Clayton County Watershed Projects Update

Turkey River Watershed Alliance

January 31, 2013

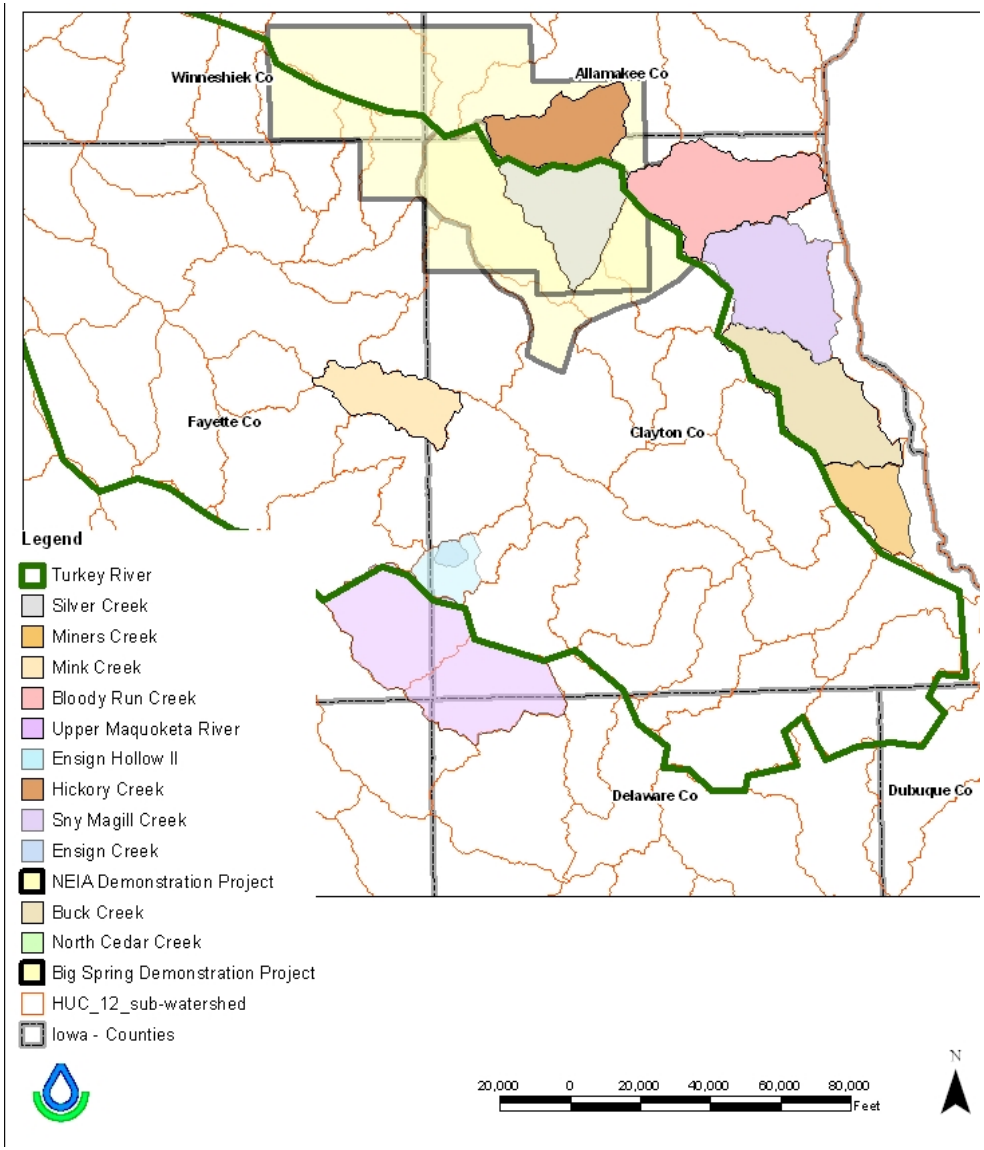
Objective for the Next 10 Minutes

- Past
  - Update the Turkey River Watershed Management Authority on Previous Water Quality Improvement Efforts within Clayton County
- Present
  - Review Ongoing Efforts in the Silver Creek Watershed
- Future
  - Identify Clayton Soil & Water Conservation District Watershed Efforts Beyond 2013

Clayton County Project History

• Big Spring Demonstration Project	1986 – 1992
• North Cedar Creek	1988 – 1995
• Buck Creek	1990 – 1995
• Northeast Iowa Demonstration Project	1991 – 1999
• Ensign Creek	1991 – 1994
• Sny Magill	1992 – 1999
• Hickory Creek (Allamakee)	1997 – 2001
• Ensign Hollow II (Ensign & Upper Hewett)	1999 – 2003
• Upper Maquoketa (Fayette)	2000 – 2005
• Bloody Run	2002 – 2007
• Mink Creek (Fayette)	2003 – 2008
• Miner's Creek	2008 – 2011
• Silver Creek	2007 -

