

**Watershed Restoration Success Story in the “Show Me State”**  
**Cedar Creek Grazing Association on the Mark Twain NF**  
**July 2000**

Prior to 1939 the lands that comprise what is now the Cedar Creek Ranger District were privately owned. During this time period strip mining, intensive cultivation and over-grazing led to erosion, depletion of the soil resource, and significant reduction in quality of the Cedar Creek watershed. Thousands of these acres, which had been cultivated and abandoned, were known as “The Land That No One Wanted”.



1935  
Typical condition of abandoned crop fields



1939  
One of the eight farms originally selected for purchase within the Cedar Creek Purchase Unit. Of the 300 acres contained in this parcel 151 acres had been in cultivation, only 20 acres were suitable for this use.

In the 1930's the Soil Conservation Service began management activities to improve these lands. The United States Forest Service was given the responsibility to manage this area in the early 1950's



1940's

**Before**

Erosion resulting from cultivation  
(Note corn rows up and down slope)



1940's

**After**

Grass cover restored for pasture use.

Since the 1950's, the Cedar Creek Ranger District of the Mark Twain National Forest and the Cedar Creek Grazing Association have worked cooperatively to improve the Cedar Creek watershed for recreation, wildlife habitat, and grazing.

Early watershed improvement and soil stabilization efforts included seeding of tall fescue, planned grazing, and construction of erosion control structures. Tall fescue (*Festuca arundinacia*), a non-native cool season grass, introduced from Europe was highly recommended for tenacious soil holding properties as well as for a dependable forage resource.



View of an Eastern gamagrass stand  
(*Tripsacum dactyloides*) a desirable warm  
season grass of the tall grass prairie. Note  
the background oak-hickory forest.

Much of the lands on the district were once tallgrass prairie, an ecotype rich in biodiversity.

In the Mid 1970's Forest Service and the Cedar Creek Grazing Association began the task of re-establishing native prairie plants on many acres that had been converted to introduced tall fescue.

Tall fescue is a desirable hearty cool season grass for grazing, lawn turf, and soil stabilization on many acres of private lands within the Cedar Creek watershed. Because tall fescue initiates leaf growth (from leaf primordia) very close to the ground it can withstand a higher level of defoliation than native tall grass. This ability to withstand high grazing pressure makes eradication from restoration sites difficult. Tall fescue also requires costly repeated nitrogen application to maintain optimum production for livestock.



Through the sequence of prescribe fire, grazing, mowing, and seeding, species composition of native warm season grasses and forbs are being enhanced. Warm season grasses include: Big bluestem (*Andropogon gerardii*), Little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), switch grass (*Panicum virgatum*), Sideoats grama (*Bouteloua curtipendula*). Native forbs include: Illinois bundleflower (*Desmanthus illinoensis*), compass plant (*Silphium laciniatum*), Showy partridge pea (*Cassia fasciculata*), and Purple prairie clover (*Petalostemum purpurem*).



Livestock grazing is planned in warm season restoration pastures to heavily utilize fescue in the spring. Grazing is then deferred through the warm season growing season. Heavy utilization of fescue is repeated in late fall to reduce the vigor and competition of the fescue with native grasses. As the Warm season component within these pastures improves, flash grazing (short duration) is used to promote vegetative reproduction. Flash grazing also helps to maintain good structural diversity within grass stand for wildlife; helps offset the effect of endophyte infected fescue forage on livestock, and provides a much needed protein boost for livestock during the hot summer when fescue quality declines.

Native tall grasses and forbs are better adapted to Missouri summers and are an important habitat component for prairie birds. Such prairie bird species include: Henslow's sparrow, Dickcissil, Northern Bobwhite, Grasshopper Sparrow, and Loggerhead Shrike. Native grasses also provide a valuable forage resource, properly managed, for grazing animals when the palatability and protein content of fescue is reduced during the hot Missouri summers.



Pond fence construction project completed by the Grazing Association crew. Standpipe installed into the center of the pond to service the water trough. Livestock do not have direct access to ponds.

The eastern fee credit system is utilized to carry out native grass restoration and watershed improvement in the form of conservation practices. These practices include no-till drilling of native grass seed, mowing to aid in maintaining openlands, control of non-native invasive and noxious plant species, prescribed fire preparation, fencing and livestock handling facilities such as corrals, ponds, and watering systems to aid in proper management of the forage resource.



The understory of eastern red cedar (*Juniperus virginiana*) is composed of browse plants with limited ground cover and poor watershed protection for overland flow. Without continued prescribed fire, grazing, mowing and re-seeding conservation practices, these openings would soon revert to closed canopy of eastern red cedar, persimmon, and other openland invasive species.



Terry Farmer, President of the Cedar Creek Grazing Association inspecting a concrete water trough constructed by the Association's Conservation Crew with funds obtained through eastern fee credit for conservation practices.



Cattle "shading up" during the hot dry days of July.



Grazing Association crew resting following the completion of a pond fencing and water trough construction project.



This corral is one example of the high quality work and attention to detail that the Grazing Association Crew takes pride in. Treated timbers and line posts were utilized in the construction.



District Ranger Bisbee visiting with Cedar Creek Association membership during the summer barbeque.



Permittees and families visiting during the barbeque.