

SRAM Impacts on the Big Sioux River Watershed Project



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*Falls Park
Sioux Falls, South Dakota*
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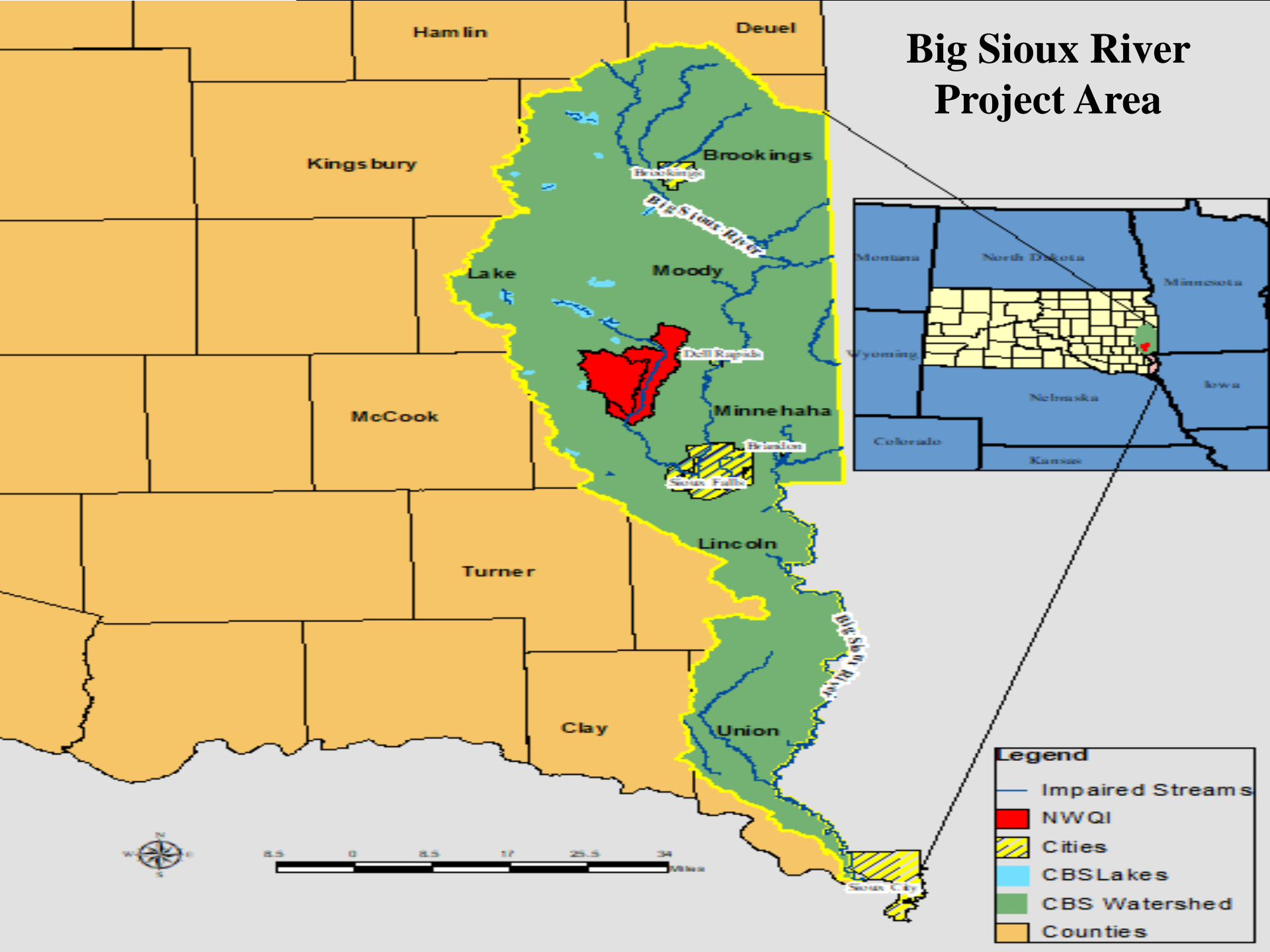
Overview

1. Project Area
2. Partnerships
3. Season Riparian Area Management (SRAM)
4. How We Made it Work
5. Results
6. What's Next

Big Sioux River Watershed

- The Big Sioux River Basin drains an approximate 3,292 square miles in South Dakota and an additional 2,834 square miles in Minnesota and Iowa.
- The Big Sioux River Watershed Project Area addresses approximately 2/3 of the basin.
- The main cause of nonsupport within the Big Sioux Basin in streams are due to fecal coliform, E. Coli, and total suspended solids.
- Nearly 50% of the monitored lakes are considered hypereutrophic with seasonal algal blooms and sporadic E.coli exceedances. The moderate size and shallow depth contributes to the condition. Lakes are susceptible to rapid changes produced by large nutrient and sediment loads from sizeable agricultural watersheds comprised of glacial soils.
- Bacterial sources in the basin are mainly due to runoff from livestock operations, and wet weather discharges from storm drains within municipal areas.
- Sediment sources are largely overland runoff from nearby croplands, inflow from tributaries, storm drains and streambank erosion.
- Watershed programs goals to reduce bacteria, sediment, and nutrient loads from both man made and natural sources.