Location of Past Projects



Past Focus = Protect High Quality Waters
Spring Fed, Cold Water Trout Streams

What Happens During a Project? Example from Big Spring

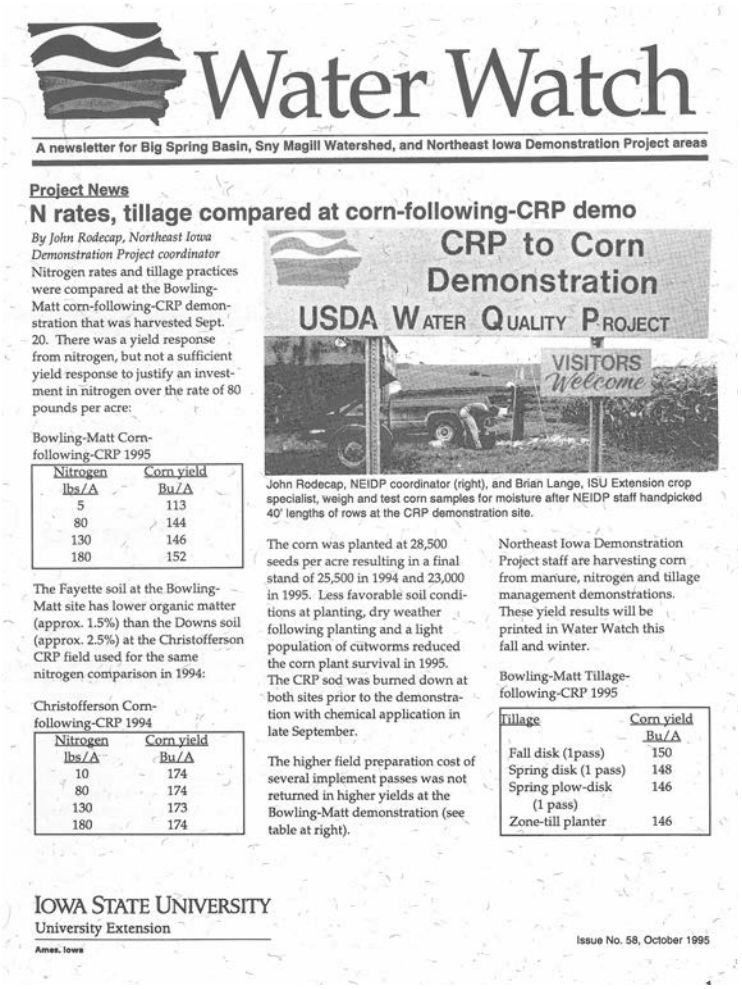
Before

After

Big Spring Example

- Project Coordinator Visits our Farm
  - Problem: Nitrates, Herbicides Detected in Groundwater
    - Asked to Reduce Soil Losses
      - Installed Contour Stripcropping System
      - Cost Share Incentives Available
    - Helped Refine Fertilizer Applications
      - Soil Sampling Identified High P2O5 & K20 levels
      - Eliminated Nitrogen Applications for Corn Following Alfalfa
      - Reduced Nitrogen Applications where Manure was Applied

Information Marketing



Water Watch

A newsletter for Big Spring Basin, Sny Magill Watershed, and Northeast Iowa Demonstration Project areas

Project News

N rates, tillage compared at corn-following-CRP demo

By John Rodecap, Northeast Iowa Demonstration Project coordinator

Nitrogen rates and tillage practices were compared at the Bowling-Matt corn-following-CRP demonstration that was harvested Sept. 20. There was a yield response from nitrogen, but not a sufficient yield response to justify an investment in nitrogen over the rate of 80 pounds per acre:

Bowling-Matt Corn-following-CRP 1995

Nitrogen lbs/A	Corn yield Bu/A
5	113
80	144
130	146
180	152

The Fayette soil at the Bowling-Matt site has lower organic matter (approx. 1.5%) than the Downs soil (approx. 2.5%) at the Christofferson CRP field used for the same nitrogen comparison in 1994:

Christofferson Corn-following-CRP 1994

Nitrogen lbs/A	Corn yield Bu/A
10	174
80	174
130	173
180	174

CRP to Corn Demonstration

USDA Water Quality Project

John Rodecap, NEIDP coordinator (right), and Brian Lange, ISU Extension crop specialist, weigh and test corn samples for moisture after NEIDP staff handpicked 40' lengths of rows at the CRP demonstration site.

The corn was planted at 28,500 seeds per acre resulting in a final stand of 25,500 in 1994 and 23,000 in 1995. Less favorable soil conditions at planting, dry weather following planting and a light population of cutworms reduced the corn plant survival in 1995. The CRP sod was burned down at both sites prior to the demonstration with chemical application in late September.

The higher field preparation cost of several implement passes was not returned in higher yields at the Bowling-Matt demonstration (see table at right).

