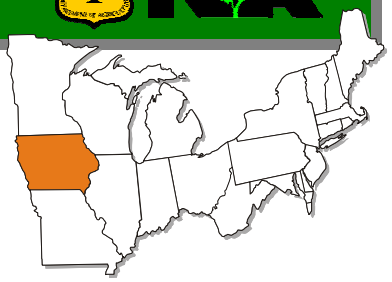
Blackbird/Soldier Watershed: The Iowa Bur Oak Savanna Project



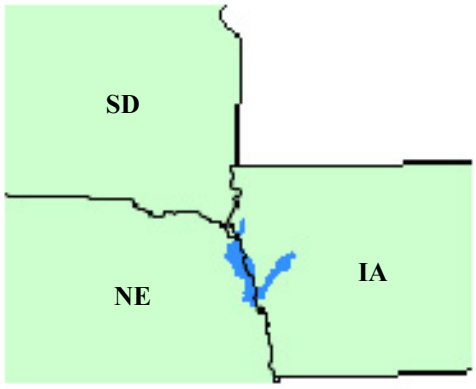
BACKGROUND

The Loess Hills of western Iowa are truly a unique landform. The deep, windblown loess soils in the region can be nearly 200 feet thick. The environment created by deep loess soils and steep exposures is drier than the flatlands of the Great Plains. In the Loess Hills, a mid-grass prairie more typical of the Great Plains replaces the Iowa tall-grass prairie. On the cooler and moister north- and east-facing slopes, the mid-grass prairies become mixed with more typical tall-grass prairies. It is estimated that only three to five percent of the original tall-grass prairie communities remain in the Loess Hills.

Historically, bur oak also occurred as scattered trees on more protected slopes, forming savanna woodlands. Bur oak savannas were, and continue to be, an important component for holding soil in place, adding value to local cattle operations, and acting as a riparian forest management tool for watershed improvement. The project will research and develop a system that will demonstrate the value of and need for bur oak savannas within the Loess Hills' watersheds.

LOCATION

The project will be implemented in the Loess Hills Region of western Iowa, a newly designated National Scenic Byway, and in the Blackbird/Soldier River Watershed. This watershed covers approximately 1,040,075 acres; the Soldier portion covers 334,346 acres in Crawford, Ida, Harrison, and Monona Counties in western Iowa.



Blackbird/Soldier River Watershed.

ISSUES BEING ADDRESSED

Running water easily erodes loess soils, which are quite collapsible when saturated. This combination creates a major soil erosion and gully-forming problem. Some of the highest soil erosion rates in the nation, averaging 40 tons per acre per year, have been documented in the Loess Hills Region. On cropland, conservation practices strive to keep the annual soil erosion rate at 10 tons per acre or less. Losses of 20 tons per acre from a heavy, single storm event are not uncommon.

The erosion and sedimentation problems have, in turn, damaged the biological integrity of the watershed, created expensive stream and drainage ditch maintenance problems, increased flood levels, and damaged the fertility and viability of both agricultural and non-agricultural lands.

Different tools must be used to hold highly erodible loess soils in place and protect water quality.

GOALS

- Create a bur oak savanna restoration process that will encourage forest stewardship and help landowners deal with some of their unique erosion problems.
- Demonstrate and monitor the value of the bur oak savanna ecosystem in restoring watershed health within the Loess Hills Region.
- Evaluate water infiltration and sedimentation changes resulting from bur oak savanna restoration.
- Develop new partnerships between the Iowa Department of Natural Resources—Natural Resources, Forests, and Prairies Division—and local non-profit organizations, federal and county agencies, local drainage districts, and agricultural advocacy organizations.

METHODOLOGY

- Develop a step-by-step methodology to identify and map potential bur oak savanna restoration sites within the Blackbird/Soldier Watershed using a Geographic Information System (GIS) and remote sensing technology.
- Create two demonstration sites within the watershed: one in the Loess Hills State Forest and the other on a private landowner's site.

Since 1999, the Northeastern Area and the Northeastern Area Association of State Foresters have sponsored a cooperative challenge grants program to promote watershed health and restoration through the conservation, restoration, and sound stewardship of trees and forests.

- Hold two public conservation education field days each year in cooperation with all involved partners.
- Develop information on the value of the bur oak savanna ecosystem for increasing water infiltration and reducing soil erosion.

OUTCOMES AND ACCOMPLISHMENTS

The demonstration areas in the Loess Hills State Forest and on private forestland are established. Several field days have been held. The project continues to make progress.

PARTNERS

- Golden Hills Resource Conservation and Development
- Harrison County Cattleman's Association
- Loess Hills Alliance
- Hungry Canyons Project

FUTURE PLANS

Plans include continuing GIS work, conducting additional field days, developing information on the value of a bur oak savanna ecosystem, and conducting water quality monitoring efforts.

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