Big Sioux River Project Area





Project Partners



- \$ East Dakota Water Development District: (Mil Levy/Project Coordinators)
- \$ Department of Environment and Natural Resources: (319 Grants/Clean Water WQ)
- \$ City of Sioux Falls: (Clean Water SRF-NPS)
- \$ City of Dell Rapids: (Clean Water SRF-NPS)
- \$ Natural Resource Conservation Service: (RCPP/EQIP/CSP)
- \$ Pheasants Forever: (Grant Funds/Pheasant Stamp Funds/Donation Funds/Easement Program)
- \$ Fish and Wildlife Service: (Grant Funds/Habitat Program Dollars/Duck Stamp Funds/Donations)
- \$ South Dakota State University Extension: (Grant Funds/University Funds)
- \$ Conservation Districts: (Local & In-kind/Sponsor)



Watershed Project Programs

Typical Strategy

- Socially Accepted.
- Generally address issues.
- Been around a long time.
- Haven't changed much.
- One size fits all.

Successful Strategy

- Socially Accepted. (Buy-In/ Everyone)
- Address specific issues. (Target/Bottom Up)
- Keeping up with technology. (Innovative)
- Dynamic strategies. (Working lands/Profitable)
- Evolving. (Room to Grow)

There's no rangeland in SE South Dakota!?



There must not be any grazing resource concerns!

Water Quality & Grazing Focus

- Watershed implementation focus on highly visible concerns.
- Common practice to graze land that is not feasible to crop.
- Largely due to slope and drainage.
- Needs to be self supporting.
- Grass grows, cows eat it and grow, creates profit.
- Becomes the “NORM”.
- Lower return on investment = lower time investment.
- Direct impact on Water Quality..

Sometimes the answer is not of the obvious concern

Seasonal Riparian Area Management (SRAM)

1. What is SRAM?

- Management Program designed as an alternative to existing USDA programs and limitations for marginal pastureland.
- 6 month deferred grazing program with customizable management options.
- Simple management strategy that satisfies producer needs and improves water quality.
- Incentive based management program for implementation of fencing, water and grassland needs.

2. Why is SRAM important?

- Allows utilization of riparian area vegetation (Working Lands).
- High quality alternative water source available for livestock.
- Helps reduce nutrient and sediment loading to improve water quality.
- Keeps fences out of the floodplain for lower maintenance (No Excuses!).

3. Where would the SRAM program be implemented?

- Priority riparian areas associated with E-coli impaired waterbodies.
- Requires a 20 ft. minimum buffer width.
- Can extend to 120 ft. buffer width or extent of the 100 year floodplain whichever is greater.
- Up to 10% of the total acres can extend out of the floodplain in order to square borders or match existing fencing lines.

4. Who could benefit from SRAM?

- Producers with riparian pastureland.
- People who enjoy fishing, canoeing, kayaking.
- Municipalities with TMDL limits.
- EVERYONE!!!!

5: When would the SRAM program be implemented?



- Overgrazed underdeveloped pastures.
- 10 or 15 year contract lengths.
- Reduction of direct in-stream loading during the recreational season (May 1 – September 30).
- Management strategy for entire year.

Seasonal Riparian Area Management (SRAM)

Basic SRAM Plan

- **6 month deferred grazing April 1 through September 30.**
 - No grazing of enrolled acres during deferred period.
 - Allow haying of enrolled acres after June 15th.
 - Maintain minimum 4 – 6 inches of vegetative cover.
 - Grazing allowed in areas outside of enrolled acres.
- **6 month grazing period October 1 through March 31.**
 - Allow grazing of enrolled acres.
 - Maintain minimum 4 – 6 inches of vegetative cover.
 - Alternative water REQUIRED!
- + Flexibility to customize conservation plans to fit a variety of situations.
- + Technical assistance available to help establish rotational grazing systems.

Practice Guidelines and Rates

- **\$70 - \$90 per acre for enrolled acres within 100 year floodplain & 50% of payment for acres outside of the floodplain.**
 - Field verification of eligible acres.
 - Maximum 10% of acres outside floodplain eligible.
 - Payment in full the first year for 10 or 15 year contracts.
-  **Cost share of exclusion fencing if applicable.**
 - Adequate fence design to meet needs and effectively exclude livestock.
-  **Cost share of alternative water.**
 - Rural water hookups, wells if applicable, pipelines and tanks
- ~~75% cost share to repair damaged areas and livestock trails.~~
- **75% cost share for trees and fabric not to exceed \$10,000 per eligible pasture.**





IDEA
Social Interactions
RESULTS



SRAM April 4, 2013



June 21, 2018



March 3, 2018



September 12, 2019



Willow Creek SRAM

2015



2016



SRAM August 15, 2017



Segment 3 Totals

(Original Goal 1,600 acres)

