

# MANAGEMENT PLAN PART 3

White River National Wildlife Refuge

## ANNUAL WATER MANAGEMENT PROGRAM

1990 Report

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I. GENERAL - Existing Water Supplies

The drought and low river levels experienced in late 1989 carried over into the start of 1990. Heavy rains in west and north Arkansas in mid-January and February caused the White and Arkansas Rivers to rise. The White River reached flood stage at St. Charles on February 12. A wet spring coupled with a slow constant release of water from U.S. Corps of Engineer lakes in northeast Arkansas kept the White River water levels high well into the summer. It was not until June 15 that the White River fell below flood stage, which is 25 feet, and not until September that it fell below 18 feet at St. Charles.

Total rainfall for 1990, as recorded at St. Charles, was 59.06 inches which was 16 inches above the previous ten year's average. Most of the excess precipitation occurred during the first half of the year. The first six months recorded 36.52 inches which was 15 inches above the average. This excessive precipitation, along with the release of reservoir water in northeast Arkansas, kept the White River high and delayed draining the moist soil and GTR units. A dry fall and winter coupled with record high temperatures during November and December severely limited the amount of water available and the number of ducks throughout the state.

Precipitation And River Stages

	River Stage (ft.)		Devia- tion	Precipi- tation 1990	Ten Year Average 1980-89
	Max.*	Min.			
January	18.9	6.8	12.1	6.43	3.07
February	25.5	18.8	6.7	7.90	3.75
March	26.9	25.6	1.3	9.27	4.29
April	26.5	25.6	0.9	5.05	3.93
May	26.6	25.5	1.1	5.06	4.52
June	25.7	22.2	5.5	2.81	2.58
July	22.0	18.5	3.5	3.86	3.09
August	18.5	17.4	1.1	1.28	1.80
September	18.4	12.4	6.0	1.66	2.51
October	20.9	13.5	7.4	5.11	4.20
November	12.6	9.3	3.3	3.80	5.45
December	25.3	11.6	13.7	6.83	4.03
Totals				59.06	43.22

\*Flood stage is 25 feet measured at St. Charles.

## II. MANAGEMENT UNITS

All water management units are subject to overflow from the White River except the Farm Unit ponds, the White River Levee GTR, and the borrow pits east of the White River Levee. At 18 feet on the St. Charles gauge, water begins to overflow into the refuge forest from the White River. At 25 feet on the St. Charles gauge, the river is completely over its banks. The Mississippi River influences the lower two-thirds of the refuge, which means flooding can occur in that part of the refuge and will not be reflected on the St. Charles gauge. Inversely, if the flood water comes from the White River and the Mississippi River is low, the northern portion of the refuge may flood while the southern portion does not.

### A. Demonstration Area

Dewatering began on the upper pool of the Demonstration Area Moist Soil Unit in June. It was not until the first week of July that Frazier Lake was low enough to drain the Demonstration Area lower pool. The upper pool and the higher ridges in the lower pool were disked in July, but the lower elevations in the lower pool stayed too wet to work. Millet was aerial seeded over the ridges in both pools immediately following ground preparation. Eighty acres were treated in August with 2,4-D for coffee bean and cocklebur control. August was a dry month, and the area was irrigated twice by flushing water through it from the water storage area. In spite of the dry August and September, waterfowl food production of Japanese millet and moist soil grasses was good.

A second rock spillway was put on the west side of the lower levee.

The lower pool was slowly flooded beginning in October. The upper pool was partly flooded in November and brought to full pool by December fourth. Up to 30,000 ducks regularly utilized this moist soil site throughout the remainder of the year.

Management proposed for 1991 will be the same as that proposed for 1990. Both pools will be drained as soon as river levels permit. If the area can be dewatered early enough, the unit will be disked, and up to 80 acres will be planted to milo. The remainder will be managed for moist soil plants. Water from the water storage area will be used for irrigation during the summer and to reflood in late October.

### B. Frazier Lake GTR

Due to lack of rain, at the first of the year water was only in the lake and was not flooding the GTR area. It was not until the last half of January, 1990 that river overflow and rain flooded this GTR. By that time waterfowl use was light.

Stoplogs could not be pulled until July due to high water levels in the river and Big Island Chute. The GTR was not drained until August. Stoplogs were replaced in late September, but it was not until the first week in December that the GTR was at full pool. Waterfowl use was good. Several thousand ducks were regularly observed in it.

### C. Farm Ponds and Moist Soil Sites

The north and east small moist soil areas were drained on March first. Natural evaporation had dried up most of the south moist soil area before the water control gate was opened in June. The pipe and control gate on the north moist soil unit were rusted and leaking. They were removed and replaced with an 18 inch x 40 feet culvert with stoplog riser in May.

