# PASSERIFORMES - Perching Birds

* Eastern Kingbird. . . . .	u	c	u	
* Great Crested Flycatcher . . . . .	c	c	c	
Eastern Phoebe. . . . .	u	u	u	u
* Acadian Flycatcher . . . . .	o	o		
* Eastern Wood Pewee . . . . .	c	c	c	
Horned Lark. . . . .				c
* Barn Swallow . . . . .	c	c	c	
Cliff Swallow . . . . .	r	r		
Tree Swallow . . . . .	c	c		
Bank Swallow. . . . .	u		u	
* Rough-winged Swallow. . . . .	c	c	c	
* Purple Martin . . . . .	u	u	u	
* Blue Jay . . . . .	c	c	c	c
* Common Crow . . . . .	u	o	u	u
* Fish Crow . . . . .	c	c	c	c
* Carolina Chickadee . . . . .	c	c	c	c
* Tufted Titmouse. . . . .	a	a	a	a
* White-breasted Nuthatch. . . . .	u	u	u	u
Red-breasted Nuthatch. . . . .				o
Brown-headed Nuthatch. . . . .	u	u	u	c
Brown Creeper . . . . .	o		o	c
House Wren . . . . .	u		u	u
Winter Wren. . . . .	u		u	u
* Bewicks's Wren. . . . .	u	u	u	u
* Carolina Wren. . . . .	a	a	a	a
Long-billed Marsh Wren . . . . .	o		o	o
Short-billed Marsh Wren . . . . .	o	o	o	
* Mockingbird. . . . .	a	a	a	a
* Gray Catbird . . . . .	c	c	c	
* Brown Thrasher . . . . .	c	c	c	c
* American Robin . . . . .	c	c	c	a
* Wood Thrush . . . . .	c	c	c	
Hermit Thrush . . . . .	o		o	c
Swainson's Thrush. . . . .	e		e	
Gray-checked Thrush. . . . .	e		e	
* Eastern Bluebird . . . . .	c	c	c	c



Felsenthal National Wildlife Refuge, established in 1975 as an enhancement project for the U.S. Corps of Engineers Ouachita and Black Rivers Navigation Project, is managed by the U.S. Fish and Wildlife Service. The refuge is located in south central Arkansas on U.S. Highway 82, approximately 7 miles west of Crossett.

The objectives of this 65,000 acre refuge include the protection and enhancement of habitat for migratory waterfowl and timber management for the endangered red-cockaded woodpecker.

The refuge is crisscrossed by an intricate system of creeks, sloughs, and lakes meandering through extensive bottomland forests with the adjoining higher elevations occupied by pine and upland hardwoods. Wetland habitat varies from the 15,000 acre navigational pool to an additional 21,000 acres scheduled for winter flooding.

Natural flooding often increases water area during late winter and spring. The diversity of habitat supports a large variety of bird species and other wildlife.

Information concerning accessibility may be obtained from the refuge headquarters located along U.S. Highway 82 between the refuge and Crossett, Arkansas. Additional information can be obtained by writing Refuge Manager, P.O. Box 279, Crossett, Arkansas 71635.

This initial refuge bird list contains 218 species that have been observed or are expected to occur by refuge personnel and qualified ornithologists on the refuge or in the surrounding area. Visitors are urged to report any sightings of species not present on this list.

## Legend

\* Birds expected to nest locally

## Season Symbols

S - March - May

s - June - August

F - September - November

W - December - February

## Abundance Symbols

a abundant, very numerous

c common, certain to be seen or heard in suitable habitat

u uncommon, present but not certain to be seen

o occasional, seen only a few times during a season

r rare, seen only at intervals of 2 to 5 years

e expected, birds not recorded however suitable habitat present



	S	s	F	W
* Red-headed Woodpecker. . . . .	a	a	a	a
Yellow-bellied Sapsucker . . . . .	a		u	c
* Hairy Woodpecker. . . . .	u	u	u	u
* Downy Woodpecker. . . . .	c	c	c	c

