WAPANOCCA NATIONAL WILDLIFE REFUGE

ANNUAL NARRATIVE REPORT
CALENDAR YEAR 1994

REVIEW AND APPROVALS

Wapanocca National Wildlife Refuge

Turrell, Arkansas

ANNUAL NARRATIVE REPORT

Calendar Year 1994

Glen R Miller — Project Leader
2/23/95 — Date
Associate Manager
5/2/95 — Date

Regional Office Approval
5/8/95 — Date

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INTRODUCTION

Wapanocca National Wildlife Refuge, established January 24, 1961, is located approximately 20 miles northwest of Memphis, Tennessee, in Crittenden County, Arkansas. The lands were acquired under the Migratory Bird Conservation Act (16 U.S.C. 715-715r), as amended, for use as an inviolate sanctuary, or for any other management purpose, for migratory birds (16 U.S.C. 715d). The refuge began its existence when 3,119 acres were leased from the Wapanocca Outing Club. As funds were made available from the sale of duck stamps, this land and various other tracts were purchased. On January 1, 1966, a substantial amount of land (1,695 acres) was added to the refuge and today Wapanocca totals 5,484.17 acres.

Prior to its establishment, the refuge was the site of one of the oldest and most prestigious hunting clubs. In the early 1800's two individuals from Memphis built cabins next to Wapanocca Lake and began waterfowl hunting. As the popularity of this sport increased, soliciting began for membership and members were brought in from as far away as Chicago, Illinois. In 1886, the Wapanocca Outing Club was established.

The club bought 6,500 acres for 50 cents an acre. The entire area, with the exception of Wapanocca Lake, was covered in forest. By 1895, 40 certificates of stock were issued while the limited number of remaining membership stock was sold individually until 1929 for prices up to $15,000. The club was one of the first to apply self-imposed bag limits on ducks (25) and geese (5). The majority of the lake was also established as a waterfowl sanctuary. The amount of waterfowl numbered well into the 100,000's in the early 1900's.

However, in the late 1920's, the club began to cut the timber and also clean out small islands of grass and bushes from the lake. The alteration of the habitat was the beginning of a continued decline of waterfowl usage at Wapanocca. In 1936, the club sold about 3,000 acres to a cotton farmer who completed the clearing and began growing cotton. By 1941, the number of geese using the area had declined sharply, and by the mid-1950's the sport of goose hunting had already vanished.

Due to the decline of waterfowl hunting at Wapanocca, and the decrease in interest for the sport by the older members of the club, negotiations began with the Service in 1958 for the sale of all club holdings.

Today the refuge literally stands as a wildlife oasis in an agricultural sea. Approximately 90 percent of Crittenden County is agricultural land. An excellent diversity of habitat exists with the refuge divided equally between agricultural land, bottomland hardwood forest, and open water with flooded cypress/willow swamp. Because of its strategic location in the heart of the Mississippi Flyway and the diverse habitat, the refuge is a prime wintering area for migratory waterfowl.

A. HIGHLIGHTS

--Secondary uses determined compatible (Section D.1.)

--Refuge downsized to only 2 employees (Section E.1.)

--110 acres seeded back to trees (Section F.3.)

--Bald eagle use up, report of nesting (Section G.2.)

--Waterfowl numbers up after tumbling for 2 years (Section G.3.)

--Suspected anhinga nesting (Section G.4.)

--Above ground vaulted fuel tanks installed (Section I.1.)

--Underground fuel tank found to be leaking (Section I.1)

B. CLIMATIC CONDITIONS

Enough rain was received in early January to raise lake levels enough to flood back onto the bottomland hardwood timber.

January was colder than in recent years, thus more geese pushed in from the north. Woody Pond and Wapanocca Lake froze over on the 17th except for a number of holes kept open by ducks and geese. A low of 9 degrees was recorded on the 19th. Below freezing temperatures were observed for 120 straight hours from the 15th to the 20th. The ice left the lake on 1/23.

Approximately .5 inches fell as freezing rain on February 11 & 12. Power was out at the office for over 2 days and at the shop for 5 days. Trees suffered moderate damages, especially the softer hardwoods such as maple. Although many limbs were broken, most trees remained standing.

The last frost/freeze occurred in April with a reading of 31 degrees.

Above normal precipitation was received during July which proved to be a blessing as August through October was 6 inches below normal. Oak seedlings appeared to survive this drought and were no doubt helped by below normal temperatures during August and September.

The first fall killing frost occurred October 26 however the recorded low was only 33 degrees.

Enough rainfall in December was received to put good water levels in the impoundments but the lake remained low.

*1994 WEATHER DATA - WAPANOCCA NWR

Month	Precipitation	30-year** Average Precipitation	Max Temperature	Min Temperature	Average Max Temperature	Average Ave Temperature
January	5.38	3.37	64	9	40.8	31.8
February	4.17	3.87	75	19	53.8	38.4
March	6.82	5.07	79	29	62.5	44.2
April	2.63	5.65	87	31	77.5	54.4
May	2.56	5.26	88	43	79.5	57.5
June	6.28	4.05	95	67	89.9	71.5
July	4.57	3.03	95	62	88.5	72.3
August	.79	3.32	94	56	90.9	66.2
September	1.00	3.54	92	43	84.3	57.1
October	2.56	3.40	91	33	74.3	52.2
November	4.02	4.99	82	35	64.7	48.8
December	6.25	5.61	64	24	53.3	40.2
Totals	47.03	51.15				

*This data was collected at the refuge weather station located at the headquarters.
**1962-1991

C. LAND ACQUISITION

1. FEE TITLE

FmHA Transfer

Year Acquired	Tract #	Acreage	Habitat	Administered by
1990	St. Francis County (10)	480.0	Acorn/pecan nuts planted 1991-92	Wapanocca NWR
1991	St. Francis County (11)	29.3	Idle cropland	Wapanocca NWR

Total 2 tracts 509.3 acres

Refuge Proper

Mr. Hillrie Quin, Southeast Representative of The Conservation Fund, reviewed approved roundout areas of the refuge for possible purchase with the intent to resell to the Service. He found no willing seller among the five involved land owners.

D. PLANNING

1. Master Plan

In response to the Lawsuit Settlement Agreement, Compatibility Determinations were made on secondary use activities on the refuge. These included Bee Keeping, Commercial Fishing, Environmental Education, Field Trials, Jogging and Walking, Other Hunting (Raccoon), Recreational Fishing, Upland Game Hunting, Wildlife Observation, Wildlife Photography and Cropland Management (farming).

Hunting determinations were originally completed in 1988 but were resubmitted to fit the revised format. All of the secondary uses were determined to be compatible.

4. Compliance with Environmental and Cultural Resource Mandates

The Memphis Army Corps of Engineers issued a Section 404 Permit for the County Ditch No. 2 Crossing Improvement. It was granted under the nationwide permit system.