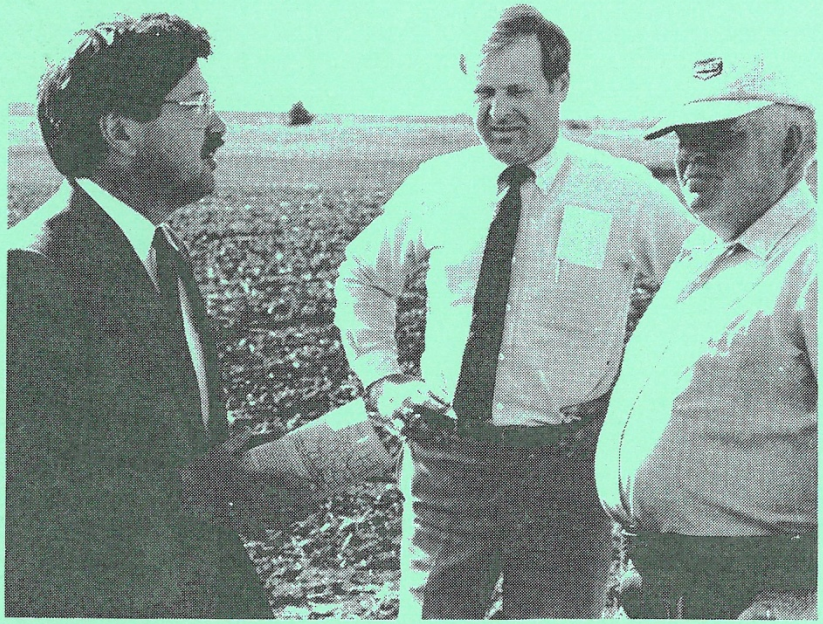
Northeast Iowa Demonstration Project staff are harvesting corn from manure, nitrogen and tillage management demonstrations. These yield results will be printed in Water Watch this fall and winter.

Bowling-Matt Tillage-following-CRP 1995

Tillage	Corn yield Bu/A
Fall disk (1pass)	150
Spring disk (1 pass)	148
Spring plow-disk (1 pass)	146
Zone-till planter	146

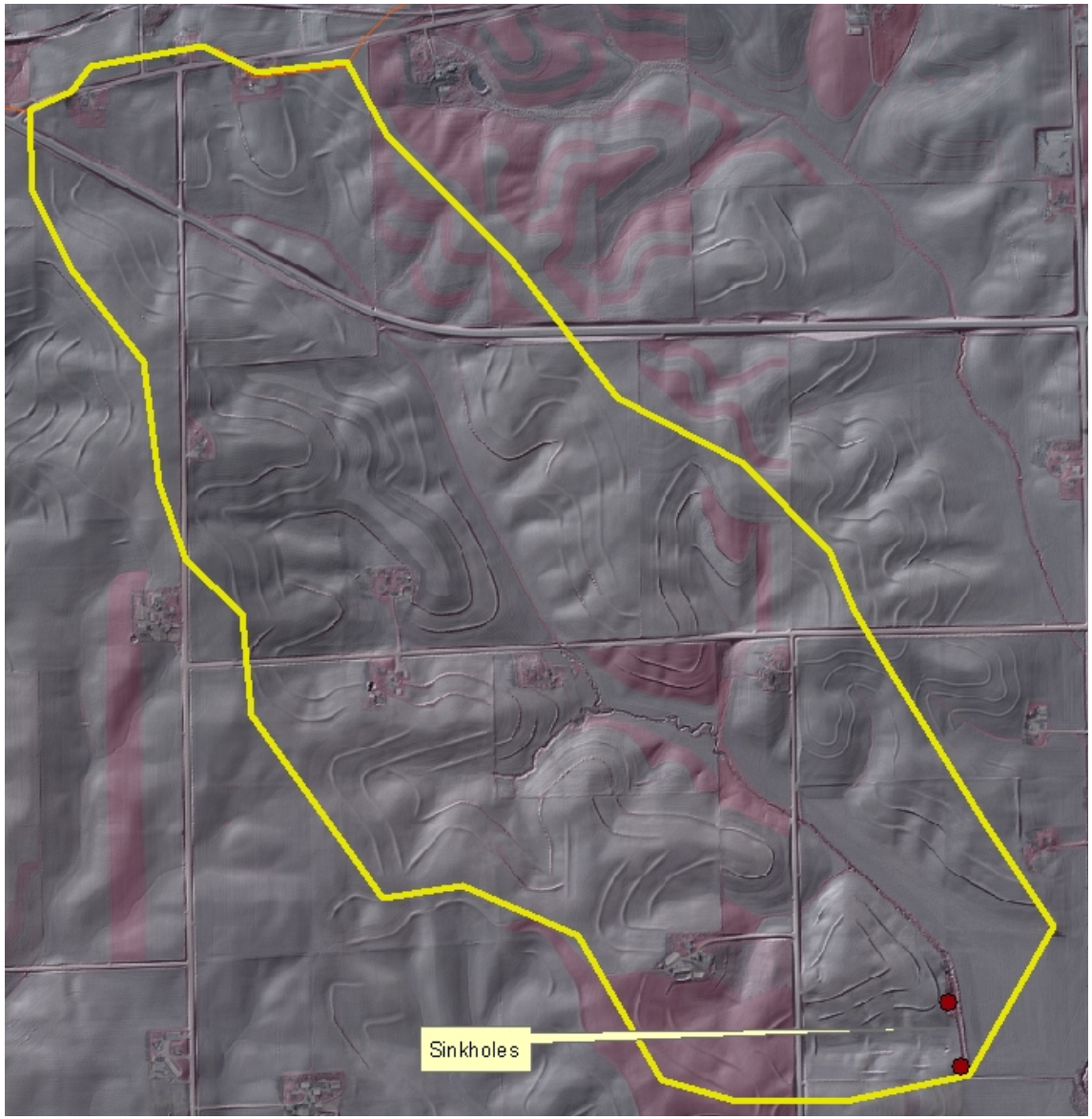
Iowa State University
University Extension
Ames, Iowa

