SECTION 319 NONPOINT POLLUTION CONTROL PROGRAM

WATERSHED PROJECT FINAL REPORT

BAD RIVER PHASE III WATER QUALITY PROJECT

BY

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STANLEY COUNTY CONSERVATION DISTRICT, PROJECT SPONSOR

DECEMBER, 2004

This project was conducted in cooperation with the State of South Dakota and the United States Environmental Protection Agency, Region 8

Grant #'s: C9008522-89:, C9008631-90:, C9998185-95:, C9998185-97:, C9998185-98:, C9998185-99:, C9998185-00

EXECUTIVE SUMMARY

PROJECT TITLE: Bad River Phase III Water Quality Project

PROJECT START DATE: 1995 PROJECT COMPLETION DATE: Dec., 2004

FUNDING: TOTAL BUDGET……$ 6,936,472

TOTAL ORIGINAL EPA GRANT……..$ 545,834
TOTAL AMMENDED EPA GRANT……..$ 1,081,268

C9008522-89 -- $ 32,436.25
C9008631-90 -- $ 18,213.00
C9998185-95 -- $ 589,446.92
C9998185-97 -- $ 157,977.36
C9998185-99 -- $ 270,070.00
C9998185-00 -- $ 36,406.61
*Total $1,104,550.14

TOTAL EXPENDITURES……..…$ 1,081,268
OF EPA FUNDS

TOTAL SECTION 319……$ 3,722,883
MATCH ACCRUED

BUDGET REVISIONS……$ 5,408,702

TOTAL EXPENDITURES……..$ 6,936,472

*Includes Bad River National Monitoring Grant Remaining $23,282.14 will be used to complete the study

The Bad River Phase III Water Quality Project was an EPA 319 Implementation Project designed to implement sediment control on highly erodible croplands and fragile clayey rangelands in the lower one-third of the Bad River Watershed of South Dakota.

Commodity prices and U.S. farm Policy of the 1970's encouraged the conversion of large areas of land from rangeland to cropland in western South Dakota. High sediment delivery by the Bad River to the Missouri River was believed to have resulted from these changes in land use. Two watershed studies and the Lake Sharpe TMDL concluded that this was not necessarily the case. Each of the three studies indicated the majority of the sediment (two-thirds) originates in the lower one-third of the watershed and primarily from the rangeland areas of the watershed.

The project began following the completion of the Bad River Phase II Project during April, 1995 and continued through December, 2004. It was developed to address the issues, recommendations and goals of the Lake Sharpe TMDL.

The implementation of Conservation Best Management Practices (BMPs), promoted with cost-share and incentive programs to cooperators in the target treatment area, demonstrated that major sediment reduction can be achieved without jeopardizing the economic stability of the participant's operations. This was a primary goal of the project.

Voluntary landowner participation in the project area has been successful to the extent that funding incentives from all available sources has been fully utilized and BMP's have been implemented according to holistic farm and ranch management plans targeted to achieving the goals of the Lake Sharpe TMDL.

The Lake Sharpe TMDL called for a reduction of 30% in Total Sediment Delivery to the lake from the Bad River Watershed. This goal has been exceeded with a reduction to date of 40%.

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INTRODUCTION

INTRODUCTION

U.S. Farm Policy and the high commodity prices of the 1970's encouraged the conversion of large tracts of native rangeland in western South Dakota to cropland. High sediment delivery by the Bad River into Lake Sharpe, a Missouri River mainstem reservoir, was believed to have resulted from the change in land use practices.

The Bad River Watershed is located in west central South Dakota (see Map #1, page 5) and drains into the Missouri River at Ft. Pierre, South Dakota. The watershed is approximately 3,172 square miles and consists primarily of highly erodible shallow and dense clay soils. Land ownership is primarily private with Federal ownership concentrated in the Ft. Pierre and Buffalo Gap National Grasslands and Badlands National Park.

Private ownership	1,770,185 acres	87.2 %
Federal ownership	244,271 acres	12.0 %
State ownership	14,230 acres	0.7 %
Cheyenne River Tribe	1,920 acres	0.1 %
TOTAL	2,030,606 acres	100.0 %

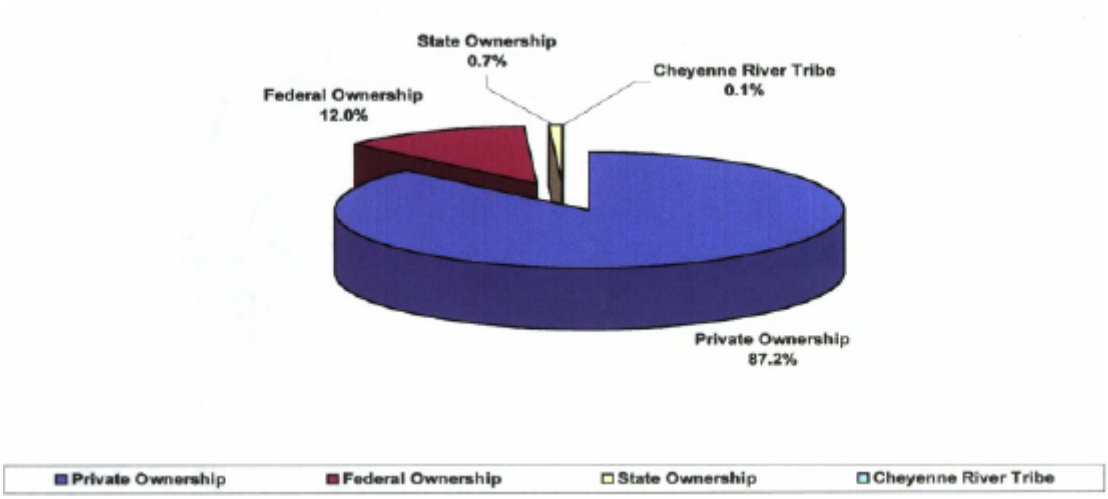


Figure 1: Bad River Watershed Land Ownership.

Livestock grazing is the dominant land use. The remaining land is used for tame hayland and cropland. Major crops are winter wheat, grain sorghum, and alfalfa. Oats, barley, millet and forage sorghum are also significant crops. Farm and ranch size varies from 3,000 to 35,000 acres with the exception of the Bad River Ranch, which consists of approximately 150,000 acres.

Rangeland	1,330,560 acres	65.5 %
Cropland	692,046 acres	34.0 %
Water	6,000 acres	0.4 %
Other	2,000 acres	0.1 %
TOTAL	2,030,606 acres	100.0 %

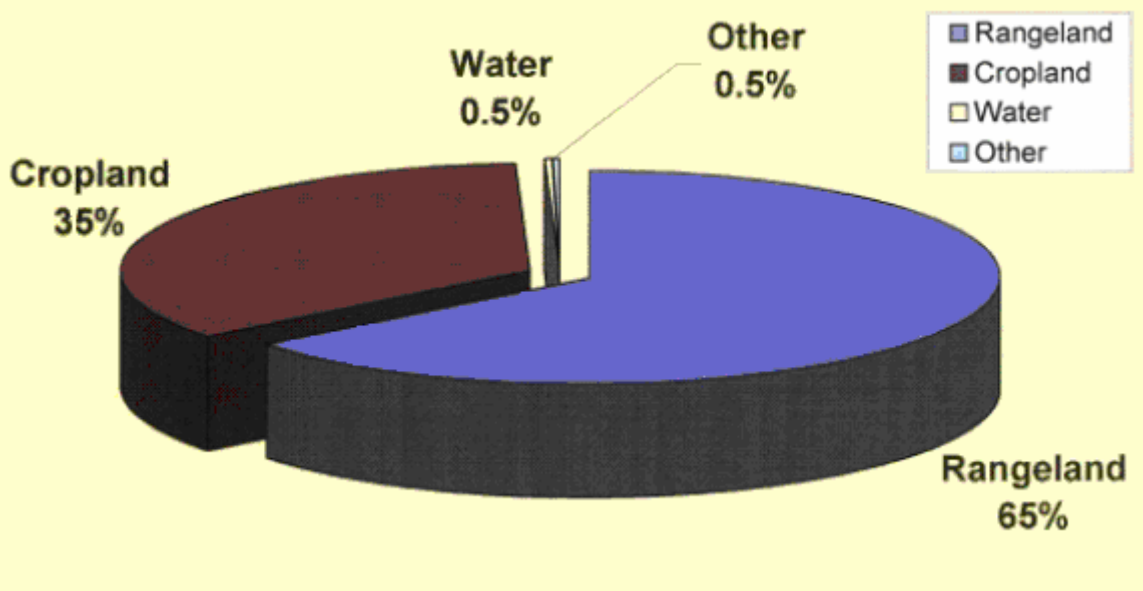


Figure 2: Total Basin Area by Land Use.

Map #1: Bad River Watershed.

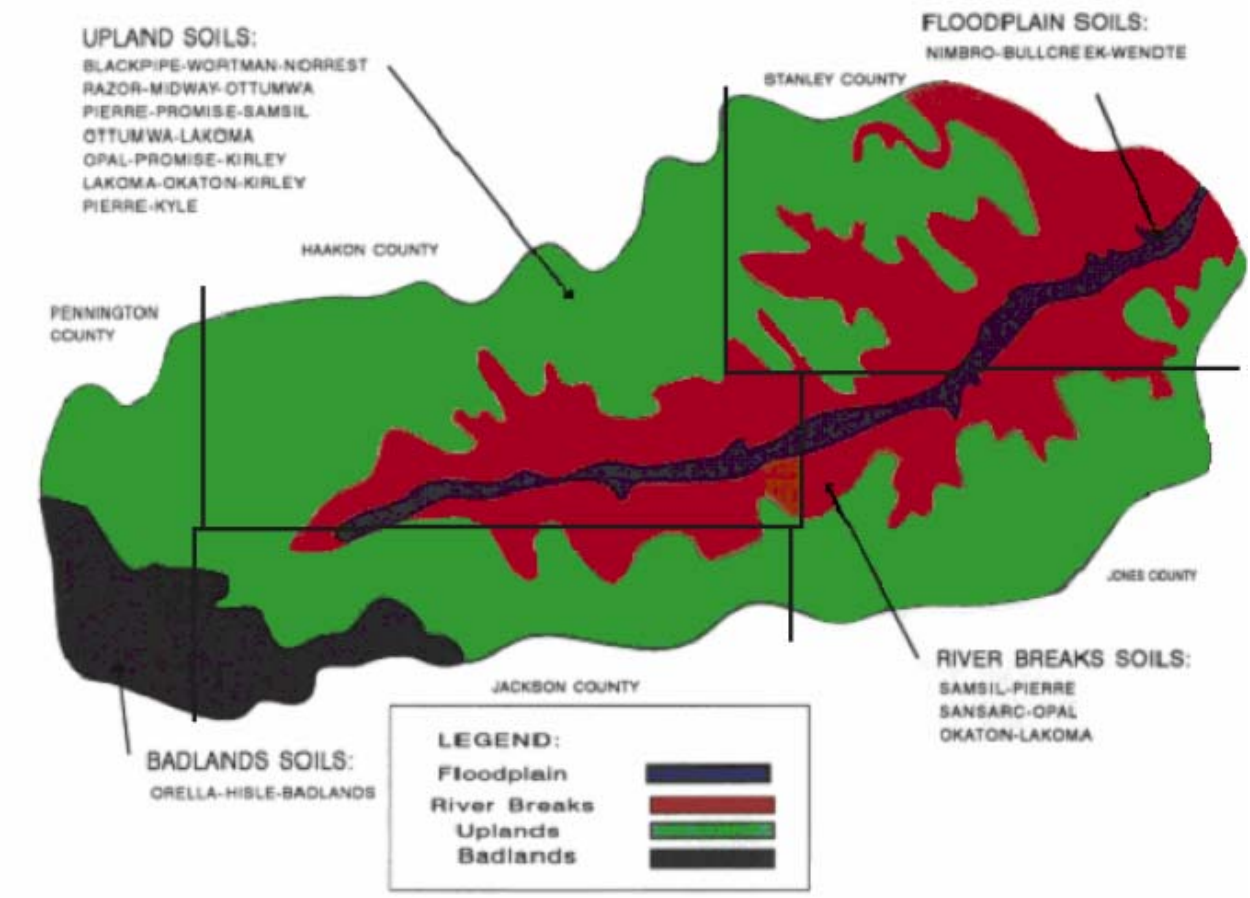
The Bad River does not support its assigned beneficial uses primarily because of sediment loading from the watershed. The delivery of 3.25 million tons of sediment per year severely impacts the Lake Sharpe impoundment of the Missouri River. The sport fishery in the Missouri River / Lake Sharpe at Pierre contributes $ 2.5 million annually when not impaired by turbidity from the Bad River. A study by South Dakota Game, Fish and Parks entitled "Angler Use and Sport Fishing Harvest Survey on Lake Sharpe, South Dakota, 1984-1985" indicated that when the Bad River is carrying heavy loads of sediment the value essentially goes to zero.