- **1,663 Acres**
- **275,468 L.F.**
- **52 Miles**

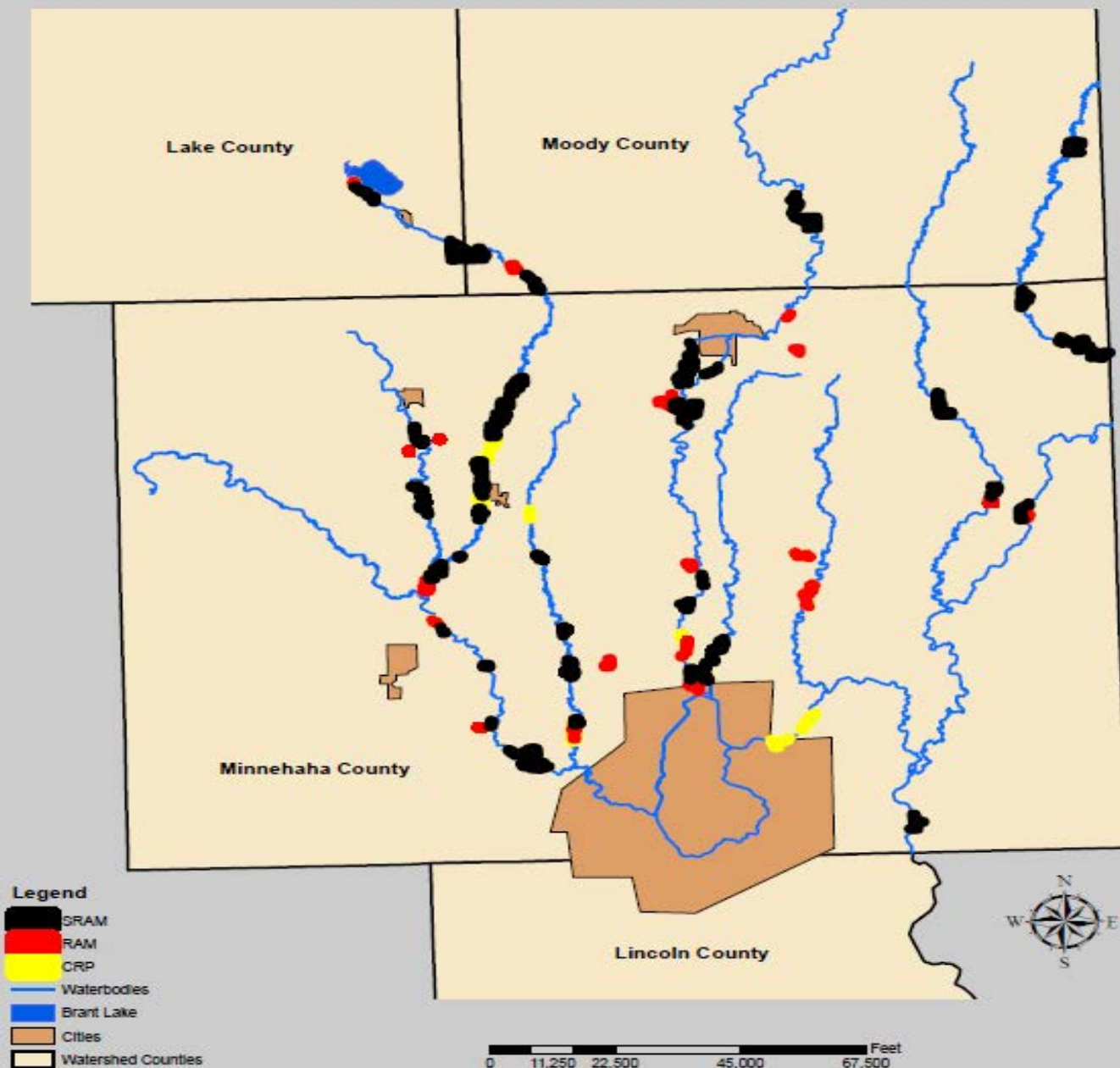
2019 Signup

- **325 acres SRAM**
- **114 acres RAM**
- **56,000 Linear Feet**
- **10.6 miles**