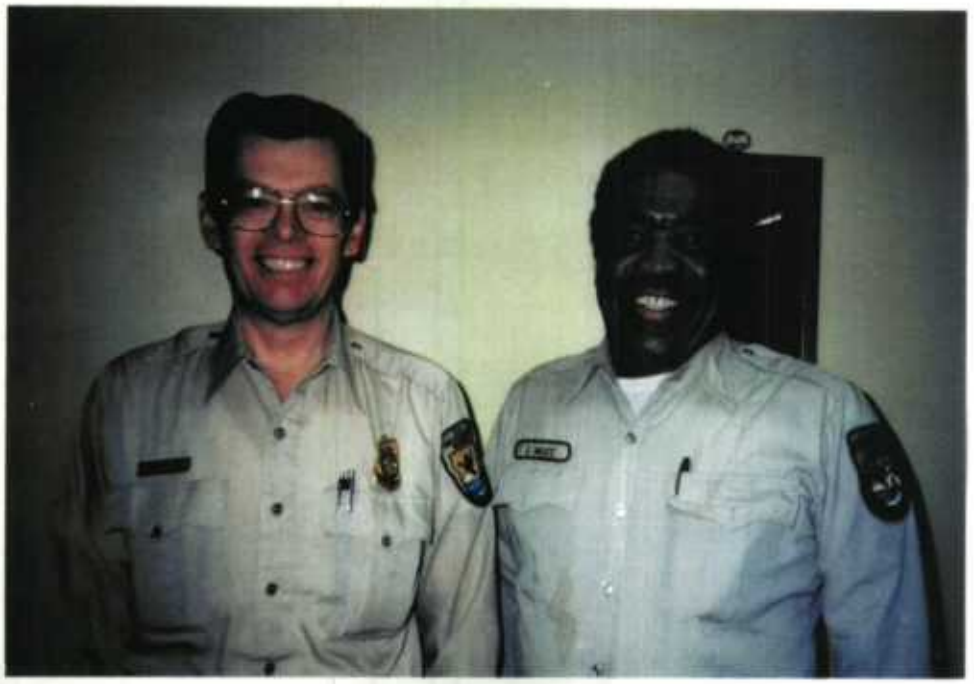
6. Other

Strategies, Tasks, FTE's and funding figures were provided for Wapanocca NWR to be incorporated into the Lower Mississippi Valley Ecosystem Plan.

E. ADMINISTRATION

1. Personnel

1.	Dennis J. Widner Reassigned to Cache River 6-26-94, transferred 7-30-94	Project Leader GS-0485-13
2.	Glen R. Miller (EOD 10-21-90) PFT	Deputy Project Leader GS-0485-12
3.	Chester C. McGee (EOD 10-14-84) PFT	Engineering Equipment Operator WG-5716-10
4.	Elizabeth I. Smith Reassigned to Cache River 8-7-94, transferred 8-29-94	Secretary (Office Automation) GS-0318-5
5.	Robert Massey	Volunteer



Miller, McGee

Robert Massey, Volunteer

1-9-94 Chester McGee was promoted from WG-8 to WG-10 Engineering Equipment Operator.

Although not officially decomplexed, Northeast Arkansas Refuges no longer functioned as a Complex as of 10-1-94. Cache River and Bald Knob NWR's split off at that time. Wapanocca and Big Lake remain complexed together with Refuge Manager Glen Miller serving as project Leader stationed at Wapanocca and Pat Griffith the Office Assistant stationed at Big Lake NWR.

Chester McGee received an On-the-Spot award for his expertise in construction of the vaulted fuel tank pad. The pad cost $1,500 including materials and labor versus $7,200 contract cost of a similar pad at Big Lake NWR last year.

Wapanocca NWR Staffing Pattern

FY	Full-time	Part-time	Temporary	FTE
86	5			5
87-94	5 (3 of which assigned to Complex)			5
95	2*(Refuge Manager also Project Leader for Big Lake NWR)			2 projected

*The assistant refuge manager, secretary and one engineering equipment operator positions have been lost at this station.

3. Other Manpower Programs

Wapanocca

Wapanocca again participated in the Eastern Arkansas private Industry Council's Summer Youth Program. It is a six week summer program designed to provide meaningful employment for economically disadvantaged youths of ages 14 through 21. Sikamgila Jeter was assigned to the refuge from June 13 to July 2. She completed clerical and custodial duties around the office and did an acceptable job. She was only 14, thus limited in what she could legally do. She completed jobs competently (photocopying, updating brochures, file inventory, office cleaning and scraping and painting the weather station). She did have to be closely monitored or she would go to sleep.

Sikamgila (Wyki) Jeter, PIC Summer Youth Program worker and the weather station she painted.
7-19-94 Slide File GRM

4. Volunteer Program

Volunteer	Maint.	Admin.	1994 Total	Accumulative All Years Totals
Skeeter Hill	7		7	85*
Diane Miller		16	16	95
Robert Massey	85	11	96	
Total	92	27	119	

*Since 1990; Mr. Hill had approximately 1,000 hours prior to 1990, but records have been lost.

5. Funding (Northeast Arkansas Refuges figures)

Fiscal Year	Total Funding (Thousands)	Base Funding (Thousands)	Supplemental Funding (Thousands)
88	468.3	391.0	77.3
89	494.9	410.5	84.4
90	771.2	464.3	306.9
91	1041.6	483.5	558.1
92	917.2	494.6	422.6
93	809.1	599.3	209.8
94	785.5	650.4	135.1

Funding for Northeast Arkansas Refuges was $768,700 which was allocated in the following categories:

Description	Thousands
Base Funding	
1261 ($462,800)	
Operations	362.2
Unruh Relocation (Big Lake)	13.1
Widner Relocation (Cache River)	70.2
Smith Relocation (Cache River)	17.3
1262	187.6
	650.4
Supplemental Funding	
1121 Wetland Reserve Program (Salaries)	16.8
1261 Law Enforcement ($2,000)	
Firearms Requalifications (Moore)	2.0
1261 Special Operations ($21,500)	
Goose Collar Observations	1.0
Motor Vehicle (Cache River)	20.5
1261 Volunteers ($300)	.3
1262 4041 Maintenance ($93,000)	
Retrofit Accessibility (WAPANOCCA)	.2
Rehab Boundary Marking (Cache River)	9.8
Replace JD-4340 Tractor (Big Lake)	33.2
Replace two Underground Fuel Storage Tanks (WAPANOCCA)	25.8
Storage Building (Big Lake)	1.3
Rehab Levee and WCS's - Dixie Farm (Cache River)	22.7
9120 Normal Unit Strength (Fire equipment)	1.5

6. Safety

There were no reportable personal injury nor vehicular accidents again this year.

The following films were viewed:

Recognizing Sudden Illness (video)
Ergonomics for Supervisors (video)
Drug Free Workplace - The Supervisor's Role (video)
Salt and Hypertension (film)
Your Right to Know (film)
The Responsible Hunter (video)

7. Technical Assistance

The Fish and Wildlife Service was given the responsibility to assist the Soil Conservation Service in determining land eligibility and developing preliminary plans for the Wetland Reserve Program. This was the initial year for the program in Arkansas. Manager Miller was assigned to assist in Lee and Crittenden Counties. The District Conservationist in those counties did not drop everything else to meet the deadline as the Service was instructed to do. As a result they did not pull their full load and it took longer to complete them than it should have. Miller spent 93 hours on 17 intentions.

