

## **Water Level Management Felsenthal Green Tree Reservoir, (GTR)**

Several studies have been completed to determine the effects of water level management on the green tree reservoir within the Felsenthal National Wildlife Refuge. Each of these studies points to a deterioration of the trees within reservoir due to water issues. Specifically, the two most desired species of oaks, Willow and Nuttall, are decreasing in numbers and more water tolerant species such as Overcup Oak and Water Hickory are increasing. Additionally, recruitment of new trees into the system is not occurring due to high water levels drowning out the seedlings. Overall the health of the forest is deteriorating because of the current water level management regime.

There are many user groups who are demanding that the water level management be done in such a way that the most benefit to their use is gained. This is a near impossible task with so many diverse groups to consider. The former manager put it very well when he said “we can not think single purpose any longer – there are too many uses and users, and ... when one strives for optimum conditions for their favorite issue, another segment of the ecosystem may be impacted.”

The water management schedule must allow flexibility and can not be static in order to deal with issues as they develop as well as deal with the changing needs of all the resources and users. In short no one group can expect that all their needs will be met every year.

In 1996, then Project Leader, Jim Johnson met with many of the agencies and individuals who had a stake in the water management of the GTR on Felsenthal. The result of that meeting was a schedule of flooding and draw down that has been used since that time. This schedule calls for the following:

Date	Water Level
11/1	65.0'
11/15	65.0'
11/30	67.5'
12/31	70.0'
01/15	70.0'
02/1	68.0'
03/1	65.0'

This was the agreed upon schedule that was to be followed for water level manipulation. In addition, three conditions were also placed which if enacted could effect the above schedule.

- 1) if the refuge experiences two consecutive years of continual spring/summer flooding ( above 68.0 through more than half of June), the GTR will only be flooded the following season to a maximum of 67.5'. This was viewed as a critical point to maintain in the management of the GTR.

- 2) Every third year water levels would be held at 68' through April to provide fish spawning habitat if natural overflow does not occur during that time period.
- 3) When water levels are between 70' and 65' during the spring/early summer rates of fall should not exceed 0.1' per day to avoid adverse impacts to spawning fish.

In the years since this meeting this schedule has been followed, more or less, unless there was natural flooding or draught that has occurred. There has been little in the way of deviation from this schedule. In spite of the recommendation that flexibility needs to be maintained in the management it does not appear that much flexibility has been used. There could be numerous reasons for this such as political pressures or user group pressures. The fact still remains that flexibility is a key component that has been lacking in the water management on the Felsenthal GTR.

I am proposing that a new schedule be put into place that will vary the dates and levels of the flooding and dewatering of the GTR on Felsenthal Refuge. This proposed schedule will be based on a four year rotational schedule and will have built into it variability from year to year. The three conditions as stated above could still be valid conditions under this new schedule.

The new schedule would look something like this:

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| <ol style="list-style-type: none"> <li>1. 11/30 65.0'</li> <li>12/15 66.5'</li> <li>12/31 68.0'</li> <li>01/15 68.0'</li> <li>02/01 67.0'</li> <li>03/01 65.0'</li> </ol>                      | <ol style="list-style-type: none"> <li>2. 11/15 65.0'</li> <li>11/30 67.5'</li> <li>12/31 68.0'</li> <li>01/15 69.0'</li> <li>02/01 67.0'</li> <li>03/01 66.0'</li> <li>04/01 65.0'</li> </ol> |
| <ol style="list-style-type: none"> <li>3. 11/15 65.0'</li> <li>12/01 67.0'</li> <li>01/01 70.0'</li> <li>02/01 69.0'</li> <li>03/01 68.0'</li> <li>04/01 67.0'</li> <li>05/01 65.0'</li> </ol> | <ol style="list-style-type: none"> <li>4. No artificial flooding</li> </ol>  |

Any combination of the four above scenarios could be used; it does not have to follow in sequence every year. This variation in the dates and water levels should help with forest health and vigor and, hopefully, aide in recruitment levels of new trees.

For 2007 we will follow the first scenario listed using the following dates as a guide line for the raising and falling of the water levels:

November 30, 2007 start raising water levels at the rate of 1/10<sup>th</sup> foot per day until reaching 68"MSL on or about December 29, 2007.

January 15, 2008 begin dewatering at the rate of 1/10 foot per day until reaching 66.5' MSL on or about January 30, 2008.

January 31 continue dewatering at the rate of half of 1/10 foot per day until water level reaches 65.0 MSL on or about February 29, 2008.

A truly ideal situation would be if we could work with the Army Corp of Engineers, (Corp), to have a summer draw down that brought levels to 64.0' or lower. This however, would require that either the river be dredged deeper to maintain the mandatory 9 foot channel, or congress grants the authority to the Corp to deviate slightly from the 9 foot channel once every three years or so. We should work with the COE to see if the possibilities exist to allow this drawdown.

Felsenthal NWR is going to be starting the Comprehensive Conservation Plan during fiscal 2008. As a part of this process we will be undergoing a Biological Review which will help to refine the above schedule. As we move through the CCP process and refinements can be made we should strive to do so. It is hoped that upon completion of the CCP process we will have a management plan that will keep variability and provide for continued forest health for all the resources that utilize it.