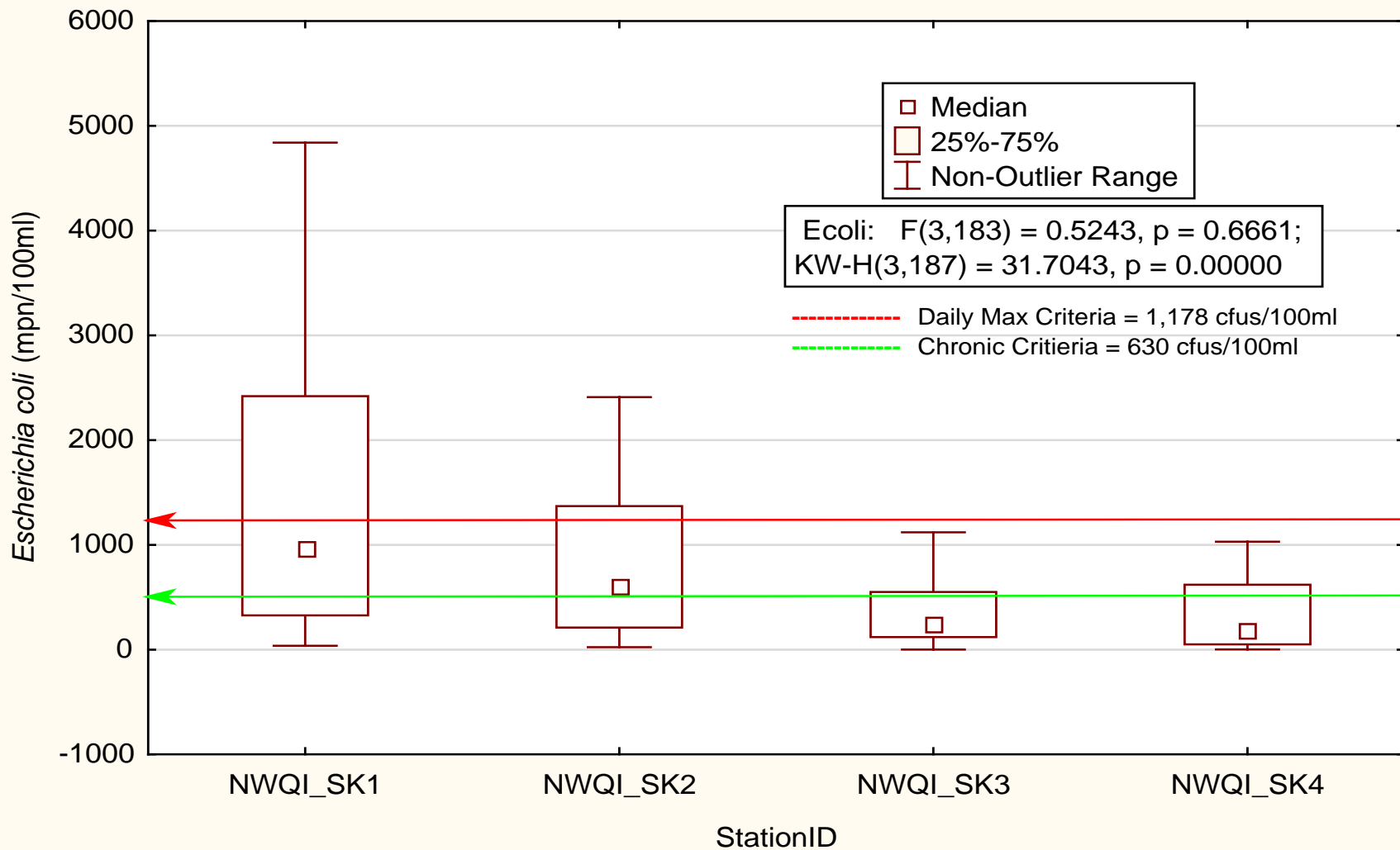
Overall Program Totals

<u>Program:</u>	<u>SRAM</u>	<u>RAM</u>	<u>CRP</u>
<u>Acres:</u>	2,248	255	52
<u>Str. LF:</u>	287,081	74,681	9,780
<u>Miles:</u>	54	14	1.9