8. Other

Training/Workshops

Course	Attendee	Location	Date
Wetland Reserve Program Workshop	Miller	Jonesboro, AR	2/17
LE Refresher Training	Miller	Quincy, FL	3/14-18
Combined Helicopter and Airplane Safety	Miller	Memphis, TN	6/30
Aviation Management Training for Supervisors	Miller	Memphis, TN	6/30
Course A: Adult Heartsaver (CPR)	Miller	West Memphis, AR	8/9
Firearms Requalification	Miller	Jacksonville, AR	10/21

F. HABITAT MANAGEMENT

1. General

The diversity of habitat is near equally divided between cropland, wetland, and woodland acreage. These habitats are managed primarily for waterfowl, but other wildlife species also benefit.

2. Wetlands

Wapanocca Lake and the cypress-willow swamp are located in a basin-like depression, surrounded by man-made levees and natural ridges. A total of 600 acres of open water, 1,200 acres of cypress-willow swamp and 620 acres of bottomland hardwoods are collectively managed as one unit. There are also 185 acres in 30 impoundments that are flooded during winter months.

Wapanocca Lake water levels were over one foot below the optimum level of 210.50' msl at the first of the year. The level was at 209.36' msl which only starts to put water in the bottomland timber. This attributed to the low waterfowl numbers on the refuge.

Plans to flush the lake during early spring months were thwarted again this year. Water levels in Big Creek never reached a point to make an appreciable difference between it and the lake. Creek waters were also heavily silt laden making it impractical to release water into the lake.

Water levels were held higher than normal spring levels in accordance with the approved water management plan of 1985. This plan allows high levels every third year to maximize fish spawning habitat without jeopardizing the bottomland hardwood timber.

The drawdown to normal levels scheduled for June could not be accomplished due to heavy rains keeping ditch 8 at or higher than the lake most of the month.

Although the lake remained low during the fall period, duck use was good with an estimated 30,000 ducks using the lake most of December. Mallard and gadwall made up most of that population and utilized the flooded cypress areas.

Water levels in Woody Pond were good at the start of the year but still 1 1/2 feet below the target of 214.50' msl for the winter months. Vandals removed a stoplog in mid-March and dropped the level by .2' before the discovery on March 23. Winter rains increased the level to 214.10' msl on April 13 but the waterfowl had mostly departed on their spring migration by that time.

Stoplogs were removed from #3 structure on April 26 to drop water off bottomland hardwood timber to the north. The structure was closed on May 3 after levels reached 212.60' msl. Above normal late spring rains gradually raised the level to 213.35' msl. Number 3 structure was again opened June 21 to remove water from the timber and closed on the 27th with a reading of 212.35' msl.

Number 3 structure was opened August 1 to add water to the lake and prepare for the planned summer drawdown to repair structure #5. Number 3 structure was closed August 8 with a gauge reading of 211.5' msl. The water flow had slowed to a point where beaver were constantly working to plug the structure.

Levee 5 was breached August 8 using the backhoe in order to draw the pond down further. However the backhoe was taken to Cache River NWR and beaver quickly plugged the breach. Time and money constraints prohibited using explosives to try and keep the water running. Thus no repair attempts were made as the structure remained entirely submerged.

Below normal rainfall the remainder of the year allowed the level to reach only 211.70' msl by December 31.

Since efforts to draw down Woody Pond failed, aquatic plants abounded but little moist soil foods were produced. During December mallard and gadwall used this area heavily with estimates routinely at 10,000 birds.

Stoplogs were removed from structures A-1,2, B-1,2,3,9,10, C-5,6,7,8, D-1,& 2 on March 4 to dry them up for the planting of milo. Three inches of rain on March 24-25 filled the impoundments once more. The remaining impoundments were opened in mid-May for draw-down to plant millet.

Impoundment E-1 is influenced by high water levels in Woody Pond. After Woody Pond was lowered in late April, volunteer Jap millet and wild millet seed germinated. As water levels again rose in Woody Pond in June it backed into E-1 flooding the millets creating lush growth and keeping weeds from germinating. After the water was drawn down in late June some weedy growth (hemp sesbanis) began however the grassy carpet kept most of it down.

There were 23.9 acre-feet of water pumped from well #3 into Goose Pen Pond (B-3) to encourage wood duck use on the banding site. Sizeable wood duck concentration did not materialize.

Volunteer Millet Crop in E-1.
7-5-94 Slide File GRM

Because of sediment build-up in some of the main ditches, impoundments C-4 and C-9 again did not dry up sufficiently to farm. Trees and brush are invading those areas and may require heavy equipment to clean them up.

Stoplogs were again placed in the structures October 12. Lack of fall rains kept the impoundments empty until 3.75 inches were received December 9 and 10. By the end of December most of the impoundments were full.

3. Forests

In a continuing effort to identify best use of refuge land, additional farm units were planted to trees. Six farming units (B-10, F-6, P-12,13,14,16) totalling 109.9 acres were disced and planted with acorns in April. These lands weren't used by waterfowl and rounded out other tracts of forested land. A mixture of acorns were planted but consisted mostly of Nuttall acorns purchased in 1991. Pecan (1991), pinoak (1991), and water/willow/cherrybark (1990 purchase) were also in the mix. Many of the nuttall acorns were sprouted and did not feed well through the automatic planter. Only field P-16 and the northern portion of F-6 were planted with the automatic planter. The manual drop tube planter was used to plant the remaining fields.

With the exception of the east portion of F-6, the spring plantings by fall showed fair to good stands. This occurred even with less than ideal seed source and lack of spring and summer rains. If half of the existing stand survives, the fields will be amply populated with mast trees. The east portion of F-6 is a high sandy area. If trees sprouted they probably succumbed to the drought conditions.

Two native burr oak acorns were also planted on November 1, one in B-10 and one in P-16. These acorns came from the only known burr oak tree in this area, a tree found in a cemetery just north of the refuge.

Also 197 donated seedlings were planted in previously reforested areas around the refuge in early spring and late fall:

Species	March Planting	November Planting	Total
Nuttall/pinoak	170		170
Willow oak	5		5
Shummard oak	12		12
Pecan	1		1
Black walnut		3	3
Mulberry		9	6
Total	188	9	197

4. Croplands

In order to meet the refuge objective of 3,600,000 use days for ducks and 1,200,000 use days for geese, the production of agricultural crops to supplement the natural food supply is a vital and necessary program.

Permission to knock the corn down was not received until mid-January. The corn in fields D-19 & D-21A were knocked down January 21 but use by waterfowl was low even during the colder weather.

April was hotter and drier than normal thus the last half of the month was ideal for farmers to work and plant the fields.