Pond 2 was completely drained, and Ponds 1 and 5 were partly drained in order to repair their levees and control structures. Repairs to Pond 2 included: clearing the dam of brush and trees, installing a 24 inch x 40 feet culvert with stoplog riser, adding fill dirt to repair beaver damage and raise the levee, and riprapping the overflow spillway. The pond bed was seeded to millet in July, and stoplogs were installed in October to catch rain water. It slowly filled during fall and winter and received good duck use.

The discharge pipe, concrete stoplog structure, and sheet metal levee bulkhead were removed at Pond 5. Repairs included installing a 30 inch x 60 feet pipe with stoplog riser, riprapping the entire levee, and adding fill dirt to repair beaver damage and to raise the levee. Exposed mud flats were hand seeded to millet in July, and stoplogs were installed in September to catch rain water.

The sheet metal levee bulkhead was removed at Pond 1. Repairs included adding fill dirt to repair beaver damage and raise the levee and riprapping the entire levee. Exposed mud flats were hand seeded to millet in July, and stoplogs installed in September to catch rain water.

An excellent stand of smartweed grew in the south moist soil area where the water was held into the summer. The remainder of moist soil areas and pond edges had excellent stands of Japanese millet and natural grasses. All received excellent duck use.

In October, levees were closed on 35 acres of harvested rice fields at the Farm Unit and the rice stubble was rolled down. Several thousand ducks and Canada geese utilized this area.

Management will be the same in 1991 as it was last year for both the ponds and moist soil pools except Ponds 1 and 5 will not be drawn down quite as far.

### D. Goose Lake Moist Soil Unit

It was not until August 17th that LaGrue Bayou's water level fell low enough to drain Goose Lake. The very center quarter of the lake did not drain due to siltation of the drain channel. Normally, summer temperatures and drought evaporate this portion of the lake, but due to late draining the center of the lake did not dewater. Cocklebur covered the peripheral quarter, and a good stand of millet and nut sedge occurred in the half between the standing water and cocklebur.

The gates were closed on October 11, but it was not until the beginning of December that there was enough rain to flood the lake. Waterfowl use was good.

Management in 1991 will be to dewater as early as possible. Major repairs are needed to the water control structure. Water control structures on LaGrue and White Lakes need to be renovated to allow better water control for reflooding Goose Lake in October. Heavy equipment is also needed to reclaim the north and east banks that have been overtaken by water privet. A dry year with low water in LaGrue Bayou is required for any of the necessary repairs.

#### E. Parish Lake

This structure and levee were constructed specifically to provide additional water for recreational fishing in a series of interconnected lakes. Water levels in these lakes, including Mossy, Parish, North Moon, East Moon, and Whiskey Lakes are held approximately four feet above normal by the structure to enhance fishing opportunity and success. Due to the blowout on Mossy Lake in 1987, water levels in these lakes dropped with the river. The Corps of Engineers repaired the Mossy blowout in December of 1989. In the two years that the lake levels were low, thick stands of willow trees have developed on the lake banks. The spring of 1990 was the first year for the lakes to be at full pool and sportfishing was excellent.

#### F. Tarleton Creek GTR

This unit has two large structures, one on Tarleton Creek and the other on Thomas Bayou. It was completely flooded at the beginning of the year. Stoplogs were pulled at Thomas Bayou in July and replaced in November. This GTR is fed by a large watershed, and it was at full pool shortly after replacing the stoplogs. Large numbers of wood ducks use this GTR.

The forest management review team suggested that we fill this pool as late as possible. That is the reason for the structure closure being moved from October to November. The water control structure is deteriorated and needs major repairs. Complete draining will be necessary in order to make repairs.

#### G. Dry Lake Moist Soil Unit

It was not until July that the water could be drained from the moist soil unit. Plans to plant milo were washed away with the late high water. Millet was aerial seeded on 14 acres along the higher ridges as soon as the water receded. The lower elevations of this unit were managed for moist soils and had an excellent stand of wild millet. Even the higher ridges that are normally unproductive had good grass germination due to the moisture provided from late high water levels. Five acres were planted to winter wheat in October.

Ship Canal water was diverted through Reservoir B to Dry Lake in October. Beavers continually rebuilt dams along Honey Locust and Wolf Bayous. This, coupled with the lack of rain in the fall, kept Dry Lake from getting to full pool until late December. Waterfowl use was moderate. Approximately 5,000 ducks and 500 Canada geese utilized the area while it was partly flooded. In late December the unit deeply flooded over a short period of time, and much of the food value was lost. Waterfowl use after this was light.

Management plans for 1991 will be similar to the past. Control gates will be opened June 1 or as soon thereafter as possible. Drawdown rates will be slow to encourage germination of desirable species. A portion of the high ridge along Wolf Bayou will be planted to milo and/or millet. A portion of the high ridge next to Dry Lake will be planted to wheat in October for Canada geese. Reflooding will start during the first week of October and the unit progressively flooded with normal pool elevations reached by the end of December.