General watershed information is as follows:

- The semiarid and continental climate is characterized by wide temperature ranges, low relative humidity, frequent high winds, low amounts of precipitation, long winters and warm summers. Recurring periods of near-drought conditions are common.
- **T**he average annual precipitation is approximately 16 inches. Normally 80 % occurs during the months of April through September, the growing season of most of the crops raised in the watershed.

- It is estimated that more than 75% of the annual runoff occurs during the 4-month period of March through June. Runoff during March and April is usually from snow melt. Runoff during May and June is from rainfall. June normally has the highest amounts of precipitation and runoff. Heavy runoff during summer months may occur as a result of brief, intense thunderstorms. The Bad River and its tributaries commonly experience periods of no flow during the fall and winter months.

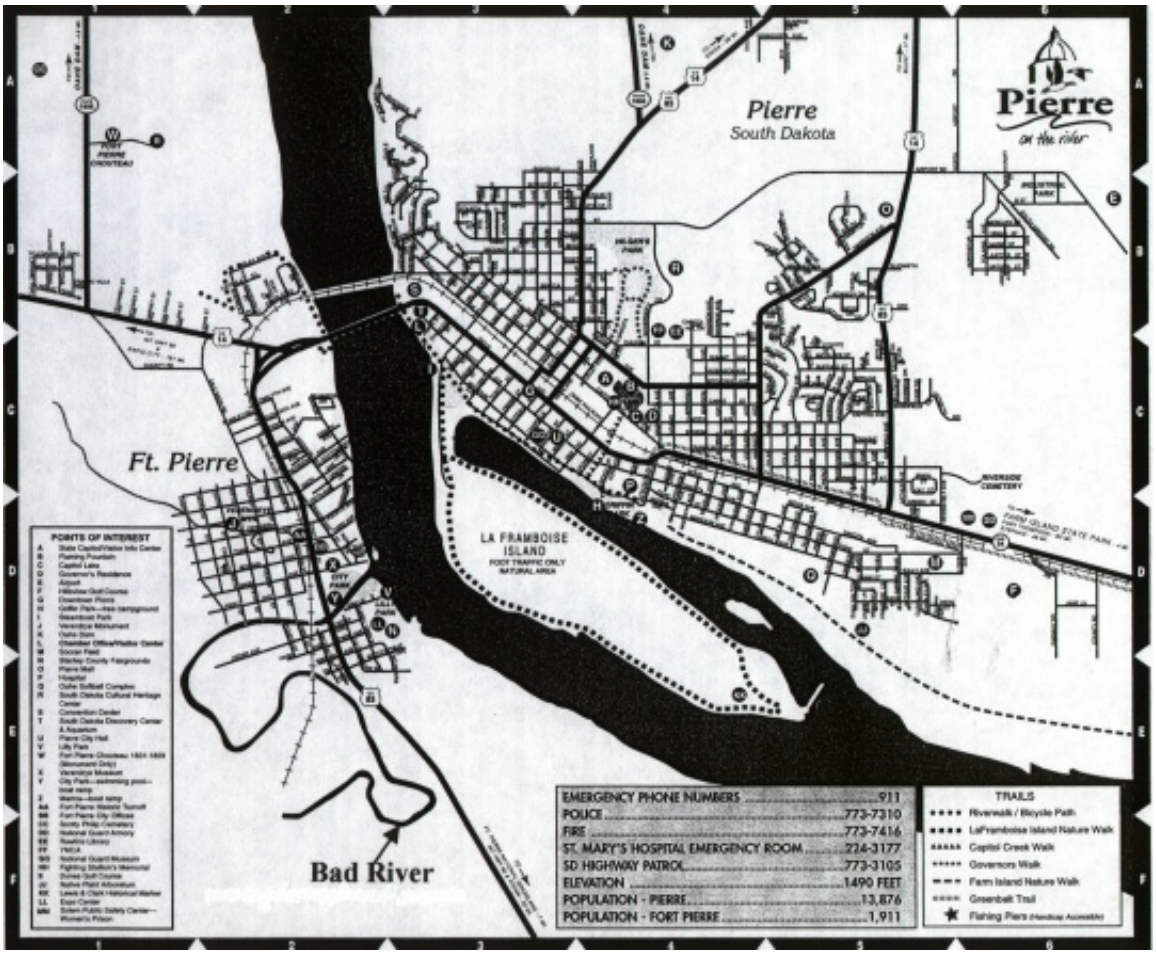
- Pierre Shale is the parent material for the erodible gray black silt and clayey soils present in most of the area. The dominant soils within the area are residual clays on the upland and alluvial clays on the floodplains and low terraces (see Map #2, below). The cropland is generally limited to the upper tablelands with the rangeland occupying the steeper more fragile soils closer to the mouth of tributaries. The Natural Resource Conservation Service (NRCS) classifies these soils as highly erodible for wind and water erosion.



Map #2: Bad River Drainage Basin Landform Areas.

Sediment carried by the Bad River settles in the Missouri River near Pierre, and Ft. Pierre and has significantly reduced the channel capacity as well as aggrade the channel bottom. This has increased flooding in the municipalities and surrounding area, necessitating a $36 million buyout and flood proofing of affected homes in the two communities. It has also caused the Corps of Engineers to reduce releases from the Oahe Reservoir during periods of extreme cold because of the flooding problems. This results in lost power generation revenues of $12.5 million annually.

The Bad River enters the Missouri River within the city limits of Ft. Pierre, SD directly across the river from Pierre, SD (see Map #3, below). The Bad River has a notorious past due to its unpredictability of flow and the sediment it transports during runoff events.



Map #3: Ft. Pierre, Pierre.

The Bad River Phase I Project was initiated to determine the sources of sediment entering the river. Conclusions drawn from the analysis of the data gathered were:

- Cropland is not a major sediment source.
- The upper reaches of the Bad River Watershed and Badlands are not major sediment sources.

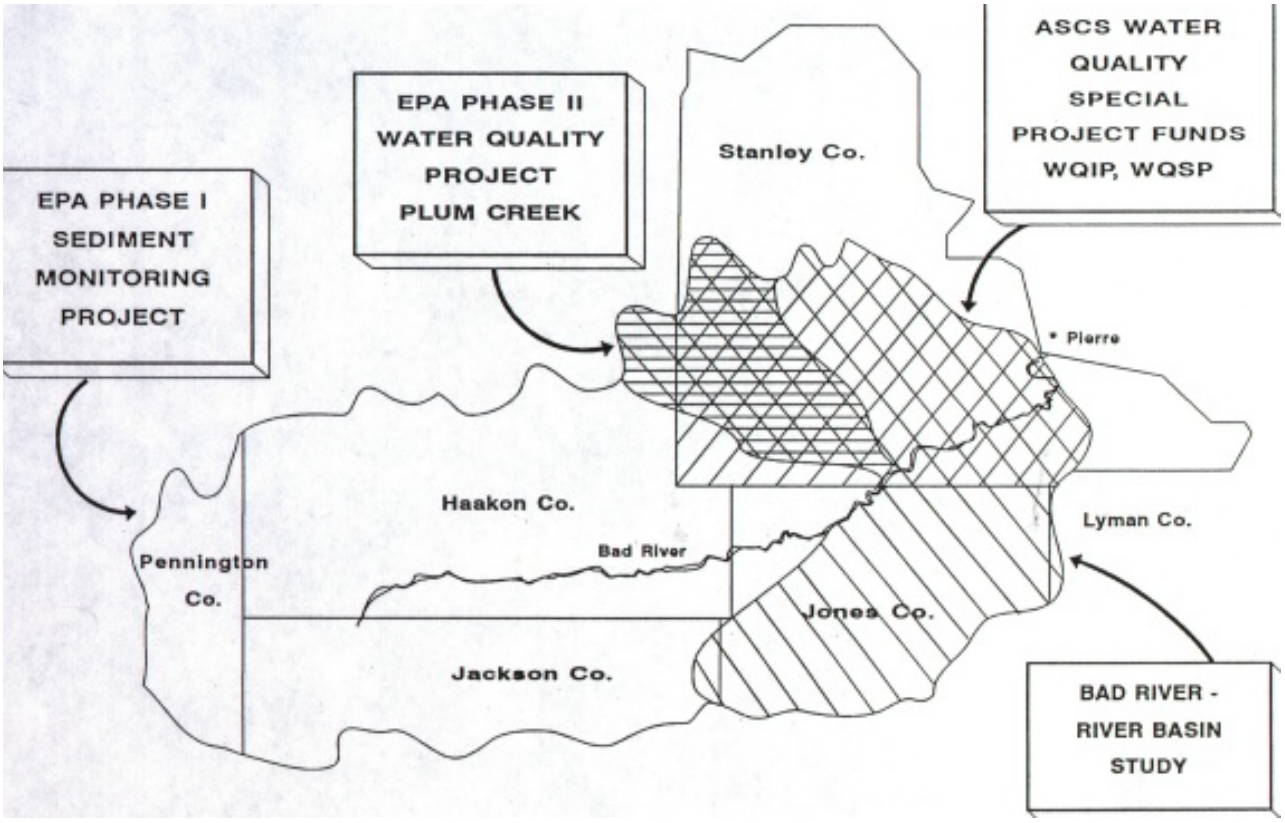
The major sediment source appears to be the lower 1/3 of the Bad River Watershed (see Map #4, page 8). Of the 3.25 million tons of sediment delivered annually by the Bad River, approximately 2.17 million tons comes from the lower 1/3 of the watershed. The area is comprised of approximately 66 % rangeland with various stages of incised channels and headcuts in the breaks. Cropland comprises approximately 34 % of the watershed and is located mainly on the upper tablelands.

The Bad River Phase II Project was initiated following the completion of the Phase I Project. The goals of the Phase II Project were:

- Determine sediment sources within the treatment area.

- Determine cost-effective land treatments that provide long lasting erosion control and reduction in sediment load while not jeopardizing the financial viability of cooperating landowners.

The Plum Creek Watershed, (see Map #4, below) was selected as the treatment area. It consists of approximately 160,000 acres. Participation rate in the project was 90% of the landowners, Approximately 95% of all land in the watershed was placed under some type of more intense conservation management.



Map # 4: Plum Creek Watershed.

Sediment delivery was monitored at the mouth of the watershed. Sediment was reduced from an average of 32.2 tons of sediment per acre-foot of runoff during the first 2 years of monitoring to 10.2 tons of sediment per acre-foot of runoff for the next 3 years of monitoring (see figure #3, below).

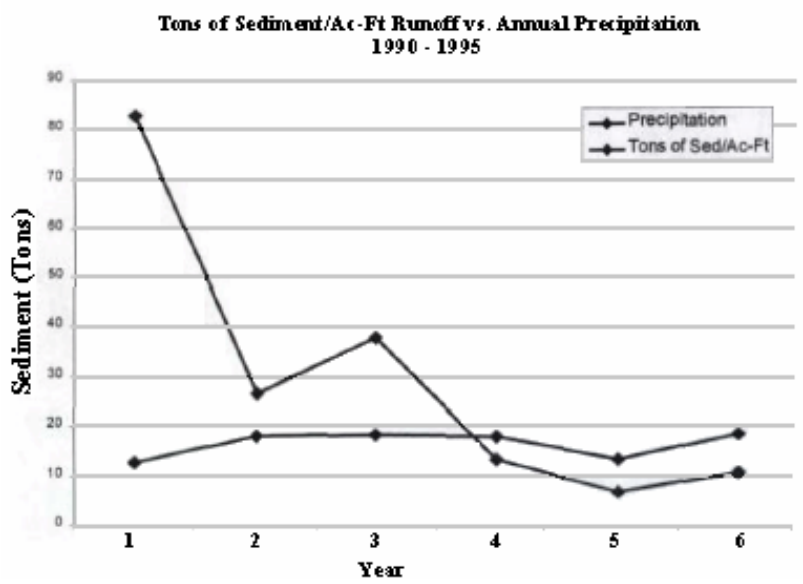


Figure #3: Plum Creek Watershed Sediment vs. Runoff

Recommendations for treatment of other areas with similar soil types and erosion problems were:

- Approach cooperators with a request to conduct a resource inventory of their property to determine if the project has anything to offer that is of benefit to them as well as attaining the project goals.
- Stress that operator involvement in the project is totally voluntary.
- Work as closely as you can to encompass the desires of the operator while maintaining the integrity and technical correctness of applied practices.
- Develop a complete long-range plan that embraces a holistic approach.
- Develop agreements with a win-win outcome.
- Develop a financial cost-share incentive package that is creative and seeks involvement of non-traditional parties as financial Project Partners.
- Employ personnel who have practical, applicable experience and are idealistic to the point they alienate potential cooperators.