Armyworms invaded the wheat in May. CF (Cooperative farmer) Driver sprayed the stands with Sevin with good results obtained. One hundred fifty bushels of wheat was harvested and given to Big Lake NWR.

Corn planted by CF Driver resulted in an excellent crop. Ears were large and plentiful even with the summer drought. Though planted fairly early also, CF Fraley's corn was again this year poor. There were good healthy stalks but few ears on them. CF Pirani was late in getting his corn in, hitting dry conditions thus the corn was extra late coming up. the corn never made much height but did produce some fair ears of corn.

Milo planted in the impoundments by CF Driver produced an excellent stand however they were worn out by blackbirds before the units were finally flooded late in the year. CF Pirani's milo was late planted and later yet coming up due to the drought. Seeds were only partially filled out when the fall frost hit and even the blackbirds left those fields alone.

Impoundments B-2 and B-3 were planted to milo however were overtaken by weeds. They were disced up and planted to millet. They were replanted 2 additional times as poor stands were obtained. After the third planting the units were let go due to being too late in the year. Chemical carryover from the planting of milo probably was the reason for the poor stand. These two impoundments were heavily used by ducks after December 28 when CF Driver flail mowed the adjacent corn strips in Field D-19. Ducks fed heavily on the downed corn and loafed in the open impoundments.

Wheat and corn strips in D-19 were used heavily by waterfowl after corn flail-mowed down in late December.
12-29-94 95-1-24 GRM

1994 Farming Program (1,448.8 acres)

	Pirani acres		Driver acres		Farley acres		Total acres	
Crop	Co-op	Refuge	Co-op	Refuge	Co-op	Refuge	Co-op	Refuge
Soybeans	154.3		382.3		123.0		659.6	
Corn		20.1		95.1		16.7		131.9
Milo		14.5	154.4	47.2		3.6	154.4	65.3
Buckwheat		6.2						6.2
Millet		13.2*		66.6		20.7		100.5
Wheat/ soybeans**			286.6				285.6	
Cowpeas				21.1				21.1
Crimson Clover				24.2				24.2
	154.3	54.0	822.3	254.2	123.0	41.0	1099.6	349.2

*Came up volunteer, no tillage
**Winter wheat harvested followed by soybeans

All wheat fields, D9,10,12&14 planted to soybeans and D-21 planted to corn were no-till fields.

9. Fire Management

Two wildfires occurred on the refuge this year, both accidently set by cooperative farmers.

One started March 5 as the farmer Phil Pirani drove his pickup along County Ditch #3 checking the ditch for beaver dams. The ditch adjoins the grassland south of field P-4. The catalytic converter set the grass on fire and burned the 9.5 acre field. The field is bordered by 2 ditches and cropland so was in no danger of spreading further. Although a wildfire, it was probably beneficial to the grassland, since no manipulation of the fescue had been done in years and trees were starting to invade.

The second fire occurred May 23 when an employee of cooperative farmer Driver decided to burn seed sacks at their equipment storage area on the refuge. With a brisk east wind, the fire quickly got into the grass in the adjacent reforested area. The farmer disced around the fire to extinguish it. Oaks from 1-7 feet tall were injured/killed. Most of the trees did resprout later at the base. Additional trees were probably killed in the disced area. The farmer will be required to reforest the area to seedlings in 1995.

10. Pest Control

Cooperative Farming Program

Herbicide

Trade Name	Common Name	Crop	Acres	lbs.A.I.	Target Pest
Accent	nicosulfuron	corn	36.8	1.4	Johnsongrass
Assure	quizalofop	soybeans	547.3	31.9	all grasses
Basagran	bentazon	soybeans	456.1	228.0	broadleaf weeds
Broad-strike+ Dual	metolachlor	corn	67.6	126.2	broadleaf weeds
	flumetsulam	corn	67.6	3.4	annual grasses
Canopy	chlorimuront	soybeans	377.3	17.7	broadleaf weeds
	metribuzin	soybeans	377.3	106.1	broadleaf weeds
Classic	chlorimuron	soybeans	154.3	1.2	coffeebean
Command	clomazone	soybeans	154.3	77.2	broadleaf grass
Dual	metalachlor	corn	27.5	55.0	grasses
Dual	metalachlor	soybeans	382.3	764.6	grasses
Dual	metalachlor	milo	201.6	302.4	grasses
Dual	metalachlor	peas	21.1	42.2	grasses
Poast	fluazifop	soybeans	123.0	15.4	grasses
Roundup	glyphosate	corn	67.6	17.3	all vegetation
Roundup	glyphosate	soybeans	377.3	96.7	all vegetation
Scepter	imazaquin	soybeans	277.3	27.6	broadleaf weeds
Storm	bentazon + acifluorfen	soybeans	882.6	420.4	broadleaf weeds
		soybeans	882.6	209.8	broadleaf weeds
2,4-DAmine	2,4DAmine	wheat	285.6	108.5	broadleaf weeds

Insecticide

Sevin	carbaryl	wheat	285.6	285.6	armyworm
Sevin	carbaryl	milo	154.4	115.8	midge

Refuge Management

Rodeo	glyphosate	banding site	.7	1.5	all vegetation
Roundup	glyphosate	banding site	.8	1.4	all vegetation

G. WILDLIFE

1. Wildlife Diversity

Wapanocca supports a good diversity of animal and bird (242) species due to its diverse habitat and close proximity to the Mississippi River.

2. Endangered and/or Threatened Species

The bald eagle was reclassified from endangered to threatened in the region this year. In January the bald eagles peaked on the refuge the highest in years. A total of 16 eagles (6 ad.,7 imm.,3?) were observed on 1/19 as the cold weather iced over most of the refuge. The few openings in the lake and Woody Ponds were full of ducks making easy pickings for the eagles. The mid-winter eagle survey completed 1/7 tallied only 2 adult and 2 immature eagles. Some immature eagles stayed around until the last of February.

Neighboring farmers reported bald eagles using a new nest on the refuge boundary south of Woody Ponds in May. Periodic observations were made from the fround for a couple of weeks but no eagles were observed. Refuge personnel were unaware of the presence of this nest prior to that time.

The first fall eagle observation was made December 6 with two adult seen.

3. Waterfowl

Cold-weather in mid-January pushed geese onto the refuge in numbers larger than the past few years. Approximately 10,000 geese (9,000 Canada, 700 white fronts and 300 snows) remained on the refuge the last half of January. A peak of 15,000 ducks also occurred during that cold spell and stayed around into February.

Approximately 150 blue-winged teal were seen August 3, a month earlier than normal.

Despite below normal water levels and mild temperatures the fall duck population on the refuge was the brightest its been since 1989. A peak of 41,000 ducks was hit early in December and they stayed the remainder of the year. Most of them stayed in the Little Lake area and Woody Ponds. This occurred even though the Arkansas' Mid-December waterfowl survey reported ducks statewide down 26 percent from the previous 5 years. Good numbers on the refuge probably reflected the low water conditions on the Mississippi River.

