

**Post-Restoration Review on Round Meadow
Chemult Ranger District, Winema National Forest
May 24, 2004**

On May 21, 2004 Mike McNamara (Forest Hydrologist Wallowa Whitman NF), Mike Riehle (Fisheries Biologist, Deschutes NF) and Louis Wasniewski (Hydrologist, Deschutes NF) met with Terry Simpson and Jayne Goodwin of the Chemult Ranger District on the Winema NF to visit post-restoration of Round Meadow. Round Meadow is approximately 300 acres that had been ditched throughout to facilitate grazing. Soils are diatomaceous with high organic content. A series of transverse ditches 1-2 feet deep drain into a main ditch at the center of the meadow that has down cut to as much as 5 feet.

Restoration of Round Meadow occurred in the fall of 2003 whereby Mike McNamara had designed and coordinated the implementation of mimicked beaver dam plugs in over 12 miles of ditches. The plugs were designed to disperse water throughout the meadow and restore hydrologic function. Louis Wasniewski and Johan Hogervorst visited the site with Mike McNamara prior to restoration in May 7, 2003 as members of the Regional Restoration Assistance Team to provide recommendation for the project. Our objectives with this 2004 visit was to evaluate the restoration, make recommendations for maintenance of Round Meadow restoration, and learn lessons to improve designs for a similar restoration project on the Deschutes NF.

Evaluation of Round Meadow Restoration

After spending several hours walking through dispersed and standing water it was obvious that this project was a huge success. The abundance of wildlife such as rails, geese, duck, sandhill cranes, tree frogs, etc that were not seen up in this meadow before was a tremendous sign that this project of \$26,000 was priceless. Below are some “before” photographs taken in May 7, 2003 and compared to “after” photos taken in May 21, 2004, one year and 14 days apart. We think the photo speak for themselves. Another restoration aspect not shown in the photos is that the district is also currently constructing a fence to exclude cattle grazing indefinitely. This will tremendously help the vegetation on the dams to get established and provide strength for water spill-over in the spring.

Round Meadow Before and After Photographs

(Before photos taken on 5-7-2003 and after photos taken on 5-21-2004)



Photo 1: BEFORE photo taken at the lower end of the meadow of the main ditch where a crossing was developed for vehicle crossing.



Photo 2: AFTER photo showing how a plug upstream of the crossing (30ft) is backing up the water and causing it to disperse to the left. At the lower end where the gradient increases there is some minor maintenance needed.



Photo 3: BEFORE photo showing how the water rarely flooded on the meadow.



Photo 4: AFTER photo showing the success of the mimicked beaver dam plugs for dispersing and inundating the meadow. This will also hinder encroachment of the adjacent lodgepole pine.



Photo 5: BEFORE photo looking at the upper end of the meadow with the old ditch spoils on both sides of the ditch.



Photo 6: AFTER photo showing better than expected water inundation. The old ditch spoils were used along with thinned lodgepole to create the dams to disperse the water and restore hydrologic function. Outstanding!

Maintenance Recommendations

All the maintenance that we are recommending occurs around the lower end of the meadow where the gradient increases.

1. At the lowest couple of dams the dams could use some additional sod work to reinforce the dam and to create further dispersion of water out onto the flood plain. The photos below show how there are a few small locations that could have the potential to headcut up through the dam prior to vegetation establishment. They are minor sites that could be done with a hand crew. This photo also shows how the flow is getting spread out to both side of the channel.



2. The next area needing maintenance is at the old culvert crossing as shown by the photo below. First off the old road and wheel ruts leading into this crossing from the right should be modified to allow water to disperse onto the meadow rather than concentrating the flows back into the ditch. Need to disperse as much of the water as possible to elevate unnecessary erosion energy. The second and final maintenance work would be to reinforce the two dams. Again this would place sod at low point to raise the elevation of the dam where it meets the meadow to prevent concentrated flow, erosion, and headcutting upstream. Work also needs to occur to completely plug the culverts. This work could be done with an excavator or hand crew.



Lessons Learned

In order to take erosion pressures off the mimicked beaver dams it is critical to space the dams so that there is a backwater effect from the downstream dam backing up to the next dam up the ditch. This keeps the water drop and erosion power to a minimum and prevents future headcuts from occurring. Another useful lesson would be the use of dispersion berms that would be constructed on both ends of the dam that would lead water away from the dam and back into the meadow. The key that we have seen to make these dams successful is to maximize water dispersion as much as possible to minimize erosion potential. Too often dams like these have end-around where the flow starts to erode and headcut upstream at the point where the dam meets the ditch bank. These lead-out or dispersion berms could eliminate this problem from occurring. When constructing the dams it is important to place sod on the surface right side up to maximize vegetation establishment and root holding potential. When borrowing sod it is best to borrow away from the dam to prevent future erosion. The dam should also inter-mix or layer slash to mimick a beaver dam and to provide structural strength.

We would like to thank the folks on the Chemult Ranger District for taking the time to visit this project, view so much wildlife, and put valuable restoration information into the memory bank.

Thank you!

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