Issue No. 58, October 1995

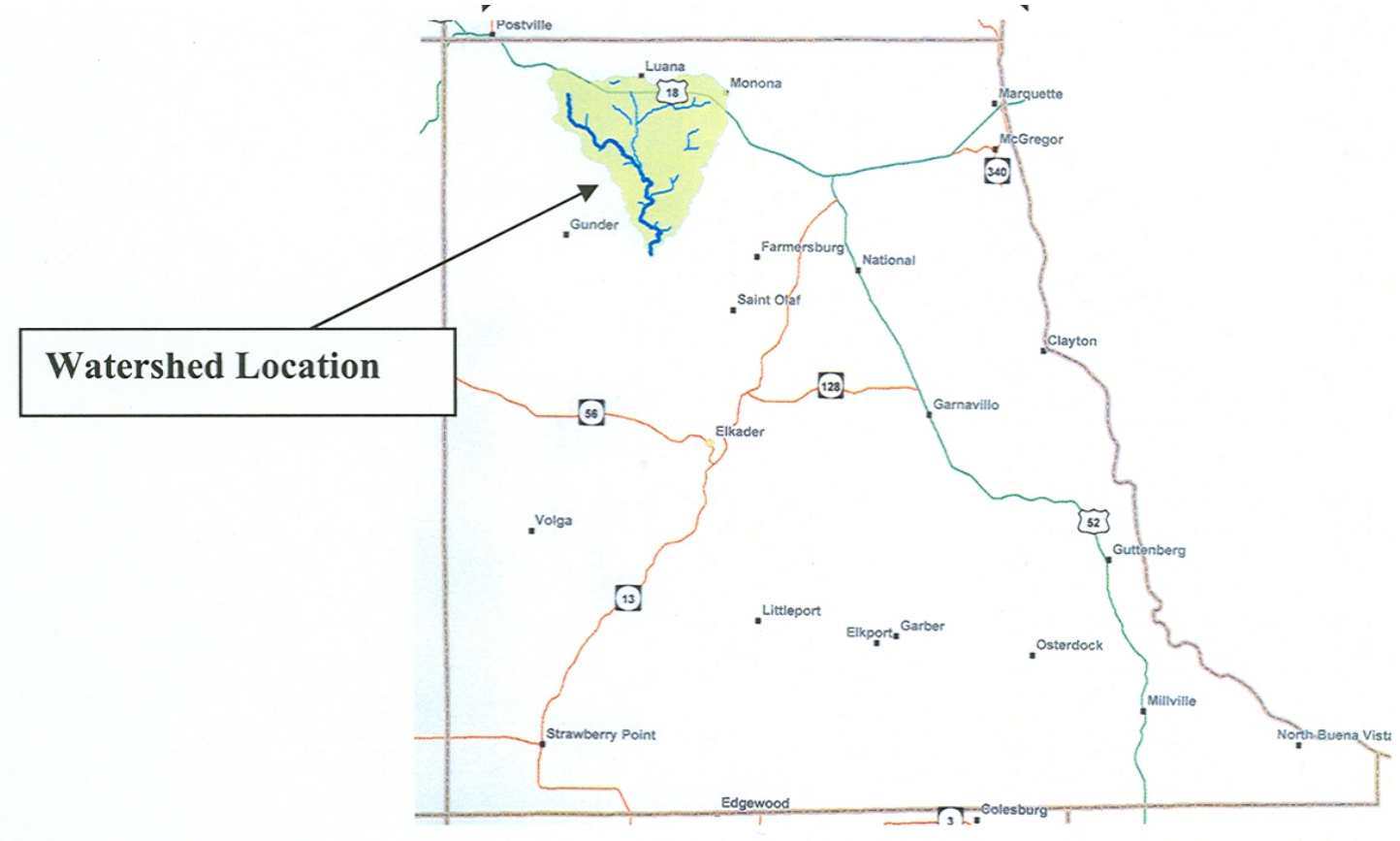


Gov. Terry Branstad, left, visited Big Spring Basin in northeast Iowa this summer to learn more about what farmers like Eugene Voss, far right, are doing to solve the area's water quality problems. Branstad was accompanied by Keith Heffernan, who coordinates REAP (Resource Enhancement and Protection Program) for the state.

