REDUCING IMPACTS

Cattle should be kept out of waterways when possible. There are several troughs on the reservation that provide alternate sources of water for livestock. Managing the areas where cattle are allowed, and reducing the time they are able to spend in waterways, can also reduce grazing pressure. This can be accomplished by following a grazing plan and making sure that fences and gates around waterways are well maintained. Keeping the riparian area healthy by improving and maintaining a stable, desired plant community provides a buffer to protect water quality and helps reduce grazing impact. People can avoid adding to damage caused by cattle by doing what they can to leave native plants in place around waterbodies. Soil erosion can also be reduced by staying on roads/trails and only crossing streams in designated areas.

EPA United States Environmental Protection Agency

This project has been funded by the United States Environmental Protection Agency

Additional information

Nonpoint Source Pollution: Agriculture
https://www.epa.gov/nps/nonpoint-source-agriculture

Agriculture Nutrient Pollution
https://www.epa.gov/nutrientpollution/sources-and-solutions-agriculture

Grazing Livestock and Water Quality
https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_046596.pdf

National Management Measures to Control Nonpoint Source Pollution from Agriculture
https://www.epa.gov/nps/national-management-measures-control-nonpoint-source-pollution-agriculture

Conservation Buffers
https://www.fs.usda.gov/nac/buffers/docs/conservation_buffers.pdf

MORONGO BAND OF MISSION INDIANS
ENVIRONMENTAL PROTECTION DEPARTMENT

MORONGO ENVIRONMENTAL PROTECTION DEPT.

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Grazing and Water Quality

Tribal Water Program

Morongo Environmental Protection Department

WATER QUALITY IMPACTS

Unmanaged grazing can negatively impact water quality, aquatic habitats, wildlife, human health, and natural ecosystems in a variety of ways.

Increased nutrients and bacteria

If cattle spend the majority of time in and around the water, then their manure will also end up in and around the water. Nutrients and pathogens from inside the digestive system of cattle can enter the water. While nutrients like nitrogen and phosphorus are necessary for life, too much can lead to an overgrowth of plants and algae in the water. This decreases the amount of dissolved oxygen available to aquatic life. Excess nutrients may also disrupt the aquatic ecosystem and change species composition in waterbodies, potentially leading to harmful algal blooms. Manure can contain pathogens and bacteria, like *Escherichia coli*, that can make people sick with gastrointestinal illness.

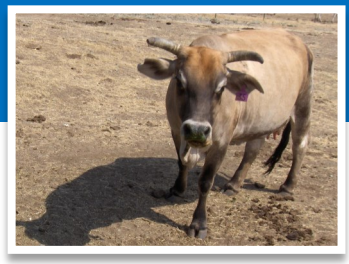
PHYSICAL IMPACTS

Streambank damage and soil compaction

Cattle trampling over streambanks changes the shape and structure of the channel. Pristine streambanks reach an equilibrium, but the cattle activity decreases the stability the banks have developed. Unstable banks are more likely to collapse, increase erosion, and can disconnect the stream from the riparian area/floodplain.

Erosion happens when soil is worn away and moved by wind and water. Erosion occurs when streambanks are unstable or riparian areas damaged. Erosion increases the amount of sediment in the stream and disrupts the balance of sediment in the water. This alters aquatic habitats and can smother aquatic invertebrates and fish eggs. The excess sediment can also carry additional pollutants into the water.

Water quality impacts can also come from the degradation of soil quality. Cattle can compress the ground in areas where they walk or gather frequently. Increased soil compaction leads to less water infiltration through the soil and increases the amount of the water that drains over the land. Less water is absorbed by the ground, so the water velocity is increased and more erosion occurs.



Increased runoff impacts water quality as the nutrients and sediment wash off into nearby waterways. Less water getting through the soil leads to a higher likelihood of flooding while reducing the amount of groundwater recharge (which supplies Morongo's drinking water).

Vegetation removal

Unmanaged grazing can cause the loss or alteration of riparian vegetation, shifting the habitat away from native species preferences. This happens through cattle feeding on stream-side plants or by them walking and laying on the plants. When the native vegetation is removed, invasive species have an opportunity to become established. Also, the riparian area's ability to filter pollutants is reduced. Less vegetation additionally increases erosion.