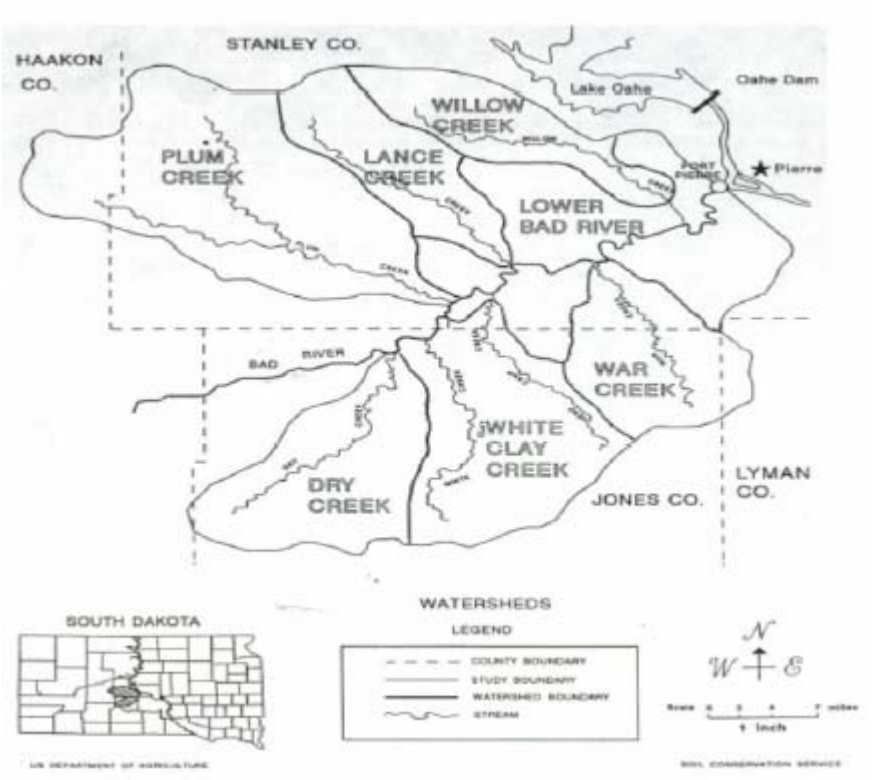
During the final years of the Phase II Project, the Stanley County Conservation District requested that the Natural Resources Conservation Service (NRCS) conduct a river basin

study on the lower one-third of the Bad River Watershed (see Map #4). The request was a result of public concern about the adverse effect sediment deposition from the Bad River had on water quality, recreation, and fish and wildlife habitat in Lake Sharpe.

The request resulted in the Lower River Basin Study (see Map # 5, page 11). The study was a cooperative effort of the USDA-NRCS and the South Dakota Department of Environmental and Natural Resources (DENR). The purposes of the study was to identify cost-effective alternatives for the development of water and related land resources that would: (1) identify and quantify areas needing treatment for sediment reduction; (2) enhance the water quality and aesthetics of Lake Sharpe through the reduction of sediment; (3) increase economic and environmental stability through improved conservation application, and (4) improve economic development of the area by enhancing wildlife and fisheries habitat, improving recreational use and increasing productivity of depleted agricultural lands.

The River Basin Study focused on the 792,000 acres in the lower one-third of the Bad River Drainage. This region was identified in the Phase I Study as the major source of sediment in the watershed. The Lower Bad River Basin Study determined proportions of erosion and sediment that originates from cropland, hayland, rangeland, channels, gullies, and streambanks in the study area.

Sheet and rill erosion from cropland and rangeland were found to be significant sources of erosion. However, erosion originating from gullies, channels and streambanks was the major sediment source. Wind erosion, a significant form of erosion from cropland in the upper portion of the watershed, was not quantitatively evaluated due to the great distances between eroding areas and the point of sediment delivery at the mouth of the Bad River. As a result, wind erosion on cropland, although a significant resource concern, is a minor source of sediment to the Bad River.



Map #5: Bad River – River Basin Study

The major conclusions of the Lower Bad River – River Basin Study were:

1. Channel and gully erosion in the river breaks is the main source of sediment reaching the Bad River. These areas contribute 80% of the total sediment load leaving the area.

2. The present grass species composition of the rangeland has a significant impact on filtration rates which, in turn, affects the hydrologic condition of the rangeland and the amount of runoff from storm events. Runoff is directly related to the amount of channel and gully erosion occurring in the study area.

3. The deterioration of riparian areas along channels and streambanks, is believed to be the result of heavy livestock use. Heavy grazing pressure accelerates gully formation and reduces the sediment filtering effects of vegetation.

4. The amount of sediment from cropland delivered to the mouth of the Bad River is a relatively small amount. Erosion control practices on cropland will not significantly reduce downstream sediment loads but will increase infiltration and reduce runoff. Reducing the amount of runoff reaching the channels and gullies will reduce the amount of sediment delivered to Lake Sharpe.

The Bad River Phase III Project was initially a multi-faceted implementation effort designed to control various sources) sources of pollution, but predominantly sediment, with emphasis on Willow Creek, Dry Run Creek (Lower Bad River), and numerous small tributaries within eight miles of the mouth of the Bad River. The project encompassed approximately 120,000 acres. The project area was within Stanley County.

The Phase III Project applied practices that had been found to be socially and economically feasible with emphasis placed on:

- Increasing infiltration rates on cropland and rangeland.
- Reducing stream flow rates.
- Constructing structures to reduce and trap sediment.
- Restore riparian zone vegetation.
- Develop riparian zone grazing management systems on riparian zones and farming management systems on cropland.

The project was modified during 1997 to include treatment of the nearly 40,000 acre Antelope Creek Watershed. Antelope Creek enters Lake Sharpe approximately 12 miles below the mouth of the Bad River. Soil types and erosion problems are similar to those in the Bad River Watershed. Land treatments applied were consistent with those applied at the Bad River Project sites.

During 1999, the project was again modified to become consistent with the goals of the newly completed Lower Bad River/Lake Sharpe TMDL. At this point in time treatment of the Antelope Creek Watershed was complete and removed from further treatment by the Project. The lower one-third of the Bad River Watershed was studied as the "Lower Bad River - River Basin Study". It included the area located in Jones County in the plan for treatment. Existing project personnel were utilized for landowner contact and planning. The TMDL sediment reduction goal for the entire Bad River Watershed was a 30 percent sediment reduction at the mouth of the Bad River.

Project Goals and Objectives

Project Goals and Objectives

The original long-term goal of the project was to reduce sediment by 40 percent from the Willow Creek Watershed and other identified watersheds entering into the Bad River. The Goal was amended following the completion of the Lower Bad River/Lake Sharpe TMDL to a 30 percent reduction of sediment over the entire Bad River watershed as measured at the mouth of the Bad River. Emphasis of land treatment was targeted to the lower one-third of the watershed located within Stanley and Jones Counties, SD. Project accomplishments by Objective/Task follow.

Objective 1

Hire Project Personnel

Task 1 – Develop Project Personnel position descriptions.

Product 1 – Position descriptions for 3 employees.

319 Budget - $450 Expended - $0 Local Match - $0

Task 2 – Advertise positions.

Product 1 - Develop list of candidates for interview.

319 Budget - $75 Expended- $0 Local Match - $0

Task 3 – Hire necessary staff.

Product 1 – Conduct Interviews.
Product 2 – Select employees.

319 Budget - $930 Expended - $0 Local Match - $0

Product 3 – Project Coordinator.

319 Budget - $165,024 Expended - $367,578 Local Match - $3,656

Product 4 – Project Technician.

319 Budget - $68,400 Expended - $151,112 Local Match - $1,511

Product 5 – Project Secretary.

319 Budget - $18,240 Expended - $43,243 Local Match - $384

Product 6 – Employee Benefits (FICA & Workman's Comp.). Compensation is a possessive of workmen or a workman. Add an apostrophe)

319 Budget - $40,000 Expended - $52,934 Local Match - $10,325

Product 7 – Travel & per diem.

319 Budget - $17,440 Expended - $1,756 Local Match - $564

Task 4 – Office & Indirect.

319 Budget - $94,471 Expended - $46,179 Local Match - $14,230

No expenditures for Project staff recruitment were the result of the retention of staff from the Bad River Phase II Project. Travel needs were reduced because vehicles and related expenses were supplied to the project by the Natural Resources Conservation Service through a cooperative agreement between NRCS and the Stanley County Conservation District.

Expended EPA 319 funds exceeded the original 319 Budget by a considerable margin. The original 319 Project and budget were for a 4 year period commencing in 1995. Amendments and additional funding were added to the original plan to meet the additional needs identified by the Bad River Lower River Basin Study and the Lake Sharpe/Missouri River TMDL.

Objective 2

Increase Infiltration of Precipitation

Task 5 – Encourage crop residue management on croplands to a minimum of 30% after planting of crops.

Product 1 – 2200 Acres of protected cropland.

319 Budget - $88,000 Expended - $0 Local Match - $1,254,185

Output: 150,000 Ac. of Conservation Tillage and No-Till applied.

Milestone exceeded: No 319 funds were expended for this task. The milestone was exceeded by adoption of practice without financial incentive from the project. This was a result of some of the incentives used during the Phase II Project along with acceptance of Conservation Till, Strip Cropping and No-Till farming practices that have been promoted by the South Dakota State University Extension Service and the Dakota Lakes Research Farm.

Task 6 – Improve rangeland hydrologic condition through grazing management plans.

Product 1 – 55,000 Ac. of treated rangeland.

319 Budget - $110,000 Expended - $0 Local Match - $725,386

Output: 108,305 Ac. of treated rangeland.

Milestone exceeded: Landowner rangeland stewardship awareness, other and other land treatment programs, i.e. EQIP, contributed to the success of this task. Area ranchers have, in recent years, exhibited an increased awareness of the importance of grassland management to the sustainability of their operation and as a tool to protect water quality.

Product 2 – 54,000 of cross fence.

319 Budget - $29,000 Expended - $17,416 Local Match - $55,283

Output: 176,846 ft. of cross fence.

Milestone exceeded. The project milestone was exceeded as a result of the amendments to the original plan. Due to the recommendations of the Bad River Lower River Basin Study and the Bad River/Missouri River TMDL, increased emphasis was place on this practice to facilitate grazing lands management.

Product 1A, 1B, 1C, 1D – 1 well, 25,000 Ft .of pipeline, 12 tanks, 21 livestock ponds.

319 Budget - $264,900 Expended - $129,939 Local Match - $725,386

Output: 23 wells, 300,785 Ft. of pipeline, 83 tanks, 72 livestock ponds.

Milestone exceeded: The project milestone was exceeded as a result of the amendments to the original plan. Due to the recommendations of the Bad River Lower River Basin Study and the Bad River/Missouri River TMDL, increased emphasis was place on this practice to facilitate grazing lands management

Objective 3

Reduce Streambank Erosion and Sediment Transport

Task 7 – Reduce ephemeral gullies on cropland.

Product 1 – 52,500 Ft. of Grassed waterways.

319 Budget - $11,000 Expended - $0 Local Match - $0

Output: None.

Milestone: Not met. This was not a popular practice with landowners. Many producers feel grassed waterways in cropland are not compatible with the large equipment that is common in area of the state. Some of the original perceived need for the practice may have been reduced by the acceptance of minimum till and no-till practices being applied within the watersheds.

Task 8 – Reduce gully headcuts on rangeland.

Product 1 – 24 Erosion control structures.

319 Budget - $146,000 Expended - $28,929 Local Match - $228,222

Output: 48 Erosion control structures.

Milestone exceeded.

Product 2 – 2 water spreader systems.

319 Budget - $42,080 Expended - $0 Local Match - $0

Output: None.

Milestone: Not met. The only work on water spreaders as repair on damaged spreaders installed during the Phase II Project.

Task 9 – Encourage riparian zone management.

Product 1 – 150 Ac. riparian deferred grazing.

319 Budget - $24,000 Expended - $140,443 Local Match - $302,758

Output: 12,252 Acres.