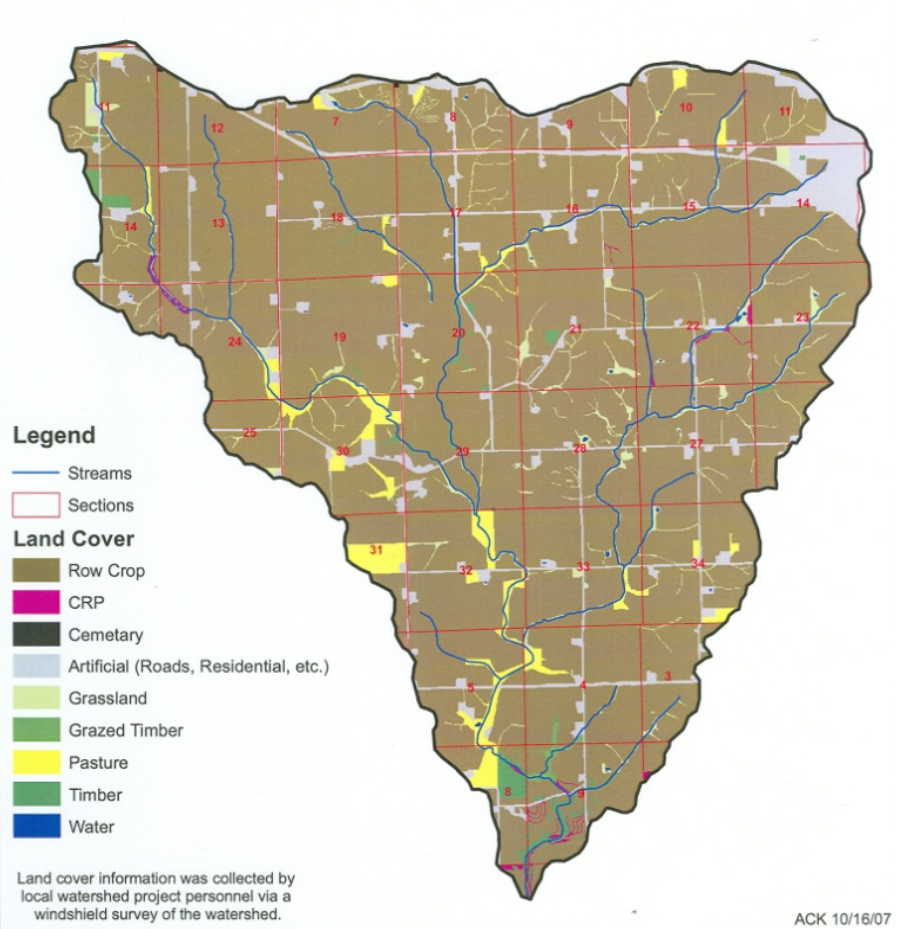
Bugenhagen Subbasin, Big Spring



Current Project = Silver Creek



Soil Loss and Sediment Delivery
90% of 18,000 Acre Watershed is Cropped



Row Crops
Long, Steep Slopes

Less than 11% of the Stream had a Buffer > 60’
Severely Eroding Streambanks

Sinkhole Protection

> 60 Sinkholes in Watershed, Some In-Stream

Livestock Access
Cattle Grazed 41% of the Stream Length in 2006

Impairment Process Confirms Observations

- Agency Emphasis Shifts from High Quality Resources to Impaired Waters
  - Silver Creek "Impaired" for Aquatic Life since 2002
  - Stressor Identification Monitoring in 2007
    - Elevated Un-Ionized Ammonia
    - Silt Accumulation and Sedimentation of Substrates
    - Low Dissolved Oxygen
    - Loss of Flow to In-Stream Sinkholes
  - Total Maximum Daily Load (TMDL) Written in 2009
    - Sediment
      - Soil Erosion from Cropland & Streambanks
    - Ammonia
      - Livestock Access to the Stream
      - Magnified by pH and Temperature

Silver Creek Project Objectives

- Promote Stream Corridor and Sinkhole Protection and Install Buffer Practices
- Target Practices to Reduce Sediment Delivery by at least 700 Tons Annually
- Increase Public Understanding of Water Quality Issues
- Continually Evaluate Progress and Renew Priorities for Improvement

