Wetland Best Management Practices to Address the Risk Observed Disturbances pose to the Condition of Wetlands in the Musselshell River Basin

Montana Department of Environmental Quality Wetland Program
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For more information see: Wetland Health in the Musselshell River Basin Story Map

The goal of Musselshell River Basin wetland assessments was to understand the effect disturbances from current and past land use practices have on the condition of wetlands and the potential loss of the community, economic, and environmental benefits they provide. Understanding this effect can help inform stakeholders as to the appropriate measures that can be implemented for protecting, restoring, and maintaining wetlands in the Musselshell River Basin.

To implement the appropriate measures, it is important to understand the risk individual disturbances pose to the condition of a wetland. Not just how common that disturbance is or the current condition of a wetland. Risk relates how likely a wetland will lose its ability to effectively provide a benefit to the community, economy, and environment based on the scope and impact of the surrounding disturbances.

In the Musselshell River Basin high levels of disturbance from grazing and haying were observed at 53% of the wetlands sampled. This disturbance does not pose the greatest risk to the condition of wetlands in the Musselshell River Basin and the potential loss of wetland benefits. Wetlands with high levels of disturbance from grazing and haying were only slightly more likely to be in poor condition than wetlands where moderate levels of disturbance were observed.

Any alteration to the natural movement of water into, out of, or within a wetland and the area surrounding it was found to be the dominant cause of poor condition and the loss of wetland benefits. A wetland is 19 times more likely to be in poor condition and unable to effectively provide a benefit to our communities, the economy, or the environment if its hydrology has been altered.

The management of noxious weeds decreases the likelihood that a wetland is in poor condition and unable to effectively provide a benefit to our communities, the economy, or the environment. If the cover of noxious weeds in a wetland was less than 3% it was 6 times more likely to be in good condition.

The risks show the importance of maintaining and restoring the natural hydrology of wetlands in the Musselshell River Basin. And in doing so maintaining a wetlands ability effectively provide a benefit to our communities, the economy, or the environment. It also highlights the importance of managing noxious weeds and implementing an appropriate time controlled grazing management strategy.

To address these risks the Montana Department of Environmental Quality's Wetland Program developed a list of general best management practices (BMP) for the Musselshell River Basin. These BMP address the disturbances observed in the Musselshell River Basin and the risk they pose to a wetlands ability to effectively provide a benefit to the community, economy, and environment. A list of other organizations that work in the Musselshell and have developed applicable BMPs can be found under the "What you can do" tab in the Wetland Health in the Musselshell River Basin Story Map.

Reduction of Impacts from Grazing and Haying Disturbances	
Time Controlled Grazing Management Plans	A plan describing the timing, location, and intensity of livestock grazing that promotes the protection of wetlands, riparian areas, and streams.
Fencing	Fencing used to permanently or temporarily control livestock access to wetlands and riparian areas.
Off-Stream Watering Facility	A permanent or portable device to provide an adequate amount and quality of drinking water for livestock and wildlife.
Water Gap	A controlled access point to a wetland pond from which livestock can obtain drinking water directly from a waterbody.
Aquatic Resource Buffer	A minimum 25-foot protected strip of perennial native vegetation located adjacent to and up-gradient from a waterbody that minimizes runoff into a wetland.
Revegetation	Establishing and protecting permanent native vegetative cover in order to prevent soil erosion.
Reduction of Impacts from Altering the Hydrology of a Wetland	
Floodplain Reestablishment	Reestablishment of a stream's floodplain and wetlands or reconnection to an abandoned floodplain and wetlands. This may include breaching, removal, or modification of dikes, levees, road bases, or railroad grades to allow streams to access or reestablish a floodplain.
Hydrologic Function Restoration	Restoration of the groundwater hydrology, surface water hydrology, or morphology of a wetland in order to reestablish the benefits provided by a wetland that were impacted through hydrologic alterations.
Road Crossing	Site, design, and construct bridges, culverts, hardened crossings, and fords in a manner that prevents the disruption of natural flow of water in a wetland, stream, or floodplain.
Culvert Replacement or Removal	Removal or replacement of culverts to minimize their impact on the hydrology of a wetland.
Dam Removal or Modification	Dam removal or modification to restore the natural hydrograph of a stream and associated wetlands in order to facilitate natural hydrologic processes.
General BMPS	
Noxious Weed Control	Develop a detailed weed management plan that is unique to a property. The local weed district staff should be contacted to assist in developing this plan.
Invasive Woody Plant Control	Prevent, eradicate, and manage infestations of invasive woody species. Follow guidelines in Long-Term Strategy for Russian Olive and Saltcedar Management (May 2013)
Revegetation	Planting, protecting, or reestablishing permanent perennial native vegetative cover in wetland, riparian, and upland areas to prevent soil erosion.
Wetland Restoration	Restoration of wetlands that were impacted through human activities in order to reestablish the benefits wetlands provided.
Wetland Creation	Creation of wetlands for the purpose of providing wetland functions that reduce the impacts from nonpoint source pollution.
Wetland Protection - Conservation Easements	Establishing legally binding restrictions that either temporarily or permanently limit the activities that may impact the condition of wetlands, in order to protect the benefits they provide to our communities, the economy, and the environment.
Zeedyk Structures	Establishing rock or wood structures to stop head cutting and the drying of wetland meadows in order to improve their hydrologic functions and maintain important wildlife habitat.