# PASSERIFORMES - Perching Birds

* Eastern Kingbird. . . . .	u	c	u	
* Great Crested Flycatcher . . . . .	c	c	c	
Eastern Phoebe. . . . .	u	u	u	u
* Acadian Flycatcher . . . . .	o	o		
* Eastern Wood Pewee . . . . .	c	c	c	
Horned Lark. . . . .			c	
* Barn Swallow . . . . .	c	c	c	
Cliff Swallow . . . . .	r	r		
Tree Swallow . . . . .	c	c		
Bank Swallow. . . . .	u	u		
* Rough-winged Swallow. . . . .	c	c	c	
* Purple Martin . . . . .	u	u	u	
* Blue Jay . . . . .	c	c	c	c
* Common Crow . . . . .	u	o	u	u
* Fish Crow . . . . .	c	c	c	c
* Carolina Chickadee . . . . .	c	c	c	c
* Tufted Titmouse. . . . .	a	a	a	a
* White-breasted Nuthatch. . . . .	u	u	u	u
Red-breasted Nuthatch. . . . .			o	
Brown-headed Nuthatch. . . . .	u	u	u	c
Brown Creeper . . . . .	o	o	c	
House Wren . . . . .	u	u	u	
Winter Wren . . . . .	u	u	u	
* Bewicks's Wren. . . . .	u	u	u	u
* Carolina Wren. . . . .	a	a	a	a
Long-billed Marsh Wren . . . . .	o	o	o	
Short-billed Marsh Wren . . . . .	o	o	o	
* Mockingbird. . . . .	a	a	a	a
* Gray Catbird . . . . .	c	c	c	
* Brown Thrasher . . . . .	c	c	c	c
* American Robin . . . . .	c	c	c	a
* Wood Thrush . . . . .	c	c	c	
Hermit Thrush . . . . .	o	o	c	
Swainson's Thrush. . . . .	e	e		
Gray-cheeked Thrush. . . . .	e	e		
* Eastern Bluebird . . . . .	c	c	c	c

	S	s	F	W
* Blue-gray Gnatcatcher . . . . .	c	c	u	
Golden-crowned Kinglet. . . . .	u	c	c	
Ruby-crowned Kinglet . . . . .	c	c	c	
Water Pipet . . . . .	u	u	u	
Cedar Waxwing. . . . .	c	o	c	
* Loggerhead Shrike. . . . .	u	u	u	u
* Starling . . . . .	c	c	c	c
Solitary Vireo. . . . .	u	u	u	
* White-eyed Vireo. . . . .	c	c	u	r
Bell's Vireo . . . . .	u	u		
* Yellow-throated Vireo . . . . .	u	u	u	
* Red-eyed Vireo. . . . .	c	c	u	
Philadelphia Vireo. . . . .	o	o		
Warbling Vireo . . . . .	e	e		
* Black and White Warbler. . . . .	u	o		
* Prothonotary Warbler. . . . .	c	c	u	
Swainson's Warbler . . . . .	e	e		
Worm-eating Warbler . . . . .	u	u		
Blue-winged Warbler . . . . .	c	c		
Tennessee Warbler. . . . .	c	c		
Orange-crowned Warbler. . . . .	u	u	u	
Nashville Warbler. . . . .	c	c		
* Northern Parula . . . . .	c	c	c	
* Yellow Warbler. . . . .	o	o	o	o
Magnolia Warbler. . . . .	u	u		
Yellow-rumped Warbler . . . . .	c	c	c	
Black-throated Green Warbler . . . . .	o	o		
* Cerulean Warbler. . . . .	o	o	o	
* Yellow-throated Warbler. . . . .	a	c	u	
Blackburnian Warbler. . . . .	u	u		
Chestnut-sided Warbler. . . . .	e	e		
Bay-breasted Warbler . . . . .	o	o		
Blackpoll Warbler . . . . .	e			
Pine Warbler. . . . .	c	c	c	c
Prairie Warbler . . . . .		u	u	
Palm Warbler . . . . .	o	o		
Northern Waterthrush . . . . .	o	o		
* Louisiana Waterthrush . . . . .	u	u	u	
* Common Yellowthroat. . . . .	c	c	c	
* Yellow-breasted Chat. . . . .	c	c	c	
* Kentucky Warbler . . . . .	c	c	c	
* Hooded Warbler . . . . .	u	u	o	