Milestone exceeded: There was tremendous acceptance of riparian deferred grazing. This practice was considered the most cost-effective practice recommended by the Lower Bad River Basin Study.

Product 2 – Critical area stabilization.

2 A: 26 stabilization structures.

319 Budget - $52,000 Expended - $8,106 Local Match - $51,955

Product 2 B: 12 sites of tree & grass planting.

319 Budget - $52,000 Expended - $28,512 Local Match - $118,258

Output: 7 structures, 23 riparian sites.

Milestone: Partially met. The milestone for stabilization structures was not meet. Riparian plantings exceeded the milestone as a result of encouragement of hand planting of sites in areas of riparian grazing deferment.

Product 3 – In-kind services.

319 Budget - $0 Expended - $0 Local Match - $3,722,883*
***** Included in prior local match figures

Output: Exceeded.

Milestone: Landowners provided grazing management and labor to install exclusion fencing where required to facilitate riparian zone management greatly exceeded estimated potential. In most cases practices are being maintained once the financial incentives ceased.

Objective 4

Increase Public Awareness of Project

Task 10 – Develop I & E Program.

Product 1 – Conduct Public Tours.

319 Budget - $319 Expended - $71 Local Match - $207

Output: Public tours.

Milestone: Milestone met. Public tours were conducted on demand on a group and individual basis throughout the length of the project.

Product 2 – Conduct Public/Task Force Meetings.

319 Budget - $53 Expended - $92 Local Match - $0

Output: Public/Task Force Meetings.

Milestone: Milestone met. Task force meetings were of minor necessity in the Phase III Project which was primarily an implementation project.

Product 3 – Water Quality Monitoring.

319 Budget - $20,091 Expended - $0 Local Match - $25

Output: WQ Monitoring data.

Milestone: Milestone met. Monitoring as originally planned was abandoned in favor of the Bad River National Monitoring Project and USGS Monitoring which provided much more reliable and scientific monitoring than that conducted by the project.

Product 4 – Publish 4 quarterly newsletters per year.

319 Budget - $338 Expended - $291 Local Match - $2

Output: 4 Quarterly News Letters/Year.

Milestone: Milestone met. Project information was included in a Conservation District Newsletter that is published quarterly.

Product 5 – Publish annual project report.

319 Budget - $0 Expended - $0 Local Match - $0

Output: Annual Project Reports.

Milestone: Milestone met. Semi-annual and Annual Reports of progress were provided to SD DENR and as part of the Conservation District Annual Report and Newsletter.

Product 6 – Publish Project Brochure.

319 Budget - $2,284 Expended - $1,969 Local Match - $20

Output: Project Brochures.

Milestone: Milestone met. One color brochure highlighting successful project activities was published and distributed at meetings and through mailings (See Appendix B).

Product - 7 – Publish Project Final Report.

319 Budget - $0 Expended - $205 Local Match - $2

Output: Final Report.

Milestone: Milestone met. The final report was provided to SD DENR and EPA via print and electronic media.

Best Management Practices

Best management practices applied during the project exceeded the project milestones as amended. A summary of the practices installed during the project is in Table 1.

Table 1: Best Management Practices Installed.

Task & Product	BMP Description	Phase III Original	Phase III Amended	Phase III Actual
T5P1	Crop Residue Mgmt.	2,200 Ac.	39,200 Ac.	52,500 Ac.
T6P1	Grazing Resource Mgmt.	55,000 Ac.	55,000 Ac.	151,361 Ac.
T6P1A	Wells	1	18	23
T6P1B	Pipelines	25,000 Ft.	180,433 Ft.	300,785 Ft.
T6P1C	Tanks	12	67	83
T6P1D	Livestock Ponds	21	145	38
T6P2	Rangeland Cross Fence	54,000 Ft.	275,000 Ft.	176,846 Ft.
T6P3	Bank Stabilization Structure	8	31	8
T6P4	Fabricated L.S. W.B. Sturct.	0	30	32
T6P5	Planned Grazing Systems	55,000 Ac.	55,000 Ac.	74,504 Ac.
T6P6	Pasture & Hayland Plantings	0	0	2,149 Ac.
T7P1	Grassed Waterways	52,800 Ft.	5280 Ft.	5,280 Ft.
T7P2	Erosion Control Structures	24	24	82
T8P1	Water Spreaders	2	1	0
T9P1	Riparian Deferment	150 Ac.	6,500 Ac.	12,252 Ac.
T9P1B	Riparian & CRP Trees	12 Sites	24 Sites	23 Sites
T9P2	Critical Area Structures	26	6	7

Monitoring Results

TMDL Implementation: The Lake Sharpe/Missouri TMDL called for a reduction of 30 percent in total sediment delivery to Lake Sharpe from the Bad River watershed. The latest sediment delivery data collected by the USGS at the mouth of the Bad River indicates a 40 percent reduction was achieved, thereby exceeding the TMDL goal by 33 percent. (Technically, the goal wasn't exceeded by 10%. If the goal was a 30% reduction, and the measured reduction was 40%, then the goal was exceeded by 33%; or an additional 10% reduction was measured.) See Figure 3 for information relative to tons of sediment reduced.

BMP Effectiveness: BMP's were applied on cropland and rangeland in a holistic manner with cooperating operators in the watershed. It was determined that grazing management in riparian zones was the most cost-effective approach to sediment reduction. On rangeland, financial incentives to encourage deferred grazing in riparian zones along with financial cost-share assistance to assist in the infrastructure improvements necessary to achieve the management systems were implemented. The effectiveness of the practices relative to NPS pollution reduction is exemplified by the 40 percent sediment reduction attained.

Cropland Residue Management: On cropland, farming practices such as minimum till and no-till were encouraged by the project and University research personnel. During the project residue management related practices were applied to 150,000 acres. See task 5, Product 1.

Other Monitoring: South Dakota Department of Environment and Natural Resources began a National Monitoring Project on two areas of the Bad River watershed. One of these areas is on two of the lower Bad River tributaries in Stanley Co. This project is collecting data on runoff, sediment and range condition. The same data is being collected in the upper watershed. Interpretation of the data is being completed by SDDENR. The project is scheduled to continue for another three years. Results of the monitoring will be reported after the study is completed.

USGS also monitors runoff and sediment data at the mouth of the Bad River. The following graphs give an indication of sediment reduction trends in the watershed.

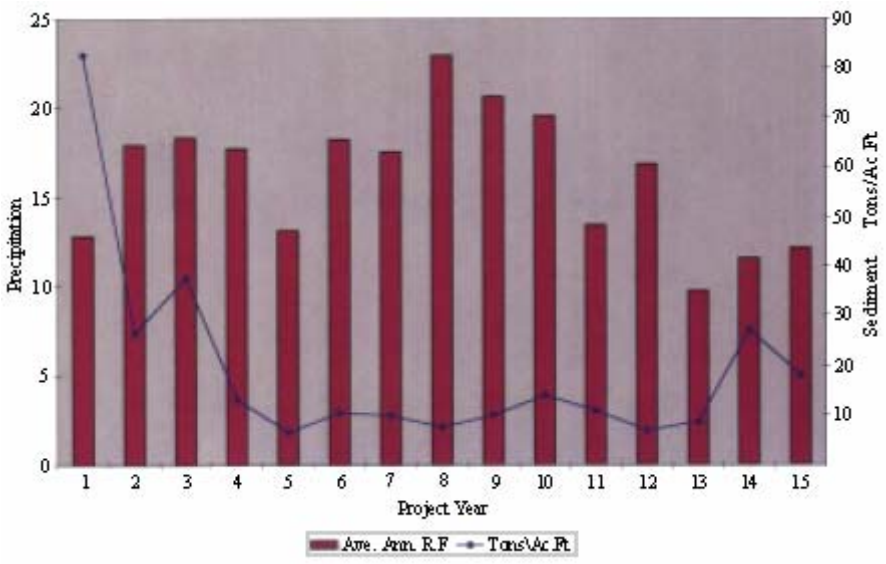


Figure #4: Bad River – Sediment vs. Runoff

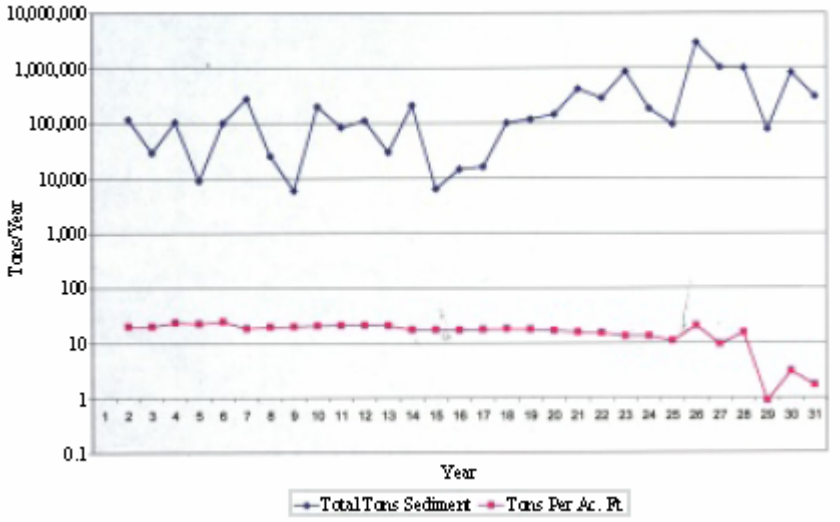


Figure #5: Bad River Sediment

Coordination Effort

Coordination with State Agencies:

State Agencies that cooperated with the Bad River Water Quality Project by furnishing technical guidance and financial assistance included:

- South Dakota Department of Environment and Natural Resources – Technical and financial assistance (EPA 319 Grant $1,081,126) for project operation and conservation practices implementation.

- South Dakota Department of Resource Conservation and Forestry – Technical and financial assistance ($66,657) for conservation practices implementation

- South Dakota Department of Game, Fish and Parks – Technical and financial assistance ($46,476) for conservation practices implementation.

- South Dakota State Legislature – Financial assistance ($708,169) through SWRMS for project operation and conservation practices implementation.

- South Dakota School and Public Lands – Cooperated by allowing permittees to utilize Project cost-share for improvements on School and Public Lands property that enhanced grazing management in a manner that addressed our water quality concerns.

Coordination with Federal Agencies –

Federal Agencies providing assistance to the project included:

- U.S. Fish and Wildlife Service – Financial assistance through North American Waterfowl Conservation Assistance grant.

- U.S. Geological Survey – Technical Assistance for water quality monitoring.

- Natural Resources Conservation Service – Technical and financial assistance for implementation of conservation practices.

- Farm Service Agency – Financial assistance through EQIP, WQSP, WHIP, CRP and ECP.

Resources/Coordination from Federal Land Management Agencies:

The U.S. Forest Service, Fort Pierre National Grasslands allowed permittees to utilize project cost-share for improvements on assigned allotments that enhanced grazing management in a manner that addressed water quality concerns on National Grasslands properties.

The Bureau of Land Management also allowed permittees to utilize Project cost-share for improvements that enhanced grazing management in a manner that addressed water quality concerns on BLM properties.

Summary of Public Participation

Public participation was exceptional. Participants were familiar with the project and were willing to become actively involved in the Phase III Project. Over 50 landowners and operators participated in the project. The demand for participation exceeded the resources available through the project. USDA – FSA, SD-GF&P, US-FWS provided additional funding and are still funding practices that will continue to enhance water quality in the project area.

Aspects of the Project That Did Not Work Well

1. Grassed Waterways - Landowners were reluctant to seed grassed waterways that must be crossed with the large machinery that is typically used in the project area.

2. Critical Area Stabilization - Critical area structures were not as successful during Phase III as during Phase II.

Future Activity Recommendations

It is recommended that the Natural Resources Conservation Service and local watershed Conservation Districts continue supporting activities that enhance water quality in the watershed and encourage landowners to maintain those practices that have been most effective in achieving the goals of the Project.