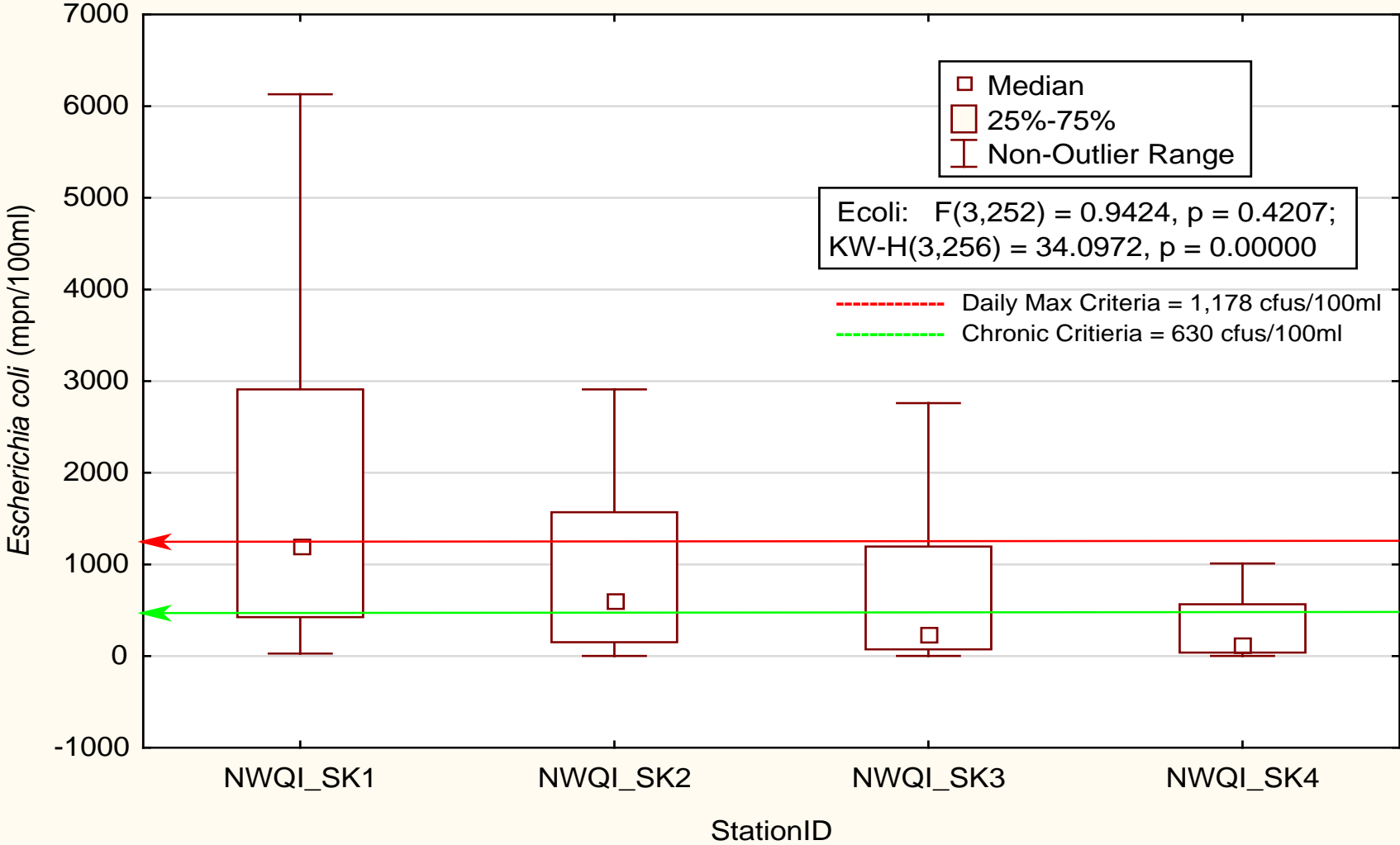
SRAM, RAM, & CRP



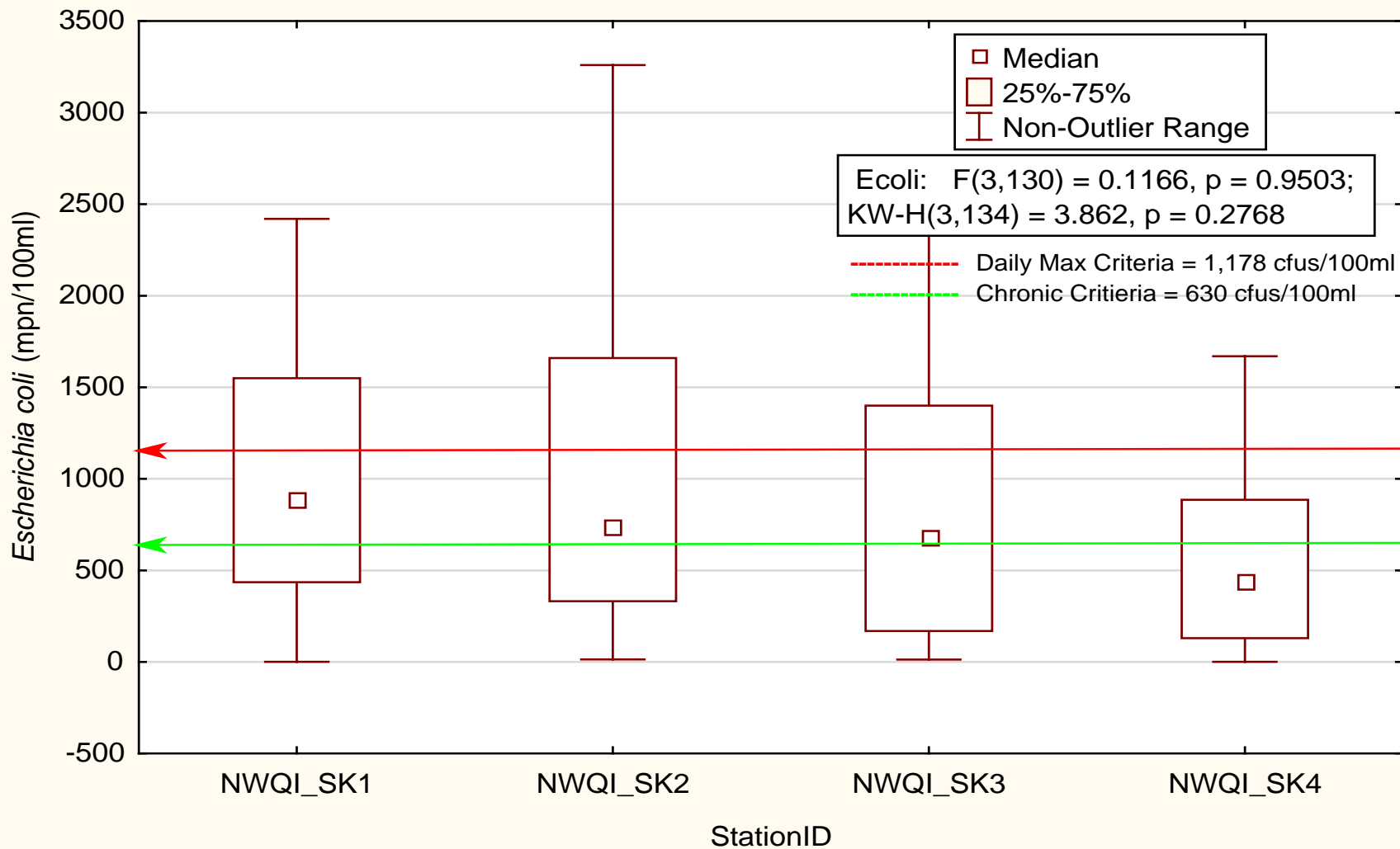
Skunk Creek NWQI
Box Plot of *Escherichia coli* grouped by StationID
Year = 2014