The state's mid-December survey also recorded only 8,000 Canada geese in the state which was 45 percent below the previous 5 years. Mild temperatures and lack of snow kept most of the birds in Wisconsin and Illinois. Canada geese peaked at 2,000 on the refuge by the end of the year.

A 10-mile, 21 station wood duck roadside survey was set up replacing last year's Wood Duck Hen Call Survey route. It was set up this year to tabulate total wood ducks detected during 3 minutes at each station. The survey request was made by the Office of Migratory Bird Management in association with the Wood Duck Initiative. The route was run four consecutive mornings 5/16-19 with no apparent continuity of results.

Wood Duck Roadside Survey

Station Number	5/16	5/17	5/18	5/19
	Total wood ducks detected			
1	0	0	0	0
2	0	0	0	0
3	0	1	7	3
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	5	5	2	4
8	5	4	4	1
9	2	0	3	6
10	0	6	1	11
11	0	5	0	3
12	0	0	0	0
13	0	4	0	0
14	0	0	3	0
15	0	0	0	0
16	0	0	0	5
17	0	0	0	2
18	4	5	1	0
19	3	0	0	0
20	2	1	0	1
21	0	0	0	2
Total	21	31	21	38

Figure 1

Refuge Goose Use History

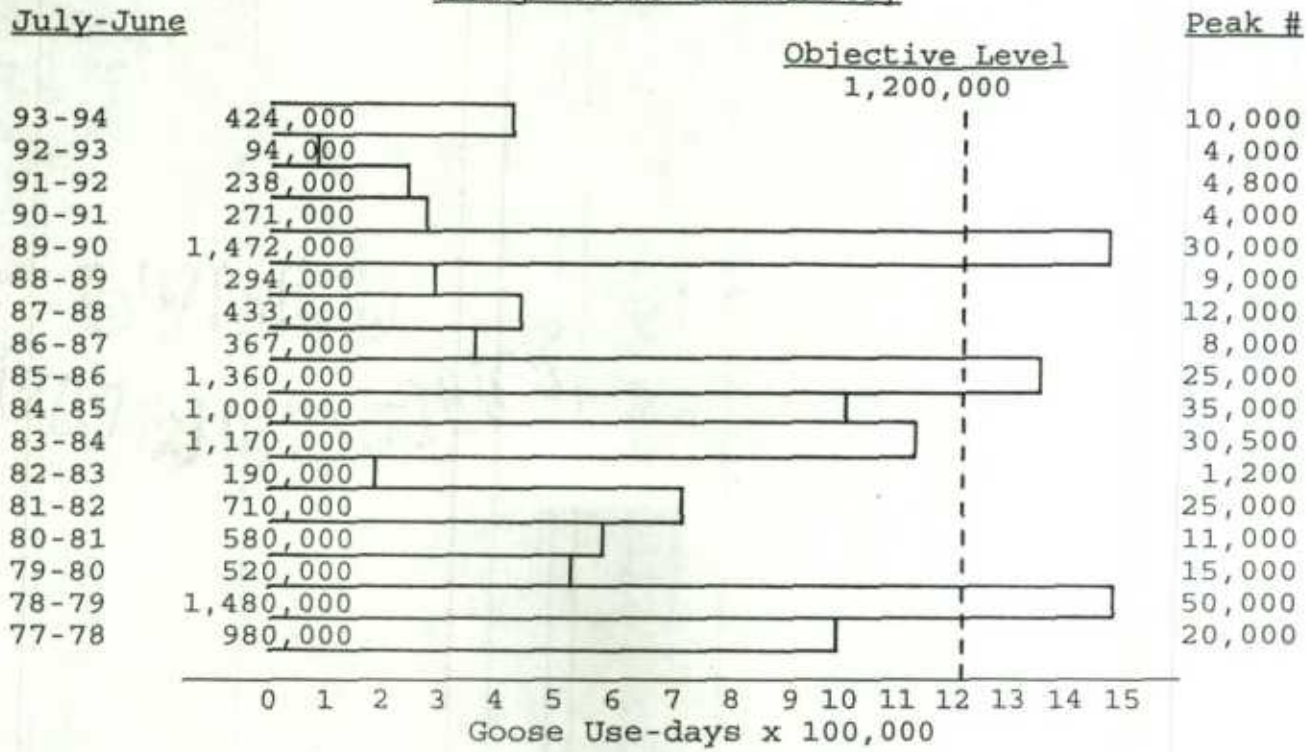
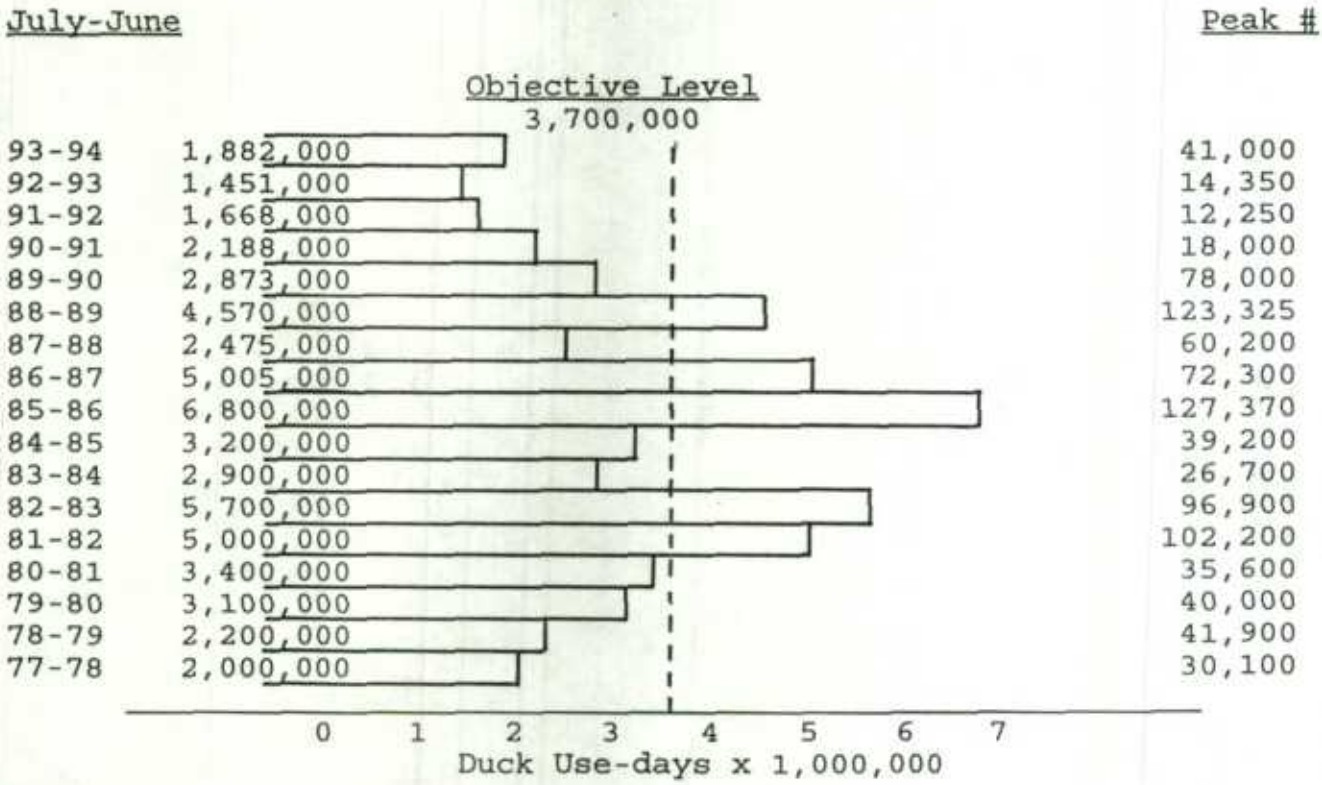