Literature Cited

1. Bad River Phase I Final Report
2. Bad River Phase II Final Report
3. Bad River Lower River Basin Study
4. Angler Use and Sport Fishing Harvest Survey on Lake Sharpe, South Dakota 1984 – 1985
5. Lake Sharpe TMDL

Appendix A

Financial Summary

BUDGET TABLE FOR LOWER BAD RIVER WATER QUALITY PROJECT
PHASE IIIA CONTINUATION
JONES AND STANLEY COUNTIES, SOUTH DAKOTA
FUNDING SOURCE SUMMARY

PART 1: FUNDING SOURCES	ACTUAL YEAR #1	ACTUAL YEAR #2	ACTUAL YEAR #3	ACTUAL YEAR #4	ACTUAL YEAR #5	ACTUAL YEAR #6	ACTUAL YEAR #7	ACTUAL YEAR #8	ACTUAL YEAR #9	TOTAL TO 12/31/2004
EPA 319 SECTION FUNDS	$190,807	$114,729	$90,814	$142,898	$185,366	$137,052	$91	$7,769	$211,742	**$1,081,268**
Subtotals	**$190,807**	**$114,729**	**$90,814**	**$142,898**	**$185,366**	**$137,052**	**$91**	**$7,769**	**$211,742**	**$1,081,268**
OTHER FEDERAL FUNDS										
1) USDA - CFSA (FA)	$12,299	$0	$80,162	$87,246	$314,563	$209,087	$330,867	$235,878	$241,336	**$1,511,438**
2) USDA - NRCS (TA)	$49,532	$27,668	$36,908	$54,668	$94,107	$64,726	$108,699	$68,940	$85,635	**$590,883**
3) USF&WL - (TA & FA)		$0	$0	$0	$0	$0	$0	$30,000	$0	**$30,000**
Subtotals	**$61,831**	**$27,668**	**$117,070**	**$141,914**	**$408,670**	**$273,813**	**$439,566**	**$334,818**	**$326,971**	**$2,132,321**
STATE/LOCAL MATCH										
1) SD GF&P - (TA & FA)	$6,465	$6,296	$0	$0	$12,523	$0	$0	$0	$21,192	**$46,476**
20 SD DENR (SWRMS)	$69,938	$43,649	$43,750	$43,750	$0	$46,042	$309,434	$145,784	$1,287	**$703,634**
3) SD DRCF - (FA)	$23,855	$8,008	$3,708	$31,086	$472	$0	$0	$0		**$67,129**
4) SCDs' - (TA & FA)	$3,034	$1,727	$2,184	$3,050	$5,129	$3,922	$6,404	$4,194	$4,756	**$34,400**
5) LANDOOWNERS - (FA&I-K)	$164,062	$127,547	$145,997	$244,274	$374,084	$431,736	$489,699	$432,789	$461,056	**$2,871,244**
6 DU - (TA & FA)	$0	$0	$0	$0	$0					**$0**
Subtotals	**$267,354**	**$187,227**	**$195,639**	**$322,160**	**$392,208**	**$481,700**	**$805,537**	**$582,767**	**$488,291**	**$3,722,883**
TOTAL BUDGET	**$519,992**	**$329,624**	**$403,523**	**$606,972**	**$986,244**	**$892,565**	**$1,245,194**	**$925,354**	**$1,027,004**	**$6,936,472**

FA: Financial Assistance
I-K: In Kind
TA: Technical Assistance
SCD: Soil Conservation District
DU: Ducks Unlimited
CFSA: Consolidated Farm Services Agency
NRCS: Natural Resources Conservation Service
USF&WL: U.S. Fish & Wildlife Service
SD GF&P: SD Game, Fish & Parks
SD DENR: SD Dept. of Environment & Natural Resources
SD DRCF: SD Dept. of Resource Conservation & Forestry

Percent Local Match to 319 Funding **87%**

BUDGET TABLE FOR LOWER BAD RIVER WATER QUALITY PROJECT
PHASE IIIA CONTINUATION
JONES AND STANLEY COUNTIES, SOUTH DAKOTA
PRODUCT FUNDING TOTAL SUMMARY

SUMMARY #1 TASK FUNDING SUMMARY	ACTUAL YEAR #1	ACTUAL YEAR #2	ACTUAL YEAR #3	ACTUAL YEAR #4	ACTUAL YEAR #5	ACTUAL YEAR #6	ACTUAL YEAR #7	ACTUAL YEAR #8	ACTUAL YEAR # 9	TOTAL TO 12/31/2004
PROJECT COORDINATOR	$47,533	$41,663	$42,420	$41,240	$45,766	$46,298	$43,935	$42,105	$18,274	**$308,855**
TECHNICAL ASSISTANT	$20,483	$18,907	$18,907	$18,119	$20,680	$18,907	$17,929	$14,672	$4,019	**$133,932**
PART-TIME SECRETARY	$5,395	$4,729	$4,993	$4,302	$3,939	$2,636	$4,727	$4,814	$8,141	**$30,721**
EMPLOYERS FICA & WC & W.C.	$7,917	$7,965	$7,272	$6,728	$5,361	$5,840	$5,039	$4,854	$2,528	**$46,122**
PER DIEM		$392	$913	$109	$25	$183	$550		$152	**$2,172**
VEHICLE EXPENSE	$7,500	$7,500	$7,500	$7,500	$5,000	$3,500	$3,500	$3,500	$3,500	**$42,000**
OFFICE RENT & INDIRECT EXPENSE	$10,693	$13,107	$11,840	$10,331	$10,594	$11,449	$9,673	$10,664	$6,049	**$77,687**
SUB-TOTAL	**$99,521**	**$94,263**	**$93,845**	**$88,329**	**$91,365**	**$88,813**	**$85,353**	**$80,609**	**$42,663**	**$641,489**
										$0
CROPLAND RES. MGMT. & C.L. CRP	$17,780	$17,780	$17,780	$75,000	$125,000	$250,000	$250,000	$255,708	$262,450	**$753,340**
WELLS	$43,514		$71,845	$49,839	$90,865	$171,384	$144,186	$5,856	$88,485	**$571,633**
PIPELINES	$37,004		$25,758	$5,365	$86,598	$61,591	$129,794	$77,768	$126,999	**$346,110**
TANKS	$12,629		$6,735	$3,149	$3,141	$12,311	$27,064	$17,603	$31,151	**$65,029**
LIVESTOCK PONDS	$45,214	$56,671	$32,675	$75,278	$383,589	$28,813	$21,311	$41,742	$27,010	**$643,551**
FENCING	$50,457	$4,137	$10,018	$5,162	$7,735	$1,148	$25,833	$7,604	$7,056	**$104,490**
BANK STAB. STRUCTURES	$39,699	$4,413	$3,033		$4,862	$28,386	$19,030			**$99,423**
LSWBS	$30,902	$13,104	$10,538	$14,187	$4,631	$4,176	$3,158	$7,981	$9,729	**$80,696**
GRAZING RESC. MGMT.	$63,574	$68,970	$68,970	$79,000	$83,264	$85,000	$90,000	$90,000	$100,000	**$538,778**
PASTURE & H.L. PLANTING	$10,465	$6,982	$3,252		$14,206		$8,957	$8,451		**$43,862**
EROS. CONT. STRUCTURES	$19,320	$11,656		$118,942	$39,989	$19,903	$49,121	$89,961	$29,015	**$258,931**
RANGE RENOVATION		$2,662	$2,662	$2,663						**$7,987**
WATERSPREADERS					$783					**$783**
RIPARIAN DEFERMENT	$45,922	$48,480	$55,784	$63,337	$40,385	$46,193	$73,181	$56,971	$56,971	**$373,282**
CRITICAL AREA STRUCT.				$14,562						**$14,562**
RIPARIAN REVEG. & CRP TREES	$3,929	$23	$578	$9,739	$9,550	$94,850	$318,177	$185,100	$245,476	**$436,846**
TOURS		$237		$82						**$319**
PUBLIC/TASK FORCE MTG.			$53	$53						**$106**
WATER QUALITY MONITOR										**$0**
NEWSLETTER	$56				$282		$29			**$367**
ANNUAL/FINAL REPORTS		$238								**$238**
I&R -- PROJECT BROCHURE				$2,284						**$2,284**
TOTAL BUDGET	**$519,986**	**$329,616**	**$403,526**	**$606,971**	**$986,245**	**$892,568**	**$1,245,194**	**$925,354**	**$1,027,005**	**$6,936,465**

BAD RIVER PHASE III WATER QUALITY PROJECT AMMENDMENT

BUDGET YEAR 1 4/24/95 TO 6/30/96 (ACTUAL)

FUNDING SOURCE	EPA 319	SD DIV. OF	SD DENR	FSA	SD DEPT OF	LANDOWNER	NRCS TA	SPONSOR	LANDOWNER	
GOAL 1 - OBJECTIVE 1		CONS.	SWRMS	EQIP	GF&P	CASH	IN-KIND	IN-KIND	IN-KIND	TOTAL
TASK 1 - DEVELOP JOB DESCRIPTION								$0		$0
TASK 2 - ADVERTIZE POSITION								$0		$0
TASK 3 - HIRE PERSONNEL								$0		$0
PROJECT COORDINATOR	$47,062							$471		$47,533
TECHNICAL ASSISTANT	$20,280							$203		$20,483
PART-TIME SECRETARY	$5,342							$53		$5,395
EMPLOYEE BENEFITS								$0		$0
EMPLOYERS FICA & WORK. COMP.	$7,839							$78		$7,917
TRAVEL								$0		$0
PER DIEM								$0		$0
VEHICLE EXPENSE							$7,500			$7,500
TASK 4 - SECURE OFFICE							$0	$0		$0
OFFICE RENT & INDIRECT EXPENSE	$10,587							$106		$10,693
SUB-TOTAL	**$91,110**	**$0**	**$0**	**$0**	**$0**	**$0**	**$7,500**	**$911**	**$0**	**$99,521**
GOAL 1 - OBJECTIVE 2							$0	$0		$0
TASK 5 - IMPLEMENT RESIDUE MGMT.							$0	$0		$0
2200 AC./YR. & CROPLAND CRP							$0	$0	$17,780	$17,780
TASK 6 - IMPLEMENT RANGE IMPROV.							$0	$0		$0
WATER FACILITIES DEVELOPMENT							$0	$0		$0
WELLS	$22,296					$14,864	$5,574	$223	$557	$43,514
PIPELINES	$7,764	$6,557		$9,349		$7,890	$4,734	$237	$473	$37,004
TANKS	$3,338	$3,662	$1,078			$2,693	$1,616	$81	$162	$12,629
LIVESTOCK PONDS	$2,311	$1,829	$18,194		$6,465	$9,600	$5,760	$288	$768	$45,214
FENCING	$13,536	$4,653	$13,949			$10,713	$6,428	$321	$857	$50,457
BANK STABILIZATION STRUCTURES	$1,830	$2,344	$21,112			$8,429	$5,057	$253	$674	$39,699
LIVESTOCK WINDBREAK STRUCT.	$9,933	$2,101	$7,733			$6,589	$3,953	$198	$395	$30,902
GRAZING RESOURCE MANAGEMENT				$2,950			$443	$30	$60,152	$63,574
PASTURE & HAYLAND PLANTING	$6,233	$490				$2,241	$1,345	$67	$90	$10,465
GOAL 1 OBJECTIVE 3							$0	$0	$0	$0
TASK 7 - REDUCE CROPLAND EROSION							$0	$0		$0
EROSION CONTROL STRUCTURES	$2,219	$2,219	$7,868			$4,102	$2,461	$123	$328	$19,320
TASK 8 - REDUCE RANGELAND EROSION							$0	$0		$0
RANGE RENOVATION							$0	$0	$0	$0
WATERSPREADERS						$0	$0	$0	$0	$0
TASK 9 - RIPARIAN ZONE MANAGEMENT							$0	$0		$0
RIPARIAN GRAZING DEFERMENT	$27,665						$4,150	$277	$13,831	$45,922
CRITICAL AREA STRUCTURES						$0	$0	$0	$0	$0
RIPARIAN REVEG. & CRP TREES	$2,524					$841	$505	$25	$34	$3,929
GOAL 1 OBJECTIVE 4							$0	$0		$0
TASK 10 - INFORMATION & EDUC.							$0	$0		$0
TOURS							$0	$0		$0
PUBLIC/TASK FORCE MEETINGS							$0	$0		$0
WATER QUALITY MONITORING							$0	$0		$0
NEWSLETTERS	$48						$7	$0		$56
ANNUAL & FINAL REPORTS							$0	$0		$0
TOTAL	**$190,807**	**$23,855**	**$69,934**	**$12,299**	**$6,465**	**$67,961**	**$49,532**	**$3,034**	**$96,101**	**$519,988**

BAD RIVER PHASE III WATER QUALITY PROJECT AMMENDMENT

BUDGET YEAR 2 7/1/96 to 6/30/97 (ACTUAL)

