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Sandra Wyman Bureau of Land Management

Sherman Swanson University of Nevada, Reno

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## Grazing management processes and strategies for Riparian Wetland areas

Sandra Wyman, BLM, National Riparian Service Team, 3050 NE 3<sup>rd</sup>. St. Prineville, OR 97754 USA and Sherman Swanson, U. of Nevada, 1000 Valley Rd. Reno, NV 89512 USA sswanson@cabnr.unr.edu

Key words: Grazing management, riparian-wetland areas, livestock, adaptive management

Introduction In arid rangelands, cattle often focus grazing near riparian areas. Excess intensity or duration of grazing generally leaves inadequate riparian vegetation to stabilize stream banks against the cutting action of flowing water. Woody plants may lose diverse age structure needed for maintaining channel form or fish habitat. An excessively eroding channel may incise or entrench forming a gully that accelerates erosion. An incised stream does not access (flood) its floodplain so flood waters can not recharge an aquifer. Water rushes downstream in the wet season or during storm events, increasing downstream impacts rather than soaking into upstream floodplain soil and aquifers where it could have supported vegetation, dry-season flows, forage, and habitat.

Methods A technical reference Grazing Management Processes and Strategies for Riparian Wetland Areas (Wyman et al 2006) was developed to assist livestock operators and land managers in developing successful riparian-wetland grazing management strategies across a wide array of land types Because of the complexity of riparian-wetland areas and issues, this technical reference does not set forth a formula or rules for identifying the type of grazing strategy best suited for an area. Rather, it provides information to help livestock managers collaborate to design appropriate grazing strategies for soil, vegetation, water, wildlife, and livestock needs.

Results and discussion Basic topics covered in this technical reference include riparian-wetland area attributes and processes, riparian resource assessments and inventories, development of resource management objectives, management strategy factors, grazing treatments, and collaborative monitoring. Alternatives to passive continuous grazing, employing rest or deferment from grazing when appropriate, and considering the associated uplands and the entire water catchment and its resources helps them when developing a grazing management strategy. Examples of tools, techniques, treatments, and success stories are provided. The reference is intended to provide the background and information needed for management of riparian area resources while maintaining the economic viability of the grazing enterprise. It ensures that everyone involved clearly understands riparian function and management objectives, and understand how they can benefit from proper management and improved riparian conditions. Flexibility in the grazing management plan accommodates changes in weather and what is learned from monitoring information, in a timely manner.

Conclusions It is important to manage grazing so that water loving plants grow vigorously and retain the structure needed to dissipate the energy of high flows post-grazing to permit natural stream function . Consequently , it is important to consider the entire water catchment and its resources when developing a grazing management strategy . A successful grazing management strategy meets the needs of the operator , livestock , wildlife , and upland and riparian resources . Monitoring how well the strategy meets these needs and adapting as necessary perpetuates success .

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