Figure 2

Refuge Duck Use History



The statewide aerial survey conducted in mid-December revealed the population of ducks down 75% from last year.

ANNUAL REPORT FORM
WOOD DUCK BOX PROGRAM INFORMATION
YEAR 1994

Total Boxes Up	253
Total Usable Boxes	253
Use by Wood Ducks of Usable Boxes	?
Number of Successful boxes (Wood Ducks)	?
Use by Other Ducks of Usable Boxes	?
Period Checked (Month)	
Use by Other Wild-life of Usable boxes	?
*Total Wood Ducks Hatched	1150
Wood Duck Broods Produced	115
**Wood Ducks surviving to Flight Stage	575

Plans for Next Year (Indicate Number)

_____More boxes ___0___ Entrance Holes Created in Trees

_____Fewer boxes

__X__No Change_____

Remarks: * Number of estimated successful boxes times 10

** 50 percent of total hatch

Due to the personnel shortage the wood duck boxes were not checked for success rate.

Figure 3
Wood duck Box Program

Year	Wood ducks Hatched
1994	1,150
1993	1,150
1992	1,140
1991	950
1990	1,300
1989	1,430
1988	890
1987	1,080

A hooded merganser nest with 4 fresh eggs was found in one box on February 18. A brood of 15 mergansers was seen April 25.

4. Marsh and Water Birds

The heron/egret rookery was censused May 17 and continues to grow since it was discovered in 1992. In addition anhinga nesting is suspected, 4 were seen getting out of tree #55 and a total of 6 were seen flying, somewhat paired off.

Wapanocca Heron/Egret Rookery

Year	Trees with nests	Number of Nests*
1992	67	103
1993	74	161
1994	91	243

*Not known how many were actually active that year.

American bitterns were seen in impoundments in early March.

5. Shorebirds, Gulls, Terns, and Allied Species

An American woodcock was observed February 17.

6. Raptors

No unusual sightings were made.

7. Other Migratory Birds

A total of 138 species of various other birds migrate through the refuge; of these, 37 species are warblers.

Painted buntings were frequently seen along the western boundary of the refuge near the railroad underpass during July and August but nesting could not be verified.

8. Game Mammals

White-tailed deer continue to be commonly seen.

The fox squirrel population appeared to be up this year but harvest figures were down. (See H.8.).

Raccoon and their signs are commonly seen on the refuge.

10. Other Resident Wildlife

Otter were seen often this year. On December 20, thirteen were seen fishing together in Big Creek. Two groups, one upstream and one downstream were seen swimming toward each other as if herding fish together.

The population of turkey remains low. Visitors reported seeing turkey but none were observed by refuge personnel.

11. Fisheries Resources

The refuge issues one commercial fishing permit yearly. The permit is advertized for bidding with the winning bid good for 5 years. Bids were solicited in 1992 so it is good through 1996. Only two bids were received. Billy McClelland, Turrell, Arkansas, offered the winning bid of $233 per year. He fished during March and October when the sportfishermen did not have access to the lake. He was concerned about losing nets to propellers. He removed the following rough fish:

Species	Pounds Removed
Buffalo	7,450
Carp	25
Drum	130
Bowfin	100
Gar	20
Total	7,725

A minimum net mesh size allowed on the lake is 4 1/2 inches. This is required to minimize the catch of sport fish. However there are some large catfish in the lake. He caught and released 370 pounds of catfish weighing from 20 to 50 pounds each. This included channel, flathead and blue catfish.

12. Wildlife Propagation and Stocking

Mammoth Springs NFH brought 1,100 lbs. (44,000), 5-6 inch channel catfish and released them at the boat ramp on 9-22. Some mortality occurred which was attributed to shock from the water temperature differences. The lake water was considerable warmer than transport water.
9-22-94 Slide File GRM

15. Animal Control

Beaver populations were high creating numerous problems. Efforts to control nuisance beaver were made again this year. A total of 39 beaver was removed during the year.

16. Marking and Banding

Because of the lack of Canada geese, the neck-collar observation goal of 850 was not reached. A total of 188 collars were observed during the winters of 93-94 and reported to the Wisconsin Cooperative Wildlife Research Unit. Seventy-nine hours were spent in pursuit of reading collars. Records from 1987-1992 show the following population makeup: 43.6% EPP (Eastern Prairie Population); 55.9% MVP (Mississippi Valley Population); .4% SJBP (Southern James Bay Population).

Pre-season wood duck banding goals were reduced this year for the Mississippi Flyway thus new goals were set for Wapanocca. It took 6 shots with the rocket net to capture those banded.

1994 Wood duck pre-season banding results

	Goal	# Banded
	23 AHY-M	5
	53 AHY-F	7
	26 HY-M	92
	86 HY-F	76
Total	188	180

H. PUBLIC USE

1. General

Refuge visits were down this year with an estimated total of 15,709.

6. Interpretive Exhibits/Demonstrations

An excellent display located in the visitor contact station is provided for the public to interpret various phases of the refuge's environment. Exhibits include the lake environment, summer wildlife and winter waterfowl. An estimated 739 visits were made to this room. Various other educational exhibits, displays and informational write-ups are available for the public's education. Downsizing of the refuge staff has made it necessary to close the VCS room when staff are not present in the office.

Two kiosk's provided an important source of information for the public when the refuge office was closed. One kiosk is located at the refuge headquarters and the other is located at the boat launching area.

7. Other Interpretive Programs

A Special Use Permit was issued to the Pink Palace Museum to conduct night educational activities and tours on the refuge. They conducted 9 sessions involving 167 students, all during daylight hours.

Refuge personnel provided programs/tours to Crittenden County Retired Teachers Association (15 members) and the Crittenden County 4-H Club (9 members). Off-refuge presentations included:

Shell Lake Community Wild Game Banquet (40)

2nd Baptist Men's Fellowship Fish Fry, West Memphis (50)

8. Hunting

A Special Use Permit was issued to the Crittenden County Coon Hunters Association for conducting field trial hunts at night.