FUNDING SOURCE	EPA 319	SD DIV. OF	SD DENR	FSA	SD DEPT OF	LANDOWNER	NRCS TA	SPONSOR	LANDOWNER	
GOAL 1 - OBJECTIVE 1		CONS.	SWRMS	EQIP	GF&P	CASH	IN-KIND	IN-KIND	IN-KIND	TOTAL
TASK 1 - DEVELOP JOB DESCRIPTION								$0		$0
TASK 2 - ADVERTIZE POSITION								$0		$0
TASK 3 - HIRE PERSONNEL								$0		$0
PROJECT COORDINATOR	$41,250							$413		$41,663
TECHNICAL ASSISTANT	$18,720							$187		$18,907
PART-TIME SECRETARY	$4,682							$47		$4,729
EMPLOYEE BENEFITS								$0		$0
EMPLOYERS FICA & WORK. COMP.	$7,886							$79		$7,965
TRAVEL								$0		$0
PER DIEM	$388							$4		$392
VEHICLE EXPENSE							$7,500			$7,500
TASK 4 - SECURE OFFICE							$0	$0		$0
OFFICE RENT & INDIRECT EXPENSE	$10,007						$3,000	$100		$13,107
SUB-TOTAL	**$82,933**	**$0**	**$0**	**$0**	**$0**	**$0**	**$10,500**	**$830**	**$0**	**$94,263**
GOAL 1 - OBJECTIVE 2							$0	$0		$0
TASK 5 - IMPLEMENT RESIDUE MGMT.							$0	$0		$0
2200 AC./YR. & CROPLAND CRP							$0	$0	$17,780	$17,780
TASK 6 - IMPLEMENT RANGE IMPROV.							$0	$0		$0
WATER FACILITIES DEVELOPMENT							$0	$0		$0
WELLS						$0	$0	$0	$0	$0
PIPELINES						$0	$0	$0	$0	$0
TANKS						$0	$0	$0	$0	$0
LIVESTOCK PONDS	$16,482		$9,330		$6,296	$16,054	$7,224	$321	$963	$56,671
FENCING	$2,635					$878	$527	$26	$70	$4,137
BANK STABILIZATION STRUCTURES	$1,409		$1,402			$937	$562	$28	$75	$4,413
LIVESTOCK WINDBREAK STRUCT.	$4,290	$4,092				$2,794	$1,676	$84	$168	$13,104
GRAZING RESOURCE MANAGEMENT							$0	$0	$68,970	$68,970
PASTURE & HAYLAND PLANTING	$4,485					$1,495	$897	$45	$60	$6,982
GOAL 1 OBJECTIVE 3							$0	$0	$0	$0
TASK 7 - REDUCE CROPLAND EROSION							$0	$0		$0
EROSION CONTROL STRUCTURES		$3,712	$3,712			$2,475	$1,485	$74	$198	$11,656
TASK 8 - REDUCE RANGELAND EROSION							$0	$0		$0
RANGE RENOVATION	$2,275						$341	$23	$23	$2,662
WATERSPREADERS						$0	$0	$0	$0	$0
TASK 9 - RIPARIAN ZONE MANAGEMENT							$0	$0		$0
RIPARIAN GRAZING DEFERMENT			$29,205				$4,381	$292	$14,603	$48,480
CRITICAL AREA STRUCTURES						$0	$0	$0	$0	$0
RIPARIAN REVEG. & CRP TREES	$15					$5	$3	$0	$0	$23
GOAL 1 OBJECTIVE 4							$0	$0		$0
TASK 10 - INFORMATION & EDUC.							$0	$0		$0
TOURS		$204					$31	$2		$237
PUBLIC/TASK FORCE MEETINGS							$0	$0		$0
WATER QUALITY MONITORING							$0	$0		$0
NEWSLETTERS							$0	$0		$0
ANNUAL & FINAL REPORTS	$205						$31	$2		$238
TOTAL	**$114,729**	**$8,008**	**$43,649**	**$0**	**$6,296**	**$24,638**	**$27,658**	**$1,727**	**$102,909**	**$329,615**

BAD RIVER PHASE III WATER QUALITY PROJECT AMMENDMENT

BUDGET YEAR 3 7/1/97 TO 6/30 98 (ACTUAL)

FUNDING SOURCE	EPA 319	SD DIV. OF	SD DENR	FSA	SD DEPT OF	LANDOWNER	NRCS TA	SPONSOR	LANDOWNER	
GOAL 1 - OBJECTIVE 1		CONS.	SWRMS	EQIP	GF&P	CASH	IN-KIND	IN-KIND	IN-KIND	TOTAL
TASK 1 - DEVELOP JOB DESCRIPTION								$0		$0
TASK 2 - ADVERTIZE POSITION								$0		$0
TASK 3 - HIRE PERSONNEL								$0		$0
PROJECT COORDINATOR	$42,000							$420		$42,420
TECHNICAL ASSISTANT	$18,720							$187		$18,907
PART-TIME SECRETARY	$4,944							$49		$4,993
EMPLOYEE BENEFITS								$0		$0
EMPLOYERS FICA & WORK. COMP.	$7,200							$72		$7,272
TRAVEL								$0		$0
PER DIEM	$904							$9		$913
VEHICLE EXPENSE							$7,500			$7,500
TASK 4 - SECURE OFFICE							$0	$0		$0
OFFICE RENT & INDIRECT EXPENSE	$8,752						$3,000	$88		$11,840
SUB-TOTAL	**$82,520**	**$0**	**$0**	**$0**	**$0**	**$0**	**$10,500**	**$825**	**$0**	**$93,845**
GOAL 1 - OBJECTIVE 2							$0	$0		$0
TASK 5 - IMPLEMENT RESIDUE MGMT.							$0	$0		$0
2200 AC./YR. & CROPLAND CRP							$0	$0	$17,780	$17,780
TASK 6 - IMPLEMENT RANGE IMPROV.							$0	$0		$0
WATER FACILITIES DEVELOPMENT							$0	$0		$0
WELLS				$40,879		$20,440	$9,198	$409	$920	$71,845
PIPELINES				$16,475		$5,492	$3,295	$165	$330	$25,756
TANKS			$2,953	$1,355		$1,436	$862	$43	$86	$6,735
LIVESTOCK PONDS	$3,557	$126	$1,112	$16,017		$6,937	$4,162	$208	$555	$32,675
FENCING		$509	$436	$5,436		$2,127	$1,276	$64	$170	$10,018
BANK STABILIZATION STRUCTURES		$1,932				$644	$386	$19	$52	$3,033
LIVESTOCK WINDBREAK STRUCT.	$2,045	$1,141	$3,555			$2,247	$1,348	$67	$135	$10,538
GRAZING RESOURCE MANAGEMENT							$0	$0	$68,970	$68,970
PASTURE & HAYLAND PLANTING			$2,089			$696	$418	$21	$28	$3,252
GOAL 1 OBJECTIVE 3							$0	$0	$0	$0
TASK 7 - REDUCE CROPLAND EROSION							$0	$0		$0
EROSION CONTROL STRUCTURES						$0	$0	$0	$0	$0
TASK 8 - REDUCE RANGELAND EROSION							$0	$0		$0
RANGE RENOVATION	$2,275						$341	$23	$23	$2,662
WATERSPREADERS						$0	$0	$0	$0	$0
TASK 9 - RIPARIAN ZONE MANAGEMENT							$0	$0		$0
RIPARIAN GRAZING DEFERMENT			$33,605				$5,041	$336	$16,802	$55,784
CRITICAL AREA STRUCTURES						$0	$0	$0	$0	$0
RIPARIAN REVEG. & CRP TREES	$371					$124	$74	$4	$5	$578
GOAL 1 OBJECTIVE 4							$0	$0		$0
TASK 10 - INFORMATION & EDUC.							$0	$0		$0
TOURS							$0	$0		$0
PUBLIC/TASK FORCE MEETINGS	$46						$7	$0		$53
WATER QUALITY MONITORING							$0	$0		$0
NEWSLETTERS							$0	$0		$0
ANNUAL & FINAL REPORTS							$0	$0		$0
TOTAL	**$90,814**	**$3,708**	**$43,750**	**$80,162**	**$0**	**$40,143**	**$36,908**	**$2,184**	**$105,854**	**$403,524**

BAD RIVER PHASE III WATER QUALITY PROJECT AMMENDMENT

BUDGET YEAR 4 7/1/98 TO 6/30/99 (ACTUAL)

FUNDING SOURCE	EPA 319	SD DIV. OF CONS.	SD DENR SWRMS	FSA EQIP	SD DEPT OF GF&P	LANDOWNER CASH	NRCS TA IN-KIND	SPONSOR IN-KIND	LANDOWNER IN-KIND	TOTAL
GOAL 1 - OBJECTIVE 1										
TASK 1 - DEVELOP JOB DESCRIPTION								$0		$0
TASK 2 - ADVERTIZE POSITION								$0		$0
TASK 3 - HIRE PERSONNEL								$0		$0
PROJECT COORDINATOR	$40,832							$408		$41,240
TECHNICAL ASSISTANT	$17,940							$179		$18,119
PART-TIME SECRETARY	$4,259							$43		$4,302
EMPLOYEE BENEFITS								$0		$0
EMPLOYERS FICA & WORK. COMP.	$6,661							$67		$6,728
TRAVEL								$0		$0
PER DIEM	$108							$1		$109
VEHICLE EXPENSE							$7,500			$7,500
TASK 4 - SECURE OFFICE							$0	$0		$0
OFFICE RENT & INDIRECT EXPENSE	$7,258						$3,000	$73		$10,331
SUB-TOTAL	**$77,058**	**$0**	**$0**	**$0**	**$0**	**$0**	**$10,500**	**$771**	**$0**	**$88,329**
GOAL 1 - OBJECTIVE 2							$0	$0		$0
TASK 5 - IMPLEMENT RESIDUE MGMT.							$0	$0		$0
2200 AC./YR. & CROPLAND CRP							$0	$0	$75,000	$75,000
TASK 6 - IMPLEMENT RANGE IMPROV.							$0	$0		$0
WATER FACILITIES DEVELOPMENT							$0	$0		$0
WELLS	$1,358			$27,000		$14,179	$6,381	$284	$638	$49,839
PIPELINES				$3,432		$1,144	$686	$34	$69	$5,365
TANKS	$244			$1,770		$671	$403	$20	$40	$3,149
LIVESTOCK PONDS	$5,402	$2,115	$18,069	$22,362		$15,983	$9,590	$479	$1,279	$75,278
FENCING	$764	$350	$625	$1,549		$1,096	$658	$33	$88	$5,162
BANK STABILIZATION STRUCTURES						$0	$0	$0	$0	$0
LIVESTOCK WINDBREAK STRUCT.	$9,075					$3,025	$1,815	$91	$182	$14,187
GRAZING RESOURCE MANAGEMENT							$0	$0	$79,000	$79,000
PASTURE & HAYLAND PLANTING						$0	$0	$0	$0	$0
GOAL 1 OBJECTIVE 3							$0	$0	$0	$0
TASK 7 - REDUCE CROPLAND EROSION							$0	$0		$0
EROSION CONTROL STRUCTURES		$19,570	$25,056	$31,133		$25,253	$15,152	$758	$2,020	$118,942
TASK 8 - REDUCE RANGELAND EROSION							$0	$0		$0
RANGE RENOVATION	$2,276						$341	$23	$23	$2,663
WATERSPREADERS						$0	$0	$0	$0	$0
TASK 9 - RIPARIAN ZONE MANAGEMENT							$0	$0		$0
RIPARIAN GRAZING DEFERMENT	$38,155						$5,723	$382	$19,078	$63,337
CRITICAL AREA STRUCTURES	$599	$8,676				$3,092	$1,855	$93	$247	$14,562
RIPARIAN REVEG. & CRP TREES	$5,881	$375				$2,085	$1,251	$63	$83	$9,739
GOAL 1 OBJECTIVE 4							$0	$0		$0
TASK 10 - INFORMATION & EDUC.							$0	$0		$0
TOURS	$71						$11	$1		$82
PUBLIC/TASK FORCE MEETINGS	$46						$7	$0		$53
WATER QUALITY MONITORING							$0	$0		$0
NEWSLETTERS	$1,969						$295	$20		$2,284
ANNUAL & FINAL REPORTS							$0	$0		$0
TOTAL	**$142,898**	**$31,086**	**$43,750**	**$87,246**	**$0**	**$66,528**	**$54,668**	**$3,050**	**$177,746**	**$606,971**

BAD RIVER PHASE III WATER QUALITY PROJECT AMMENDMENT

BUDGET YEAR 5 7/1/99 TO 6/30/00 (ACTUAL)

