

Ecosystem Functions Report

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National Water Quality Initiative and 319 Impaired Waters

16 recent water quality projects across 7 of the 10 Missouri River Basin states are demonstrating how various impaired water bodies can be improved and de-listed.



Water quality pollutants being addressed include:

Sediment, Bacteria, Nutrients, Herbicides, Low Dissolved Oxygen, High Temperature, Low Biological Condition, Excessive Algae, High Chlorophyll a, and Conductivity.

The 16 widely varied projects reviewed provide insight into 20 conservation practices which are often needed and implemented on grassland and cropland in the Missouri River Basin to ensure watershed project success...
'green infrastructure & management in the rural US'



Key Grazing Land Practices

Prescribed Grazing

Use Exclusion

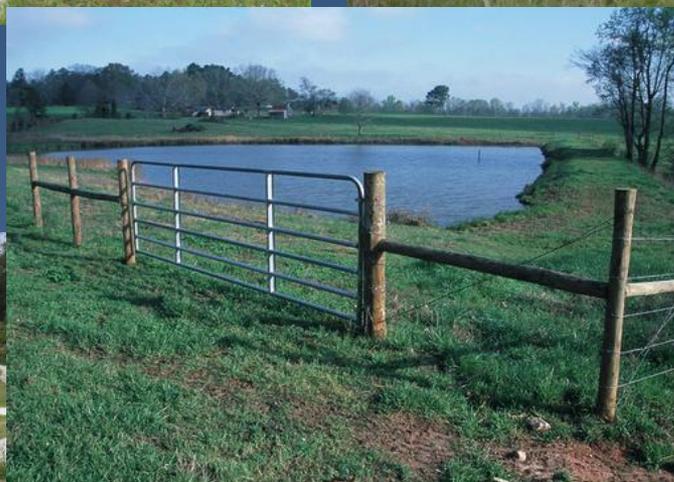
Watering Facility

Brush Management

Prescribed Burning

Fence

Pond



Key Crop Land Practices

Conservation Crop Rotation

Cover Crop

Residue & Tillage Mgmt,

No-Till/Strip-Till

Buffers and Filter Strips

Irrigation Water Mgmt

Terrace

Grassed Waterway

Nutrient and Pest Management



Key Practices on Multiple Land Types

Grade Stabilization Structure

Water & Sediment Control Basin

Sediment Basin

Waste Management

Wetland Restoration



Water quality-related conservation practices enhance agricultural profitability and benefit natural resources through reduced input and enhanced soil health, which results in higher soil organic matter, increased infiltration and water-holding capacity, and nutrient cycling.



Foundational Conservation Practices provide:

- Multiple Natural Resources Benefits*
- Ecosystem Functions Benefits*
- Ecosystem Values Benefits*

These same conservation practices that are key for water quality, also restore various ecosystem functions and benefit water quantity, soil erosion, air quality, wildlife, native vegetation, crops and the economics of ag operations.

They reduce flooding and runoff, improve drought resiliency, increase ground water recharge, improve wildlife habitat and food sources, sequester carbon, and increase productivity of the land.

Although these are generalizations, and they generally do hold true, each field and ag operation is unique, and in field evaluation is needed to identify the unique issues, to identify suitable options and identify where specific conservation practices need to be located to be effective...
Conservation Planning.

Local Work Groups,
Watershed Assessments,
Conservation Planning and Practices,
Programs and Funding,
Partners

(e.g. EPA, USGS, NOAA, FWS, BOR, COE, ARS, NRCS & others),

Project Coordination and Facilitation (including Outreach),
and
Monitoring

are all part of a successful project.

Developing and maintaining strong and on-going local work groups is important to immediate and long-term success.

For more information on NRCS Area-Wide Planning Process see:

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_015466.pdf

For more information on the more than 150 NRCS Conservation Practices (Standards, Information Sheets, Physical Effects, Job Sheets and more) see NRCS web link:

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/cp/ncps/>

For more details and stories on 319 projects, see EPA web link:

<https://www.epa.gov/polluted-runoff-nonpoint-source-pollution/nonpoint-source-success-stories>

For EPA Handbook for Developing Watershed Plans to Restore and Protect Our Waters, check out:

<https://www.epa.gov/polluted-runoff-nonpoint-source-pollution/handbook-developing-watershed-plans-restore-and-protect>

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