Landowner Actions

Filter Strips

Livestock Exclusion

Landowner Actions

Upland Treatment

No-Till

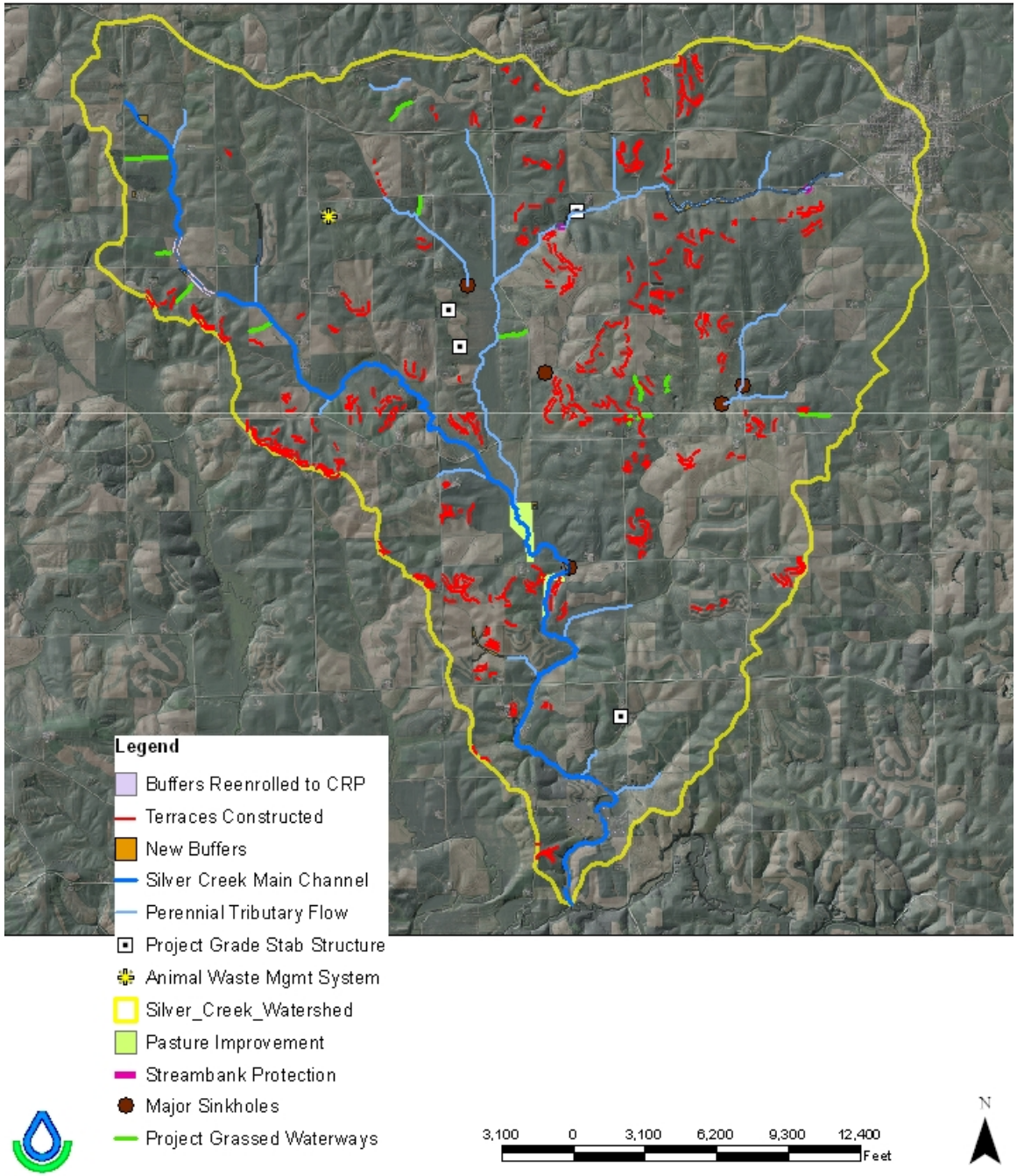
Landowner Actions

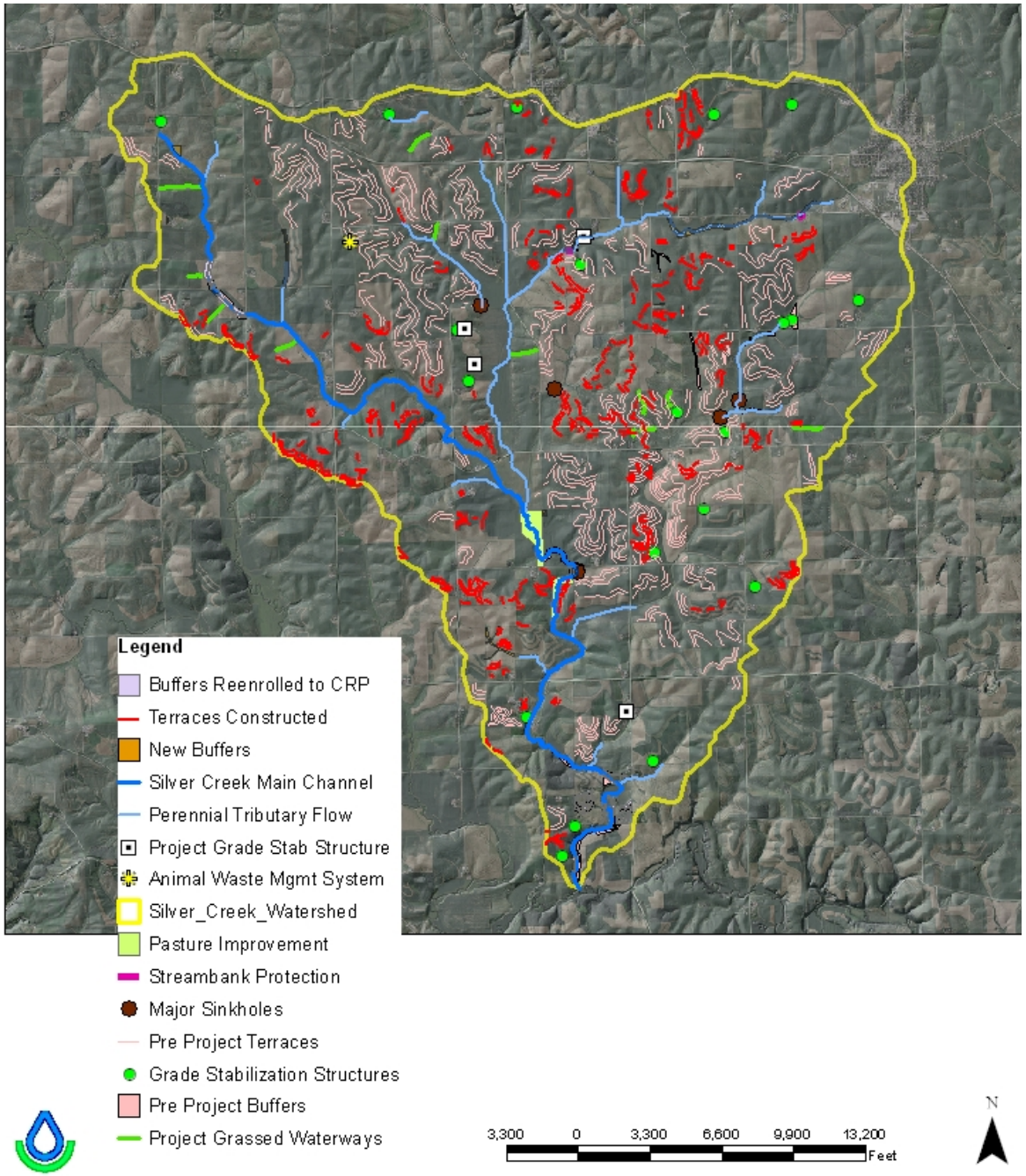
Grade Stabilization Structures

Streambank Protection

Silver Creek Watershed
Practices Installed Since 2007

- 65.3 Acres New & Re-enrolled Buffers
- 190,440’ Terraces
- 4 Grade Stabilization Structures
- 60 Acres Pasture Improvement
- 450’ Streambank Protection
- 1 Animal Waste Management System
- 12,465’ Grassed Waterways


Legend
Buffers Reenrolled to CRP
Terraces Constructed
New Buffers
Silver Creek Main Channel
Perennial Tributary Flow
Project Grade Stab Structure
Animal Waste Mgmt System
Silver_Creek_Watershed
Pasture Improvement
Streambank Protection
Major Sinkholes
Project Grassed Waterways
3,100 0 3,100 6,200 9,300 12,400
Feet
N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Project Grade Stab Structure
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Silver_Creek_Watershed
Pasture Improvement
Streambank Protection
Major Sinkholes
Pre Project Terraces
Grade Stabilization Structures
Pre Project Buffers
Project Grassed Waterways
3,300 0 3,300 6,600 9,900 13,200
Feet
N

Common Project Themes

- Improve Water Quality
  - Reduce Sediment and Nutrient Delivery
- Increased Outreach to Landowners
  - Staff Specific to Watershed
  - Reach Out to Non-Traditional Cooperators
- Accelerate the Adoption of Practices
  - Additional Financial Resource for District Programs
    - Otherwise, 10 Year Wait for Cost Share for Fall Terrace List in Clayton County