FUNDING SOURCE	EPA 319	SD DIV. OF	SD DENR	FSA	SD DEPT OF	LANDOWNER	NRCS TA	SPONSOR	LANDOWNER	
GOAL 1 - OBJECTIVE 1		CONS.	SWRMS	EQIP	GF&P	CASH	IN-KIND	IN-KIND	IN-KIND	TOTAL
TASK 1 - DEVELOP JOB DESCRIPTION								$0		$0
TASK 2 - ADVERTIZE POSITION								$0		$0
TASK 3 - HIRE PERSONNEL								$0		$0
PROJECT COORDINATOR	$45,313							$453		$45,766
TECHNICAL ASSISTANT	$20,475							$205		$20,680
PART-TIME SECRETARY	$3,900							$39		$3,939
EMPLOYEE BENEFITS								$0		$0
EMPLOYERS FICA & WORK. COMP.	$5,308							$53		$5,361
TRAVEL								$0		$0
PER DIEM	$25							$0		$25
VEHICLE EXPENSE							$5,000			$5,000
TASK 4 - SECURE OFFICE							$0	$0		$0
OFFICE RENT & INDIRECT EXPENSE	$7,519						$3,000	$75		$10,594
SUB-TOTAL	**$82,540**	**$0**	**$0**	**$0**	**$0**	**$0**	**$8,000**	**$825**	**$0**	**$91,365**
GOAL 1 - OBJECTIVE 2							$0	$0		$0
TASK 5 - IMPLEMENT RESIDUE MGMT.							$0	$0		$0
2200 AC./YR. & CROPLAND CRP							$0	$0	$125,000	$125,000
TASK 6 - IMPLEMENT RANGE IMPROV.							$0	$0		$0
WATER FACILITIES DEVELOPMENT							$0	$0		$0
WELLS	$25,451			$26,250		$25,851	$11,633	$517	$1,163	$90,865
PIPELINES	$9,921			$45,472		$18,464	$11,079	$554	$1,108	$86,598
TANKS	$1,537	$472				$670	$402	$20	$40	$3,141
LIVESTOCK PONDS	$13,350			$218,451	$12,523	$81,441	$48,865	$2,443	$6,515	$383,589
FENCING	$481			$4,446		$1,642	$985	$49	$131	$7,735
BANK STABILIZATION STRUCTURES	$3,097					$1,032	$619	$31	$83	$4,862
LIVESTOCK WINDBREAK STRUCT.	$2,962					$987	$592	$30	$59	$4,631
GRAZING RESOURCE MANAGEMENT							$0	$0	$83,264	$83,264
PASTURE & HAYLAND PLANTING	$620			$8,506		$3,042	$1,825	$91	$122	$14,206
GOAL 1 OBJECTIVE 3							$0	$0	$0	$0
TASK 7 - REDUCE CROPLAND EROSION							$0	$0		$0
EROSION CONTROL STRUCTURES	$14,033			$11,438		$8,490	$5,094	$255	$679	$39,989
TASK 8 - REDUCE RANGELAND EROSION							$0	$0		$0
RANGE RENOVATION	$669						$100	$7	$7	$783
WATERSPREADERS						$0	$0	$0	$0	$0
TASK 9 - RIPARIAN ZONE MANAGEMENT							$0	$0		$0
RIPARIAN GRAZING DEFERMENT	$24,327						$3,649	$243	$12,166	$40,385
CRITICAL AREA STRUCTURES						$0	$0	$0	$0	$0
RIPARIAN REVEG. & CRP TREES	$6,135					$2,045	$1,227	$61	$82	$9,550
GOAL 1 OBJECTIVE 4							$0	$0		$0
TASK 10 - INFORMATION & EDUC.							$0	$0		$0
TOURS							$0	$0		$0
PUBLIC/TASK FORCE MEETINGS							$0	$0		$0
WATER QUALITY MONITORING							$0	$0		$0
NEWSLETTERS	$243						$36	$2		$282
ANNUAL & FINAL REPORTS							$0	$0		$0
TOTAL	**$185,366**	**$472**	**$0**	**$314,563**	**$12,523**	**$143,665**	**$94,107**	**$5,129**	**$230,419**	**$986,245**

BAD RIVER PHASE III WATER QUALITY PROJECT AMMENDMENT

BUDGET YEAR 6 7/1/00 - 6/30/01 (ACTUAL)

FUNDING SOURCE	EPA 319	SD DIV. OF CONS.	SD DENR SWRMS	FSA EQIP	SD DEPT OF GF&P	LANDOWNER CASH	NRCS TA IN-KIND	SPONSOR IN-KIND	LANDOWNER IN-KIND	TOTAL
GOAL 1 - OBJECTIVE 1										
TASK 1 - DEVELOP JOB DESCRIPTION								$0		$0
TASK 2 - ADVERTIZE POSITION								$0		$0
TASK 3 - HIRE PERSONNEL								$0		$0
PROJECT COORDINATOR	$45,840							$458		$46,298
TECHNICAL ASSISTANT	$18,720							$187		$18,907
PART-TIME SECRETARY	$2,610							$26		$2,636
EMPLOYEE BENEFITS								$0		$0
EMPLOYERS FICA & WORK. COMP.	$5,782							$58		$5,840
TRAVEL								$0		$0
PER DIEM	$181							$2		$183
VEHICLE EXPENSE	$0						$3,500			$3,500
TASK 4 - SECURE OFFICE							$0	$0		$0
OFFICE RENT & INDIRECT EXPENSE	$8,365						$3,000	$84		$11,449
SUB-TOTAL	**$81,498**	**$0**	**$0**	**$0**	**$0**	**$0**	**$6,500**	**$815**	**$0**	**$88,813**
GOAL 1 - OBJECTIVE 2							$0	$0		$0
TASK 5 - IMPLEMENT RESIDUE MGMT.							$0	$0		$0
2200 AC./YR. & CROPLAND CRP							$0	$0	$250,000	$250,000
TASK 6 - IMPLEMENT RANGE IMPROV.							$0	$0		$0
WATER FACILITIES DEVELOPMENT							$0	$0		$0
WELLS	$13,401		$23,381	$72,845		$36,542	$21,925	$1,096	$2,193	$171,384
PIPELINES			$3,646	$35,751		$13,132	$7,879	$394	$788	$61,591
TANKS			$241	$7,634		$2,625	$1,575	$79	$158	$12,311
LIVESTOCK PONDS	$11,730			$6,622		$6,117	$3,670	$184	$489	$28,813
FENCING				$731		$244	$146	$7	$19	$1,148
BANK STABILIZATION STRUCTURES	$1,770			$16,310		$6,027	$3,616	$181	$482	$28,386
LIVESTOCK WINDBREAK STRUCT.			$2,671			$890	$534	$27	$53	$4,176
GRAZING RESOURCE MANAGEMENT							$0	$0	$85,000	$85,000
PASTURE & HAYLAND PLANTING							$0	$0	$0	$0
GOAL 1 OBJECTIVE 3							$0	$0	$0	$0
TASK 7 - REDUCE CROPLAND EROSION							$0	$0		$0
EROSION CONTROL STRUCTURES	$12,677					$4,226	$2,535	$127	$338	$19,903
TASK 8 - REDUCE RANGELAND EROSION							$0	$0		$0
RANGE RENOVATION							$0	$0	$0	$0
WATERSPREADERS							$0	$0	$0	$0
TASK 9 - RIPARIAN ZONE MANAGEMENT							$0	$0		$0
RIPARIAN GRAZING DEFERMENT	$15,976		$11,851				$4,174	$278	$13,914	$46,193
CRITICAL AREA STRUCTURES							$0	$0	$0	$0
RIPARIAN REVEG. & CRP TREES			$4,252	$69,194		$7,688	$12,170	$734	$811	$94,850
GOAL 1 OBJECTIVE 4							$0	$0		$0
TASK 10 - INFORMATION & EDUC.							$0	$0		$0
TOURS							$0	$0		$0
PUBLIC/TASK FORCE MEETINGS							$0	$0		$0
WATER QUALITY MONITORING							$0	$0		$0
NEWSLETTERS							$0	$0		$0
ANNUAL & FINAL REPORTS							$0	$0		$0
TOTAL	**$137,052**	**$0**	**$46,042**	**$209,087**	**$0**	**$77,491**	**$64,726**	**$3,922**	**$354,245**	**$892,566**

BAD RIVER PHASE III WATER QUALITY PROJECT AMMENDMENT

BUDGET YEAR 7 7/1/02 - 6/30/02 (ACTUAL)

FUNDING SOURCE	EPA 319	SD DIV. OF CONS.	SD DENR SWRMS	FSA - EQIP, WHIP & CRP	SD DEPT OF GF&P	LANDOWNER CASH	NRCS TA IN-KIND	SPONSOR IN-KIND	LANDOWNER IN-KIND	TOTAL
GOAL 1 - OBJECTIVE 1										
TASK 1 - DEVELOP JOB DESCRIPTION								$0		$0
TASK 2 - ADVERTIZE POSITION								$0		$0
TASK 3 - HIRE PERSONNEL								$0		$0
PROJECT COORDINATOR			$43,500					$435		$43,935
TECHNICAL ASSISTANT			$17,751					$178		$17,929
PART-TIME SECRETARY			$4,680					$47		$4,727
EMPLOYEE BENEFITS								$0		$0
EMPLOYERS FICA & WORK. COMP.			$4,989					$50		$5,039
TRAVEL								$0		$0
PER DIEM			$545					$5		$550
VEHICLE EXPENSE							$3,500			$3,500
TASK 4 - SECURE OFFICE							$0	$0		$0
OFFICE RENT & INDIRECT EXPENSE	$91		$6,516				$3,000	$66		$9,673
SUB-TOTAL	**$91**	**$0**	**$77,981**	**$0**	**$0**	**$0**	**$6,500**	**$781**	**$0**	**$85,353**
GOAL 1 - OBJECTIVE 2							$0	$0		$0
TASK 5 - IMPLEMENT RESIDUE MGMT.							$0	$0		$0
2200 AC./YR. & CROPLAND CRP							$0	$0	$250,000	$250,000
TASK 6 - IMPLEMENT RANGE IMPROV.							$0	$0		$0
WATER FACILITIES DEVELOPMENT							$0	$0		$0
WELLS			$77,765	$14,465		$30,743	$18,446	$922	$1,845	$144,186
PIPELINES			$55,762	$27,262		$27,675	$16,605	$830	$1,660	$129,794
TANKS			$7,178	$10,134		$5,771	$3,462	$173	$346	$27,064
LIVESTOCK PONDS			$6,141	$7,433		$4,525	$2,715	$136	$362	$21,311
FENCING			$1,838	$14,616		$5,485	$3,291	$165	$439	$25,833
BANK STABILIZATION STRUCTURES				$12,121		$4,040	$2,424	$121	$323	$19,030
LIVESTOCK WINDBREAK STRUCT.			$2,020			$673	$404	$20	$40	$3,158
GRAZING RESOURCE MANAGEMENT							$0	$0	$90,000	$90,000
PASTURE & HAYLAND PLANTING			$1,885	$3,869		$1,918	$1,151	$58	$77	$8,957
GOAL 1 OBJECTIVE 3							$0	$0	$0	$0
TASK 7 - REDUCE CROPLAND EROSION							$0	$0		$0
EROSION CONTROL STRUCTURES			$31,287			$10,429	$6,257	$313	$834	$49,121
TASK 8 - REDUCE RANGELAND EROSION							$0	$0		$0
RANGE RENOVATION							$0	$0	$0	$0
WATERSPREADERS						$0	$0	$0	$0	$0
TASK 9 - RIPARIAN ZONE MANAGEMENT							$0	$0		$0
RIPARIAN GRAZING DEFERMENT			$44,085				$6,613	$441	$22,043	$73,181
CRITICAL AREA STRUCTURES						$0	$0	$0	$0	$0
RIPARIAN REVEG. & CRP TREES			$3,467	$240,967		$27,749	$40,827	$2,444	$2,722	$318,177
GOAL 1 OBJECTIVE 4							$0	$0		$0
TASK 10 - INFORMATION & EDUC.							$0	$0		$0
TOURS							$0	$0		$0
PUBLIC/TASK FORCE MEETINGS							$0	$0		$0
WATER QUALITY MONITORING			$25				$4	$0		$29
NEWSLETTERS							$0	$0		$0
ANNUAL & FINAL REPORTS							$0	$0		$0
TOTAL	**$91**	**$0**	**$309,434**	**$330,867**	**$0**	**$119,008**	**$108,699**	**$6,404**	**$370,691**	**$1,245,194**

