

Vermilion River Watershed Restoration & Enhancement Project

Appendix A – Examples of Restoration & Enhancement Practices

Some examples of practices for **wetland** restoration (NOAA, EPA, ACE, FWS, NRCS. 2003):

- Site Preparation
 - Removing non-native or invasive species
 - Removing piles of soil, rocks, debris & trash
 - Amending soil with nutrients or other enhancements
 - Removing polluted soils; bringing in appropriate soils or substrate
 - Plugging or removing drains
 - Managing access of cattle or other herbivores
 - Mowing or burning (consult municipal bylaw) the site to reinstate the natural disturbance regime.
- Construction/ Installation
 - Installing bank/edge stabilization biodegradable structures
 - Grading existing soils
 - Placing & grading new soils
 - Planting plugs, seeds or newly-grown plants
 - Installing plant protections (screens, etc.)
 - Placing temporary irrigation systems
 - Constructing and placing habitat structures
- Maintenance
 - Controlling non-native and/or invasive species, preferably by manual method
 - Managing grazing by cattle and other herbivores
 - Repairing structures
 - Maintaining monitoring & other equipment
 - Replacing plants
 - Mowing, burning (consult municipal bylaw), and/or other activity reinstating or mimicking the natural disturbance regime
 - Reducing/ preventing human intrusion
 - Controlling local pollutants

In some cases, site preparation practices alone (for example, plugging a drain, managing cattle access, removing trash and debris) are all that are needed to allow natural recovery and eventual restoration of a wetland. Where the wetland is lost or natural recovery is unlikely or very slow, active measures such as construction works and planting may be needed.

Some examples of practices for **riparian areas** restoration (Kauffman et al. 1997):

- Site preparation above also works for riparian areas
- Those that limit disturbance
 - Riparian area fencing and management (rotational grazing, control of invasive species, people, pets & recreational vehicles)
 - Bank stabilization using plantings (also live stakes) and/or biodegradable materials (mulch socks, mats, wraps) – bioengineering
 - Portable and/or permanent off-stream watering systems
 - Appropriate low-level stream crossings (less than \$10,000) (permits required) – ensure fish & wildlife passage

- Planting of native vegetation or permanent cover
- Those that exclude pollutants – sediments, nutrients, etc.
 - Riparian buffer strips; vegetative filter strips; catch crops; cover crops; crop barriers
 - Conservation tillage
 - Improved grazing/ pasture management
 - Grassed waterways
 - Conversion of cropland to forage or natural native vegetation or permanent cover
 - runoff control ponds (or catch basins)

References:

Kauffman et al. 1997. An ecological perspective of riparian and stream restoration in the western United States. *Fisheries* 22:12-24

NOAA, EPA, ACE, FWS, NRCS. 2003. An introduction and user's guide to wetland restoration, creation, and enhancement