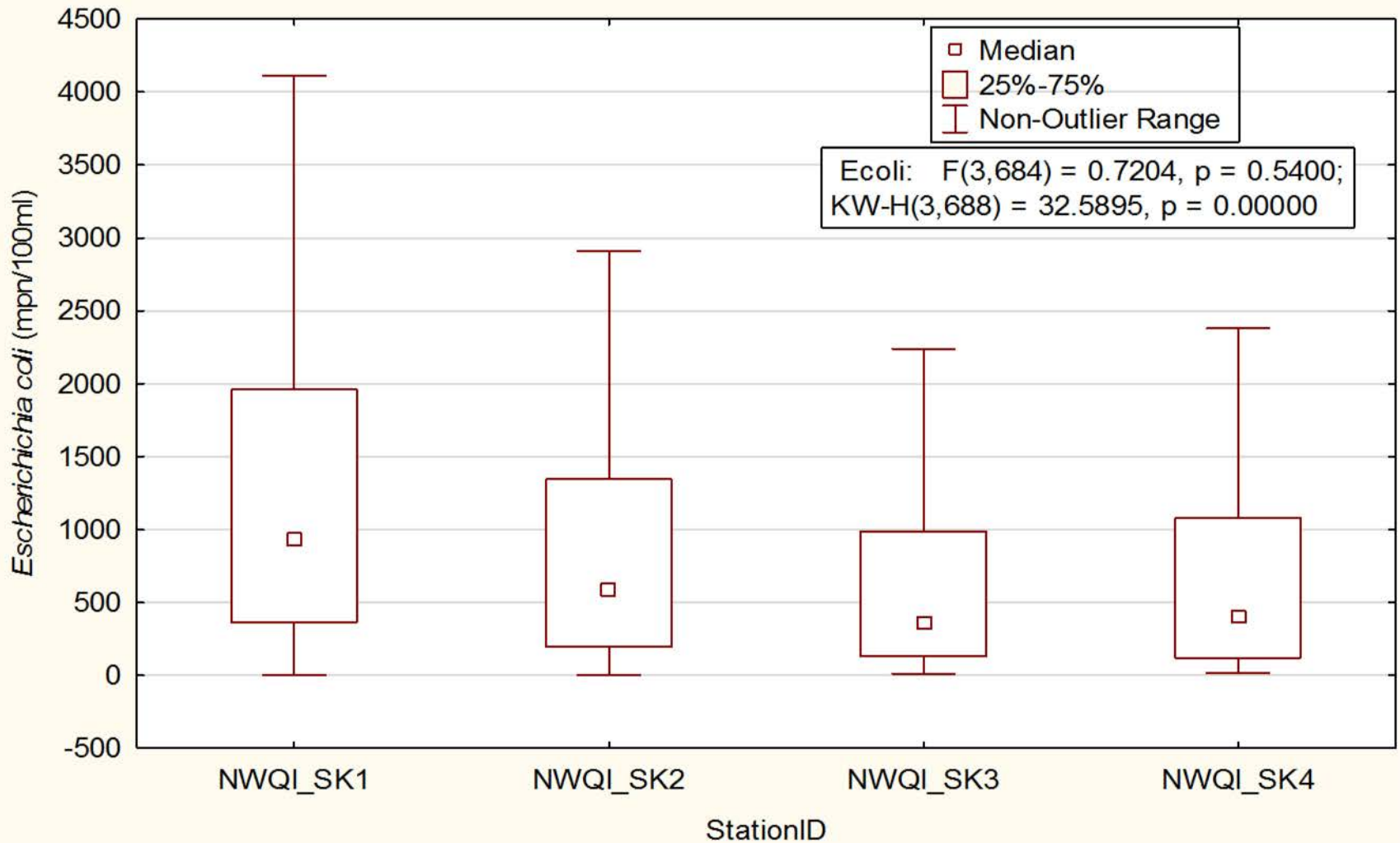
Skunk Creek NWQI
Box Plot of *Escherichia coli* grouped by StationID
Year = 2015