Squirrel hunting (October 1-November 15) was only fair again this year. An estimated 60 hunters hunted on October 1 which was a Saturday, but numbers quickily dropped. Dry conditions and leaves remaining longer on the trees made conditions less than ideal for hunting although the fox squirrel population appeared to be greater than last year, only an estimated 200 hunters took 400 squirrels. Totals were calculated from random hunter checks and vehicle counts.

Raccoon hunting was allowed November 1-15. Hunter participation was down dramatically from last year. This was due to the state opening the season July 1 with a limit of 1 raccoon a night. In the past the state season opened after the refuge hunt thus hunting pressure on the refuge was greater. An estimated 75 hunter visits were made and 150 raccoon taken. The small harvest was also effected by weather conditions. With the lack of a hard freeze more leaves were on the trees than normal. Many treed raccoon were able to hide in the treetops. Many small, young raccoon were spotted and let alone.

9. Fishing

Sport fishing opened March 15. The parking lot at the access area was full on weekends in late March and early April. Fish success was sporadic but crappie limits were obtained in March and early April. By June fishing success dropped off as did the number of fishermen. Bass and bream fishing was again poor. The lake was closed to fishing September 30 with an estimated 6,395 fishing visits which was a 32 percent decrease from last year.

11. Wildlife Observation

An estimated 8,700 visits for this activity were made on the refuge this year.

17. Law Enforcement

On March 21, three private vehicles were broken into at the boat launch area. Items were reported stolen from one, steering column damaged in the second and the third was stolen. Three suspicious individuals had been noticed walking the RR tracks from Marion to just south of the refuge. They were not known by local residents of the area. There were no further problems reported at this site.

A man was discovered sleeping in his vehicle, upon inspecting it came apparent he was inebriated. He was hauled to the Sheriff's office in Marion where he took the breath analyzer test, flunked and was charged with public intoxication.

Project Leader Dennis Widner attended an annual 40-hour training session in Tallahassee, Florida in May. Deputy Project Leader Glen Miller attended in early March. They also successfully completed their semi-annual firearms qualification in September.

I. EQUIPMENT AND FACILITIES

1. New Construction

a. Vaulted Fuel Storage Tanks

Although there were four companies under GSA contract selling vaulted fuel storage tanks, the purchase process was not problem free. In an effort to save the government money an attempt was made to get Engineering in the Regional Office to approve Hoover Tanks which were almost $6,000 each compared to Convaults $8,000 each cost. The difference in design was that Hoover had in addition a secondary containment steel tank on the exterior. Independent engineering firms rate the Hoover design as superior to the Convault design. This appeared to be a win-win situation. However Service engineers would approve only the Convault design thus was a sole-source purchase.

Although on a GSA schedule the tanks could only be ordered by GSA thus in May an acquisition request was sent to GSA to purchase two 1,000 gallon Convault tanks with delivery in mid-July. This would give ample time to assure closure of the underground fuel tanks within FY 94 spending requirements. However the request sat on sameone's desk at GSA for sometime before prodding finally moved it along. GSA ignored the desired delivery date and put a delivery date of September 30 on the purchase order. Thus the tanks were listed for fabrication by the company at a later date. Upon discovery of

this, in early August, Convault representatives were called who willingly put the tanks on priority fabrication and the tanks were finally delivered August 19. Construction of the slab was done earlier by force account. By August 26 fuel had been transferred from the underground tanks to the new tanks and electrical hook-up completed making the new station operational. However the late tank delivery threw the tank closure schedule off and the contractor could not reschedule for prior to October 17.

Project Cost:

1,000 gallon tank (2)	$12,197.72
7 gallon overfill system (2)	2,346.78
Fuel Dispensers (2)	1,130.46
Concrete pad & apron	1,811.53
Misc. supplies	105.02
Off load tanks	375.00
Total	$17,966.51

New 1,000 gallon Convault vaulted fuel tanks were installed at the shop area.
12-27-94 94-1-15 GRM

b. Underground Fuel Tank Closures

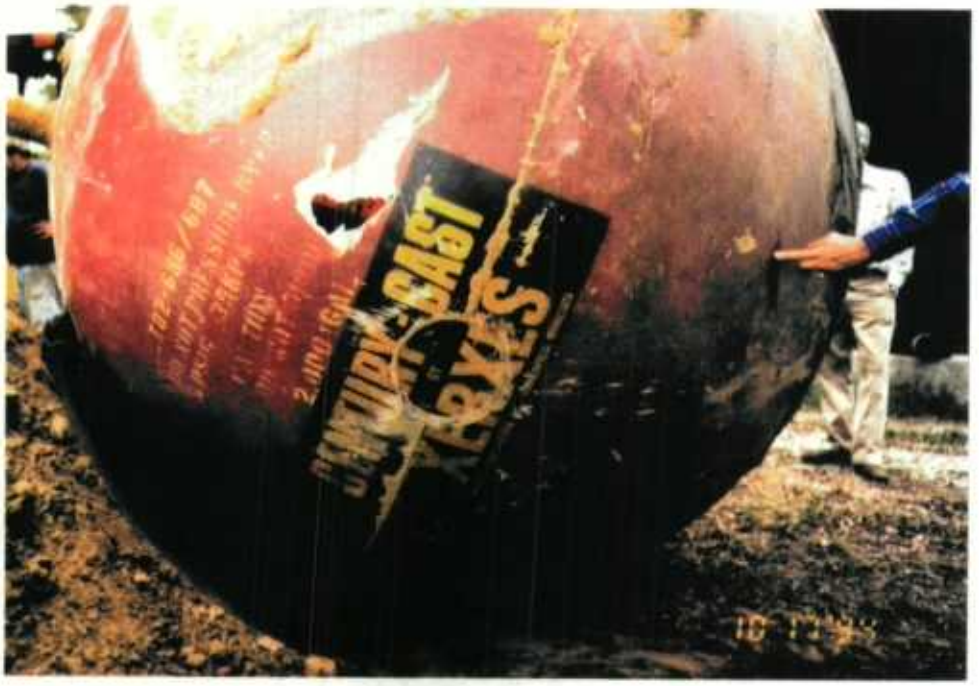
Closure of the two 2,000 gallon underground fuel tanks began October 17, some three months later than originally scheduled due to problems in getting the new aboveground vaulted tanks. Slaight Environmental Services, Hot Springs, Arkansas was awarded the contract. The contractor was to oversee the removal of the tanks, purge the tanks of fuel, take and analyze soil samples and dispose of the old equipment. Equipment Operator McGee dug the tanks out and refilled the hole as direct by the contractor.

Upon removal of the fiberglass diesel tank, it was discovered to have leaked. Although there was a 4-foot crack along the ridge on the bottom of the tank, leakage was slow. The Southern Company North Little Rock had performed a tank tightness test in December of 1993 and gave it a passing mark even though their readings indicated a .03 gph leak rate. It was fortunate also that the tanks were on a concrete slab which kept the fuel from going deeper into the soil.

