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Smith River Streambank Restoration Rocking C's Ranch

Status Report for Northwestern Energy FERC Project 2188

Project #2017-21

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In 2017, Montana Fish, Wildlife and Parks (MFWP) submitted and interim request to the Missouri River Technical Advisory Committee (MoTAC) that was approved on April 17, 2017 in the amount of \$25,000 from Northwestern Energy (NWE) to conduct streambank restoration on two sections of the Smith River on the Rocking C's Ranch. This accounted for a small portion of the total \$296,000 estimated cost of the project at that time.

The project is located on property owned by Smith River Ranch, LLC, operating as Rocking C's Ranch. The two stream reaches are located approximately 1 mile downstream of Camp Baker at river mile 79.8 and 80.2 (Figure 1).

The primary purpose of the project was to restore and stabilize two reaches of streambank along the Smith River using soft bioengineered bank stabilization techniques. The upstream (southern) project reach is referred to as the Muleshoe Bend (Figure 2), and the downstream (northern) project reach is referred to as the Dressage Field Bend (Figure 2). The two bends had become increasingly unstable due to erosion that occurs primarily during high flow conditions. Erosion had resulted in the loss of nearly all the deep rooting vegetation in the riparian zone along the project reaches, leaving several hundred feet of near-vertical streambank with very little aquatic refugia and low aquatic habitat quality. In addition to the annual high water flows, the sites experience additional physical stress from occasional winter ice jams.

The Rocking C's Ranch has been closely monitoring the two meander bends for almost 15 years and has made low-tech attempts to stabilize the banks with new riparian revegetation. The ranch currently has fenced a riparian corridor along the entire river's western streambank that ranges from 30-feet to 150-feet in width, and manages it with weed control, no mowing, and no livestock access. In the early 2000s, approximately one-hundred 2" to 3" diameter aspen and cottonwood trees were planted 30-feet back from the previous location of the eroding streambank to try to enhance the riparian zone and stabilize soil with deep rooted vegetation. Approximately 24 of the trees were located directly along the outward edges of the project meanders where the worst erosion is now occurring. These efforts were largely ineffective as most of the planted tree have been lost to the continued erosion of the streambank. The ranch has also had to move their riparian fence further away from the streambank due to the rapid rate of erosion and advancement of the streambank. Off additional concern is that if a meander cutoff occurs, significant stream channel would be lost, which would likely result in a headcut that would travel upstream causing significant erosion and additional sediment to the river until a new equilibrium becomes established.

In 2016 the Rocking C's hired WGM Group to develop a restoration plan. The plan consisted of resloping the banks using largely soft bioengineering techniques with extensive vegetation to stabilize the bank and establish riparian vegetation. The restoration work was completed during November 2018.

Figures 1 and 2 depict the location of the project. Photos 1 through 13 depict the project area before, during, and after restoration. Vegetation has started to become established and will continue to be monitored.

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Figure 1. Aerial photograph of the project area. Yellow circles denote the restoration areas. Camp Baker is shown for reference by the triangle.



Figure 2. Close-up aerial photograph of the project area. Yellow circles denote the restoration areas. The Smith River flows from south to north.



Photo 1. Aerial photo of Muleshoe Bend. Pre-restoration. Photo provided by WGM Group.



Photo 2. Aerial photo of Muleshoe Bend. Pre-restoration. Photo provided by WGM Group.



Photo 3. Aerial photo of Dressage Field Bend. Pre-restoration. Photo provided by WGM Group.



Photo 4. Photo of Muleshoe Bend. Pre-restoration. August 2016. Photo provided by WGM Group.



Photo 5. Photo of Muleshoe Bend during restoration. November 2018. Photo provided by WGM Group.



Photo 6. Photo of Muleshoe Bend during restoration. November 2018. Photo provided by WGM Group.



Photo 7. Photo of Dressage Field Bend during restoration. Nov 2018. Photo provided by WGM Group.



Photo 8. Photo of Muleshoe Bend before restoration. August 2015. Photo provided by WGM Group.



Photo 9. Photo of Muleshoe Bend after restoration. July 2019. Photo provided by WGM Group.



Photo 10. Photo of Dressage Field Bend before restoration. Aug 2016. Photo provided by WGM Group.



Photo 11. Photo of Dressage Field Bend after restoration. July 2019. Photo provided by WGM Group.



Photo 12. Photo of Muleshoe Bend after restoration. July 2019. Photo provided by WGM Group.



Photo 13. Photo of Dressage Field Bend after restoration. July 2019. Photo provided by WGM Group.