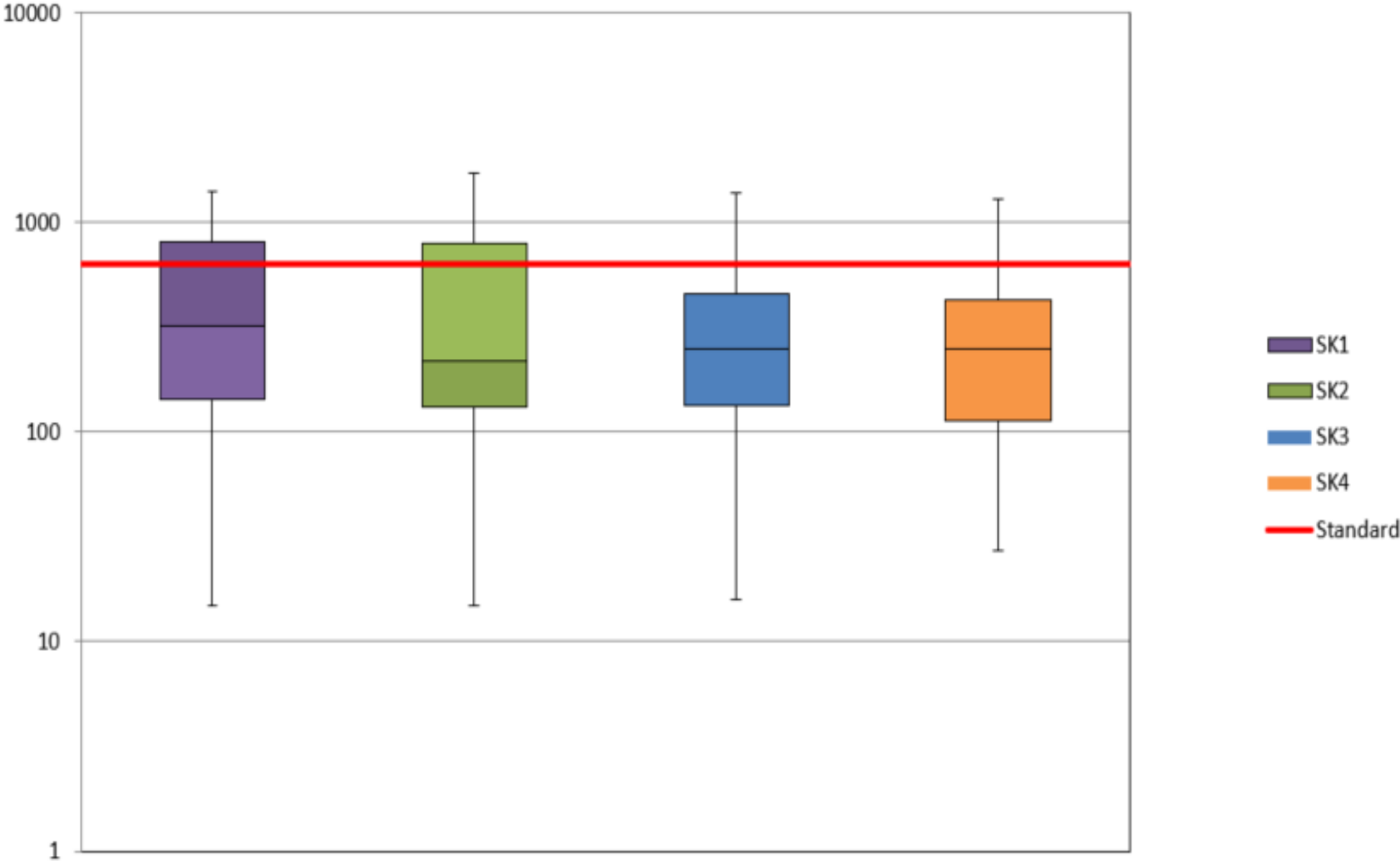
Skunk Creek NWQI
Box Plot of *Escherichia coli* grouped by StationID
Year = 2016



Skunk Creek NWQI
Box Plot of *Escherichia coli* grouped by StationID
Year = 2017



Skunk Creek NWQI
Box Plot of *Escherichia coli* grouped by StationID



Big Sioux River Watershed Project

Segment 3 Reductions

Nitrogen: 98,962 lbs./year

- Amount to sufficiently fertilize 550 acres of corn each year to produce 200 bushels/acre.

Phosphorus: 24,143 lbs./year

- Amount to sufficiently fertilize 302 acres of corn each year to produce 200 bushels/acre.