The Arkansas Department of Pollution Control and Ecology was immediately notified of the leakage find. They authorized the contractor to oversee the excavation and disposal of the contaminated soil. The soil was allowed to be placed on visqueen on the refuge and land farmed to decontaminate it. After it is tested to be safe which may take a year or longer, it can be left alone or spread elsewhere. Although the steel gas tank did not leak, there was some fuel contaminated soil around it that also had to be removed. This was soil contaminated from the leaking fiberglass tank that was replaced in 1985. Approximately 75 cubic yards of soil was removed and soil samples taken from various locations for analysis. One area towards the shop building showed hot for contaminants. An additional 25 cubic yards was excavated from that area and another soil sample taken. The result came back negative and the State gave permission to backfill the hole. Sand from the sandpile formed with the construction of the new ditch 8 in the early 80's was used to backfill the pit.

Project Cost: $4,222.70

	FY 94	FY 95
Removal of sludge from tanks	$ 180.00	
Closure of tanks	2,000.00	500.00
6 extra soil samples		1,200.00
Visqueen		218.95
Fertilizer		124.75
Total	2,180.00	2,042.70



Upon removal of fiberglass underground diesel tank it was found to have been leaking fuel from a crack on the bottom of the tank.
10-17-94 Slide File GRM

A four-foot long crack existed in the diesel fuel tank.
10-17-94 Slide File GRM

The gray colored soil is diesel fuel contamination in the area where the underground tank was. The contaminated soil extended down to a concrete base to which the tanks were fastened. The steel gasoline tank is to the right.
10-17-94 94-1-2 GRM

The gray colored soil around the gasoline tank is contaminated soil back filled when the fiberglas tank was found to be leaking and replaced in 1985. All of the contaminated soil was removed and put into a land-farming site.
10-17-94 94-1-6 GRM

The fuel contaminated soil was placed on top of visqueen to be land-farmed on the refuge to decontaminate it. 13-13-13 fertilizer was disced in to help speed the process.
12-29-94 94-1-22 GRM

2. Rehabilitation

The south side pilings along the observation platform walkway sank a few inches. Shims were placed atop the pilings to level it up again.

To improve drainage to neighboring farm land, neighbor Phil Pirani cleaned out approximately 1/3 of a mile of County Ditch #2 in Section 1 on the refuge. He also furnished a 6-foot diameter pipe, which was placed in the ditch on the boundary line and the road raised to facilitate crossing. He placed the former 36" crossing pipe in the berm created to reduce erosion on the east side of the ditch on the refuge. The refuge furnished a 24" CMP to enable traveling the trail on the west side of the ditch.

Silt deposits in County Ditch #2 were removed by neighbor Phil Pirani under a Special Use Permit.
3-4-94 Slide File GRM

A break in the 4-inch water line leading to the shop occurred at the Ditch #1 crossing in May. It was repaired in a cooperative effort with the City Of Turrell. In June the 48-inch CMP at this crossing collapsed creating a washout. It was replaced in July with a new and longer (40') 48 inch pipe.

A break occurred in the 4-inch water line at County Ditch #1 crossing and was repaired in a cooperative effort with the City of Turrell.
5-5-94 Slide File GRM

In June the furnace room was discovered to have water standing on the floor and appeared to have been there for some time. Floor tile were warped and loose and floor boards soaked. The problem was a faulty design on the air conditioning drain. The drain had become plugged at an unneeded traplike design. That copper line was removed and replaced by PVC line, void of any trap design. The floor was allowed to dry out and floor tile then relaid.

A handicap door lever was installed on the office door.

The source of the water pressure problems which had plagued the office building for many years was finally located by Equipment Operator McGee. There was an extra shut-off valve underground in front of the building. It was discovered to be faulty and was removed since there is an operational shut-off valve at the meter.

3. Major Maintenance

The hydraulic system in the JD 2640 tractor quit working. Engineering Equipment Operator McGee tackled the problem and solved it by replacing or cleaning all the filters and flushing the system.

Approximately .5 miles of trees were cut using the chainsaw along the west side of Old Levee 1.

The metal covers on the drive lanes of Drivers' bridge were replaced with regular bridging materials. The covers were slick when wet or frost covered thus were safety hazards.

E.E.O. McGee tore down the steering clutches and repaired them on the D-3 dozer. He also stopped the coolant system leak. It had been run during the summer at Cache River NWR with those problems.

4. Equipment Utilization and Replacements

With the unofficial break up of the Complex, equipment has yet to be assigned to either Big Lake or Wapanocca. Equipment is being shared as needs arise.

5. Communications Systems

Wapanocca went on-net FTS 2000 on July 5. There was some delay as calls would not go through the on-net system. The problem was finally traced to a faulty switch in Southwestern Bell's system.

6. Computer Systems

The computer system at Wapanocca was transferred to Cache River NWR upon transfer of Secretary Smith. Wapanocca will be without a computer until Big Lake receives updated equipment to be ordered in January 1995. The old equipment will be transferred for use at Wapanocca.

J. OTHER ITEMS

1. Cooperative Programs

A Special Use Permit was issued to Curtis McCasland, Memphis State University, to collect up to 1,000 water boatmen (croixidae) and 3 gallons of dead emergent vegetation from the refuge. These collections were used to propagate water boatmen to be used to analyze if the insect growth regulator, Diflubenzurox, will effect water boatmen. Diflubenzuron is used as a control for gypsy moth.

Mr. R.D. Gill representing Tyronza Hunting Club borrowed the refuge's tree spades to plant 5,000 loblolly pine, 500 sawtooth oak and 500 pen oak seedlings on 7 acres in Arkansas county.

2. Other Economic Uses

Special Use Permits: R.J. Pillow - Bee hives - $100
Billy McClelland - Commercial fishing - $233
Crittenden County Coon Hunters Association - coon hunters field trials - $50

3. Items of Interest

A refuge revenue sharing check for was delivered to Crittenden County Judge Williams in April. This year's check was only for $17,521 which reflects a 3.3 percent drop in actual entitlement from last year.

A check was also delivered to St. Francis County of $742 for the Round Pond Unit.

Refuge Revenue Sharing Payments

Fiscal Year	Amount	% of Total Entitlement	Entitlement
93	$17,521	77.8	22,520
92	18,372	81.1	22,650
91	20,151	89.6	22,490
90	31,575	93.5	33,770
89	26,277	78	33,770
88	23,993	71	33,770
87	19,899	59	33,770
86	20,271	60	33,770
85	25,345	64.4	39,355

Historical information was made available to Wayne Capooth upon request. He is doing research for a book on early hunting clubs.

A history information request was received from Plant Materials Station, Coffeeville, MS. They are naming a soybean after Wapanocca as the seed source was found near the refuge. It was especially of interest to them that Wapanocca may derive the name from an Indian word meaning "long tracks" as the soybean is a trailing variety. Information was sent to them.

4. Credits

Refuge Manager Miller - wrote and edited.
Office Assistant Griffith - edited, typed, and assembled.