	S	s	F	W
Canada Warbler. . . . .	e			
* American Redstart. . . . .	c	c	c	
* House Sparrow . . . . .	c	c	c	c
* Eastern Meadowlark. . . . .	c	c	c	c
* Red-winged Blackbird . . . . .	a	a	a	a
Rusty Blackbird . . . . .	c	o	c	
Brewer's Blackbird. . . . .	o	o	c	
* Common Grackle . . . . .	a	a	a	a
* Brown-headed Cowbird . . . . .	a	a	a	a
* Orchard Oriole . . . . .	c	c	c	
* Northern Oriole . . . . .	c	c	c	
Scarlet Tanager. . . . .	r	r		
* Summer Tanager. . . . .	c	c	c	
* Cardinal. . . . .	a	a	a	a
Rose-breasted Grosbeak . . . . .	u	u		
Evening Grosbeak . . . . .	u	u	u	
* Blue Grosbeak . . . . .	u	u	u	
* Indigo Bunting . . . . .	a	c	c	
Painted Bunting . . . . .	r	r		
Purple Finch. . . . .	u		u	
Pine Siskin . . . . .	o	o	o	
American Goldfinch. . . . .	c	c	c	
Red Crossbill . . . . .	r	r		
Rufous-sided Towhee. . . . .	c	u	c	c
Savannah Sparrow. . . . .	u	u	c	
Le Conte's Sparrow . . . . .	r	r	r	
Vesper Sparrow. . . . .	u	u	u	
* Lark Sparrow . . . . .	r	r	r	
Dark-eyed Junco. . . . .	c	c	c	
Bachman's Sparrow . . . . .	r	r		
* Chipping Sparrow . . . . .	u	u	u	u
* Field Sparrow. . . . .	c	c	c	c
White-crowned Sparrow . . . . .	c	u	c	
White-throated Sparrow . . . . .	a	a	a	
Fox Sparrow . . . . .	u	u	u	
Lincoln's Sparrow . . . . .	u	o	o	
Swamp Sparrow . . . . .	c	c	c	
Song Sparrow. . . . .	c	c	c	
Lapland Longspur . . . . .	r		r	

## N O T E S

LOCATION:

DATE:

OBSERVERS:

WEATHER:

TIME:

TOTAL:

WIND:



B  
Felse





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r	rare, seen only at intervals of 2 to 5 years
e	expected, birds not recorded however suitable habitat present

	S	s	F	W
<b>GAVIIFORMES - Loons</b>				
Common Loon	u		u	u

<b>PODICIPEDIFORMES - Grebes</b>				
Horned Grebe	o		o	o
Eared Grebe	o		o	o
* Pied-billed Grebe	u	u	u	u

<b>PELECANIFORMES - Pelicans, Cormorants, Anhingas</b>				
White Pelican	o		o	
Double-crested Cormorant				o
* Anhinga	u	u	u	

<b>ANSERIFORMES - Waterfowl</b>				
Whistling Swan			r	
Canada Goose	o		o	o
Snow Goose	o		o	o
Mallard	a		a	a
Black Duck	o		o	o
Gadwall	c		c	c
Pintail	c		c	c
Green-winged Teal	c		c	c
Blue-winged Teal	c		c	o
American Wigeon	c		c	c
Shoveler	u		u	u
* Wood Duck	c	c	c	c
Redhead	u		u	u
Ring-necked Duck	c		c	c
Canvasback	u		u	u
Lesser Scaup	u		u	u
Bufflehead	u		u	u
Oldsquaw				r
Ruddy Duck	u		u	u
Hooded Merganser	u	o	u	u
Common Merganser	r			