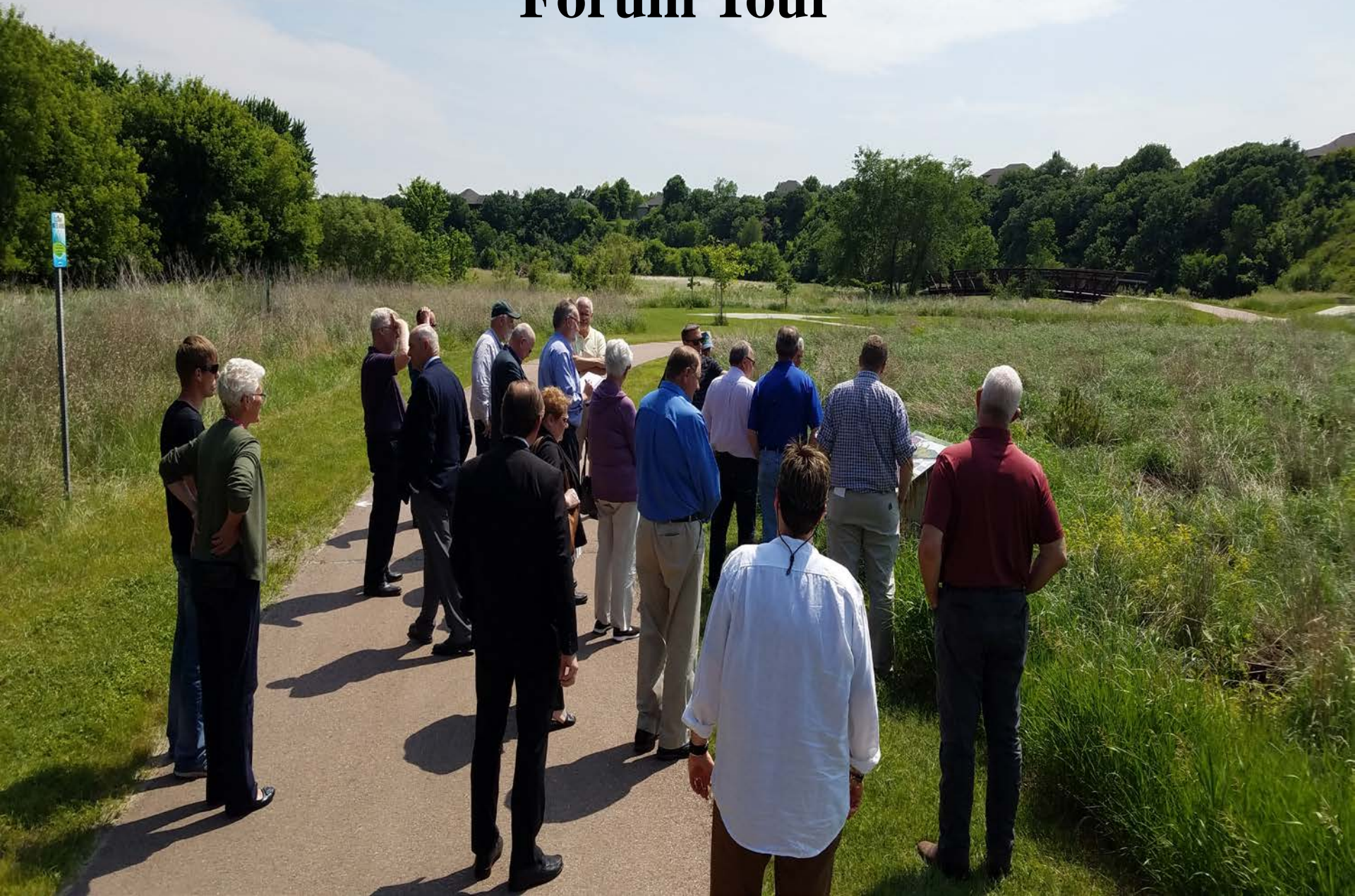
Sediment: 4,844 Tons/year

- Would fill 346 large tandem axle dump trucks every year!
- Parked end to end would equal 1.6 miles.

Bacteria (A huge Number!!!)

- Goal of the Big Sioux River Project to reduce numbers below recreational standards.

International Legislative Forum Tour



Working Lands Easements (WLE)

NEXT STEP

Easements

Perpetual, 50 year and 30 year

SRAM as Foundation

Partnering with PF

Currently in Development

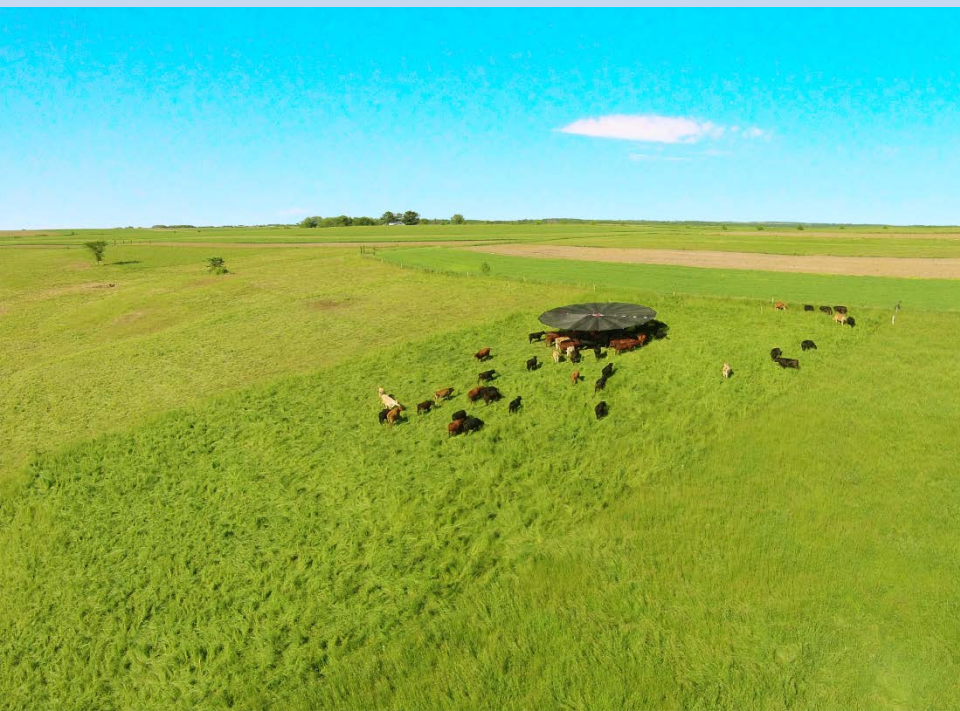
Livestock shade structures

Alabama NRCS Conservation Practice Standard

Livestock Shade Structure - Code 717

Should be located:

- on well-drained sites,
- no less than 200 ft. away from any water source,
- at least 150 ft. from an up-gradient well,
- at least 300 ft. from a down-gradient well, and
- at least 50 ft. from any building or structure that would obstruct the circulation of air.



A wide-angle photograph of a river in winter. The river flows from the foreground towards the background, its surface dark and rippled. The banks are covered in a thick layer of snow. On the left bank, there is a cluster of bare trees. On the right bank, a large, leafless tree stands prominently in the foreground. In the distance, a large industrial building with a conveyor belt system is visible through the trees. The sky is overcast and grey.

Questions?