Future Efforts

Continue Silver Creek

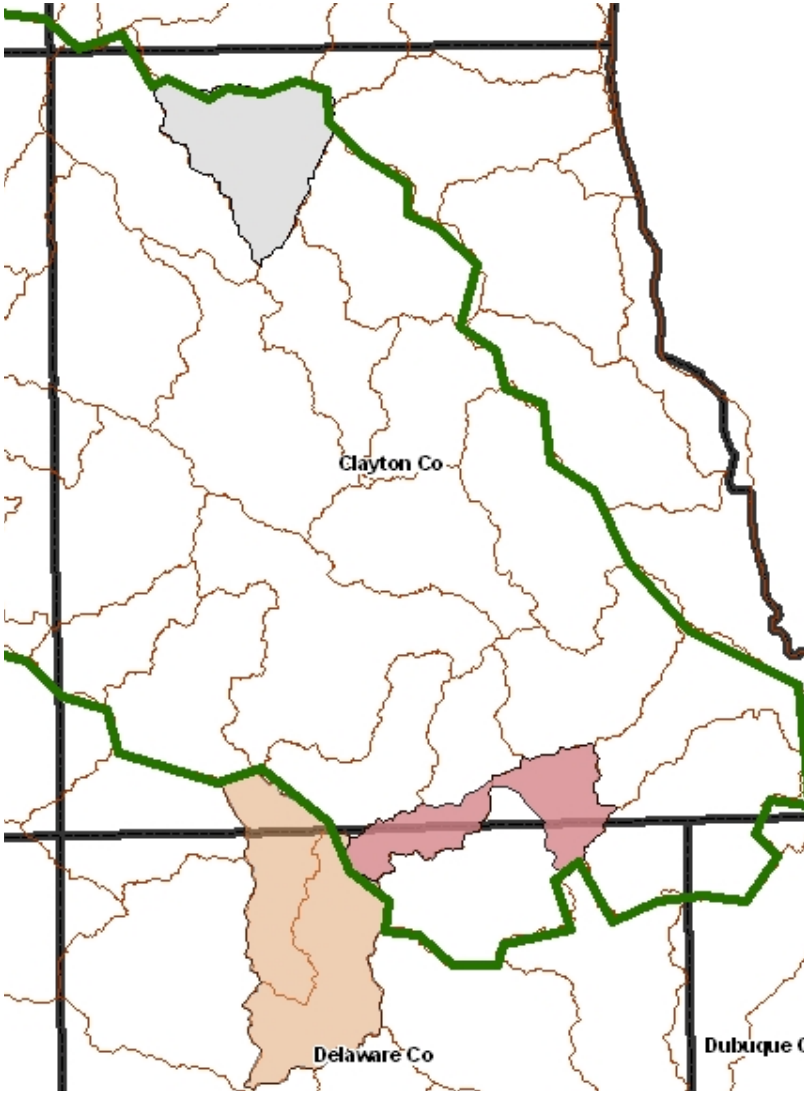
- Extended to 2015

Lindsey & Honey Creek

- Led by Delaware SWCD
- Mississippi River Basin Initiative

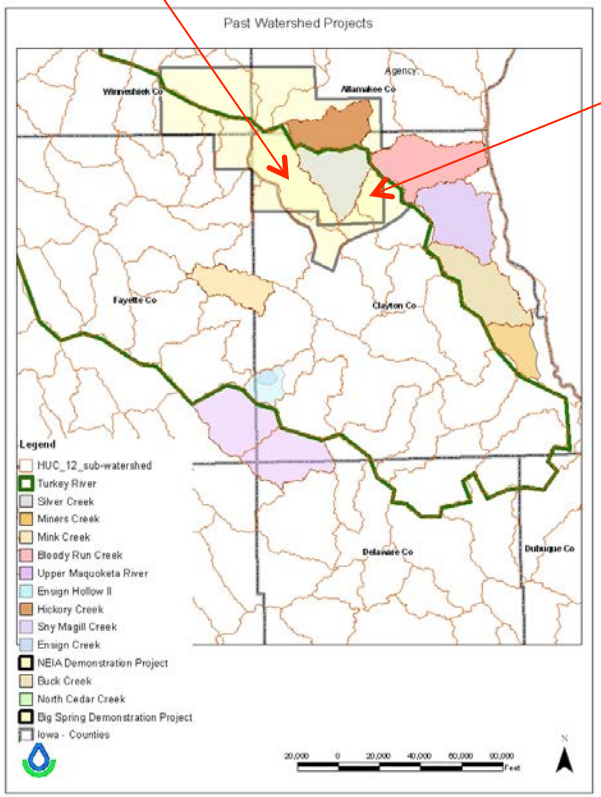
Pine & Steeles Branch

- Cooperative Effort led by the Delaware SWCD
- Development Grant in 2012
- Includes John Deere Lake at Camp Klaus, Pine Creek and Steele's Branch Creek Watersheds



Potential Pilot Projects

Upper Roberts Creek



Howard Creek

"Relationships Before Issues and Tasks"

- Most Watershed Projects Last 3 to 5 Years
  - Most Farm Operations = 30 or More Years
- Foster a Long Term Relationship
  - Many Watershed Project Cooperators are First Time Participants
  - A Good Experience Keeps Them Coming
  - Extend Conservation Benefits Well Beyond a Project's Tenure