#### H. Reservoir A and B GTRs

These 2 large GTRs are capable of impounding water on a total of 5,000 acres of forestland through a complicated system including 7 major water control structures, 2 concrete spillways, 5 rocky spillways, and 12 miles of levees. In addition, to flood the Dry Lake Moist Soil Unit, water must be pushed some eight miles through two bayous and a connecting ditch in Reservoir B before reaching the moist soil area. Beaver dams throughout the area retard both draining and reflooding efforts and have to be constantly removed.

Two pulpwood and sawlog timber sales were completed. One, along the east side of Honey Locust Bayou, was three years old. The other was east of Levee B in Stand 1S41. A third forest prescription area, located west of Honey Locust, was marked and sold, but the contractor will not begin work until next summer. These timber cuts are to remove undesirable trees to favor mast producing species and to open up the tree canopy.

Levee B required extensive repairs. The major water pipe that moves water from Reservoir B into Reservoir A rusted out and had to be replaced. Gravel and riprap were added to the levee and spillways to repair erosion.

During the first week of October, the water control gate on the Arkansas River Ship Canal was opened and Reservoir A was reflooded. After Reservoir A was at full pool, ship canal water was diverted to Reservoir B.

Waterfowl use was excellent until late December when White River overflow deeply flooded the area. These GTRs are the only portions of the refuge that were open for public waterfowl hunting. Hunting pressure and success were better during the first season than during the second portion of the split season.

Management in 1991 will be to drain A and B by early March or as soon thereafter as possible and to reflood in late October. Close attention will be given to beaver dam removal along Honey Locust and Wolf Bayous.

#### I. Parish Bayou - Oxbow Lake GTR

The water control structure for Oxbow Lake washed into the White River in 1988 when the supporting river bank caved in from erosion. This structure was built primarily to hold lake water up for fishing. It provided little duck habitat in the GTR, and there are no plans to replace the structure.

The gates on Parish Bayou were opened in April which was the first area that floodwaters receded enough for us to reach the structure. Plans for 1991 will be the same. The gates will be opened as soon as possible after March 1. Beaver

dams will be removed after flood waters subside. The gates will be closed in late September or early October to catch rain run-off for winter duck habitat.

#### J. Willow Lakes/Water Storage Area

This dead timber reservoir was created in the early 1970s by a levee and water control structure. Currently, the entire area operates as a 300 acre marsh. This unit was at full pool in the beginning of the year and remained there throughout the year with little fluctuation.

This unit contains an active bald eagle nest which has produced young every year except one since 1982. In 1990, three young eagles were successfully fledged.

Duck use in this unit has been low the past several years. Plans are to try and dewater it after the eaglets have fledged and reflood it in the fall.

#### K. Prairie Lakes GTR

The water control gate was opened in late February and closed in October to catch rain water. Waterfowl use was heavy during November and December until White River overflow flooded the bottomlands.

#### L. White River Levee GTR

An agreement with the White River Levee Board calls for water levels of 144 MSL during winter months. This level floods only about 25% of the area within the unit and puts very little water on adjacent fields. In 1989 the Levee Board agreed to raise the water level to 145 MSL, and subsequently agreed to raise that level to 145.5. This year the Levee Board agreed to again maintain the water level east of the levee at 145.5. Unfortunately, it was not until mid-December that there was enough rain to put sheet water in the adjacent agricultural fields. Army Corps of Engineers personnel at the Graham Burke Pumping Station pumped the water out and generally kept the water level at 144.5 throughout the remainder of the year and into 1991.

#### M. Bear Lake GTR

The water control structure was opened in July, which was the earliest date possible after spring floods. The gates were closed in October, but the GTR remained relatively dry until December.

#### N. Taylor Lake GTR

The water control gate was opened in May, after spring floods, and was closed in October. It did not receive much water until mid-December.

#### O. Beaver Impoundments

There are approximately 4,000 acres of beaver impoundments existing on White River Refuge. Normally 1/2 of these are drained after flood conditions recede to encourage establishment of riparian vegetation. In addition, a large number of beaver dams are drained annually to prevent conversion of high quality

forestland to beaver impoundments. A large part of these dams are located in development units, particularly GTRs. All dams were checked and opened up with explosives. Those in Reservoir B were removed several times during the year, but beaver continued to repair them.

P. South Levee Borrow Ditch.

In 1989, a pipe and stoplog riser were installed in a borrow ditch just north of the south entrance gate on the Levee Unit. In the spring of 1990, receding flood waters partly washed away this levee. Stoplogs were removed and the 7 acre unit was completely drained. A fair stand of moist soil grasses developed, and the stoplogs were replaced in October. Rainwater partly flooded the area, and waterfowl use was fair throughout the year.