<b>FALCONIFORMES - Vultures, Kites, Hawks, Eagles, Falcons</b>				
* Turkey Vulture	c	c	c	c
* Black Vulture	c	c	c	c
* Mississippi Kite	r	r	r	
* Sharp-shinned Hawk	u	u	u	u
* Coopers Hawk	o	o	o	o

	S	s	F	W
<b>* Red-tailed Hawk</b>				
* Red-shouldered Hawk	c	c	c	c
Broad-winged Hawk	u	u	c	
Golden Eagle	r		r	r
Bald Eagle			o	o
Marsh Hawk	o		o	u
Osprey	u		u	r
Peregrine Falcon				u
* American Kestrel	u	o	o	u

<b>GALLIFORMES - Quail, Turkey</b>				
* Bobwhite	c	c	c	c
* Turkey	c	c	c	c

<b>CICONIIFORMES - Herons and Allied Species</b>				
* Great Blue Heron	c	c	c	c
* Green Heron	c	c	c	
* Little Blue Heron	a	a	c	
Cattle Egret	u	u	u	
* Great Egret	o	u	u	
* Snowy Egret	u	u	u	
Louisiana Heron	r	o		
* Black-crowned Night Heron	u	u	u	o
* Yellow-crowned Night Heron	u	u	u	
American Bittern	u		u	
Wood Stork		a	c	
White Ibis		r		

<b>GRUIFORMES - Cranes, Rails, Coots</b>				
* King Rail	o	r	r	o
Virginia Rail	u	u	o	
Sora	u		u	
American Coot	c	u	c	c

<b>CHARADRIIFORMES - Plovers, Snipes, Sandpipers &amp; Allied Species</b>				
* Killdeer	u	u	u	u
* American Woodcock	o	o	o	o
Common Snipe	c			c
Upland Sandpiper	o		o	
Spotted Sandpiper	u	u	u	
Solitary Sandpiper	u	o	u	
Greater Yellowlegs	o	o	o	
Lesser Yellowlegs	c	o	c	

	S	s	F	W
<b>Pectoral Sandpiper</b>				
Least Sandpiper	o		o	
Semipalmated Sandpiper	u		u	
Western Sandpiper	u		u	
Herring Gull	u		u	u
Ring-billed Gull	u		u	u
Least Tern	u	u		
Forster's Tern	o		o	
Caspian Tern	r		r	
Black Tern	o		o	

<b>COLUMBIFORMES - Pigeons, Doves</b>				
* Rock Dove	o	o	o	o
* Mourning Dove	c	c	c	c

<b>CUCULIFORMES - Cuckoos and Roadrunner</b>				
* Yellow-billed Cuckoo	c	c	o	
Black-billed Cuckoo	r		r	
Roadrunner	o	o	o	o

<b>STRIGIFORMES - Owls</b>				
* Screech Owl	c	c	c	c
* Great Horned Owl	u	u	u	u
* Barn Owl	r	r	r	r
* Barred Owl	c	c	c	c

<b>CAPRIMULGIFORMES - Nighthawks</b>				
* Chuck-will's widow	c	c	u	
* Whip-poor-will	u	u	u	
* Common Nighthawk	c	c	c	

<b>APODIFORMES - Swifts, Hummingbirds</b>				
* Chimney Swift	c	c	c	
* Ruby-throated Hummingbird	c	c	c	

<b>CORACIIFORMES - Kingfishers</b>				
* Belted Kingfisher	c	c	c	c

<b>PICIFORMES - Woodpeckers</b>				
* Common Flicker	c	c	c	c
* Pileated Woodpecker	c	c	c	c
* Red-bellied Woodpecker	a	a	a	a
* Red-cockaded Woodpecker	u	u	u	u