BAD RIVER PHASE III WATER QUALITY PROJECT AMMENDMENT

BUDGET YEAR 8 7/1/02 - 6/30/03 (ACTUAL)

FUNDING SOURCE	EPA 319	SD DIV. OF CONS.	SD DENR SWRMS	FSA - EQIP, WHIP & CRP	SD DEPT OF GF&P	LANDOWNER CASH	NRCS TA IN-KIND	SPONSOR IN-KIND	LANDOWNER IN-KIND	TOTAL
GOAL 1 - OBJECTIVE 1										
TASK 1 - DEVELOP JOB DESCRIPTION								$0		$0
TASK 2 - ADVERTIZE POSITION								$0		$0
TASK 3 - HIRE PERSONNEL								$0		$0
PROJECT COORDINATOR	$5,438		$36,250					$417		$42,105
TECHNICAL ASSISTANT	$780		$13,747					$145		$14,672
PART-TIME SECRETARY	$476		$4,290					$48		$4,814
EMPLOYEE BENEFITS								$0		$0
EMPLOYERS FICA & WORK. COMP.			$4,806					$48		$4,854
TRAVEL								$0		$0
PER DIEM								$0		$0
VEHICLE EXPENSE							$3,500			$3,500
TASK 4 - SECURE OFFICE							$0	$0		$0
OFFICE RENT & INDIRECT EXPENSE	$572		$7,016				$3,000	$76		$10,664
SUB-TOTAL	**$7,266**	**$0**	**$66,109**	**$0**	**$0**	**$0**	**$6,500**	**$734**	**$0**	**$80,609**
GOAL 1 - OBJECTIVE 2							$0	$0		$0
TASK 5 - IMPLEMENT RESIDUE MGMT.							$0	$0		$0
2200 AC./YR/ & CROPLAND CRP				$4,921			$738	$49	$250,000	$255,708
TASK 6 - IMPLEMENT RANGE IMPROV.							$0	$0		$0
WATER FACILITIES DEVELOPMENT							$0	$0		$0
WELLS			$3,746			$1,249	$749	$37	$75	$5,856
PIPELINES			$22,974	$26,771		$16,582	$9,949	$497	$995	$77,768
TANKS			$7,782	$3,478		$3,753	$2,252	$113	$225	$17,603
LIVESTOCK PONDS				$26,587		$8,862	$5,317	$266	$709	$41,742
FENCING			$4,843			$1,614	$969	$48	$129	$7,604
BANK STABILIZATION STRUCTURES							$0	$0	$0	$0
LIVESTOCK WINDBREAK STRUCT.	$503		$4,602			$1,702	$1,021	$51	$102	$7,981
GRAZING RESOURCE MANAGEMENT							$0	$0	$90,000	$90,000
PASTURE & HAYLAND PLANTING				$5,429		$1,810	$1,086	$54	$72	$8,451
GOAL 1 OBJECTIVE 3							$0	$0	$0	$0
TASK 7 - REDUCE CROPLAND EROSION							$0	$0		$0
EROSION CONTROL STRUCTURES				$27,300	$30,000	$19,100	$11,460	$573	$1,528	$89,961
TASK 8 - REDUCE RANGELAND EROSION							$0	$0		$0
RANGE RENOVATION							$0	$0	$0	$0
WATERSPREADERS							$0	$0	$0	$0
TASK 9 - RIPARIAN ZONE MANAGEMENT							$0	$0		$0
RIPARIAN GRAZING DEFERMENT			$34,320				$5,148	$343	$17,160	$56,971
CRITICAL AREA STRUCTURES							$0	$0	$0	$0
RIPARIAN REVEG. & CRP TREES			$1,408	$141,392		$15,538	$23,751	$1,428	$1,583	$185,100
GOAL 1 OBJECTIVE 4							$0	$0		$0
TASK 10 - INFORMATION & EDUC.							$0	$0		$0
TOURS							$0	$0		$0
PUBLIC/TASK FORCE MEETINGS							$0	$0		$0
WATER QUALITY MONITORING							$0	$0		$0
NEWSLETTERS							$0	$0		$0
ANNUAL & FINAL REPORTS							$0	$0		$0
TOTAL	**$7,769**	**$0**	**$145,784**	**$235,878**	**$30,000**	**$70,210**	**$68,940**	**$4,194**	**$362,579**	**$925,354**

BAD RIVER PHASE III WATER QUALITY PROJECT AMMENDMENT

BUDGET YEAR 9 7/1/03 - 12/31/04 (ACTUAL)

FUNDING SOURCE	EPA 319	SD DIV. OF CONS.	SD DENR SWRMS	FSA - EQIP, WHIP & CRP	SD DEPT OF GF&P	LANDOWNER CASH	NRCS TA IN-KIND	SPONSOR IN-KIND	LANDOWNER IN-KIND	TOTAL
GOAL 1 - OBJECTIVE 1										
TASK 1 - DEVELOP JOB DESCRIPTION								$0		$0
TASK 2 - ADVERTIZE POSITION								$0		$0
TASK 3 - HIRE PERSONNEL								$0		$0
PROJECT COORDINATOR	$18,093							$181		$18,274
TECHNICAL ASSISTANT	$3,979							$40		$4,019
PART-TIME SECRETARY	$8,060							$81		$8,141
EMPLOYEE BENEFITS										$0
EMPLOYERS FICA & WORK. COMP.	$2,503							$25		$2,528
TRAVEL								$0		$0
PER DIEM	$150							$2		$152
VEHICLE EXPENSE							$3,500	$0		$3,500
TASK 4 - SECURE OFFICE										
OFFICE RENT & INDIRECT EXPENSE	$3,019						$3,000	$30		$6,049
SUB-TOTAL	**$35,804**	**$0**	**$0**	**$0**	**$0**	**$0**	**$6,500**	**$358**	**$0**	**$42,662**
GOAL 1 - OBJECTIVE 2							$0	$0		$0
TASK 5 - IMPLEMENT RESIDUE MGMT.							$0	$0		$0
2200 Ac./Yr. & CROPLAND CRP				$10,733			$1,610	$107	$250,000	$262,450
TASK 6 - IMPLEMENT RANGE IMPROV.										
WATER FACILITIES DEVELOPMENT										
WELLS	$56,600					$18,867	$11,320	$566	$1,132	$88,485
PIPELINES	$56,683			$24,553		$27,079	$16,247	$812	$1,625	$126,999
TANKS	$7,194			$12,732		$6,642	$3,985	$199	$399	$31,151
LIVESTOCK PONDS	$14,670		$1,287	$1,247		$5,735	$3,441	$172	$459	$27,010
FENCING				$4,494		$1,498	$899	$45	$120	$7,056
BANK STABILIZATION STRUCTURES							$0	$0	$0	$0
LIVESTOCK WINDBREAK STRUCT.	$6,223					$2,074	$1,245	$62	$124	$9,729
GRAZING RESOURCE MANAGEMENT							$0	$0	$100,000	$100,000
PASTURE & HAYLAND PLANTING							$0	$0	$0	$0
GOAL 1 OBJECTIVE 3										
TASK 7 - REDUCE CROPLAND EROSION										
EROSION CONTROL STRUCTURES					$21,192	$3,744	$3,740	$212	$127	$29,015
TASK 8 - REDUCE RANGELAND EROSION										
RANGE RENOVATION							$0	$0	$0	$0
WATERSPREADERS							$0	$0	$0	$0
TASK 9 - RIPARIAN ZONE MANAGEMENT										
RIPARIAN GRAZING DEFERMENT	$34,320						$5,148	$343	$17,160	$56,971
CRITICAL AREA STRUCTURES						$0	$0	$0	$0	$0
RIPARIAN REVEG. & CRP TREES	$248			$187,577		$22,173	$31,500	$1,878	$2,100	$245,476
GOAL 1 OBJECTIVE 4										
TASK 10 - INFORMATION & EDUC.										
TOURS							$0	$0		$0
PUBLIC/TASK FORCE MEETINGS							$0	$0		$0
WATER QUALITY MONITORING							$0	$0		$0
NEWSLETTERS							$0	$0		$0
ANNUAL & FINAL REPORTS							$0	$0		$0
TOTAL	**$211,742**	**$0**	**$1,287**	**$241,336**	**$21,192**	**$87,811**	**$85,635**	**$4,756**	**$373,245**	**$1,027,004**

Appendix B

BAD RIVER

WATER QUALITY PROJECT

Phase III

Partnering Up!

Local Landowners

Stanley County Conservation District

Stanley County Commission

SD Department of Environment & Natural Resources

SD Department of Agriculture

SD Department of Game, Fish & Parks

North Central Resource Conservation & Development

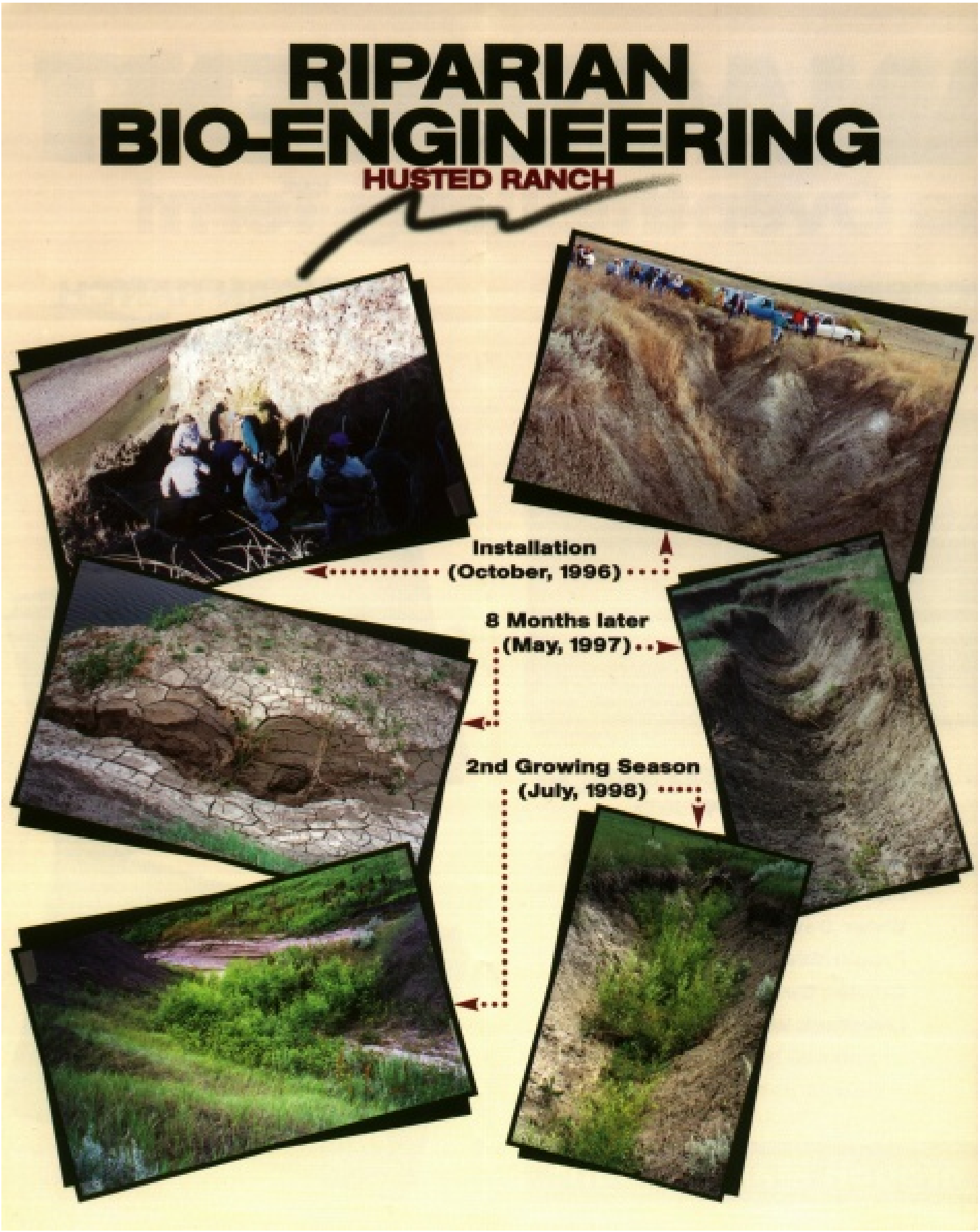
USDA Natural Resources Conservation Service

USDA Farm Service Agency

US Fish & Wildlife Service

US Forest Service

US Environmental Protection Agency

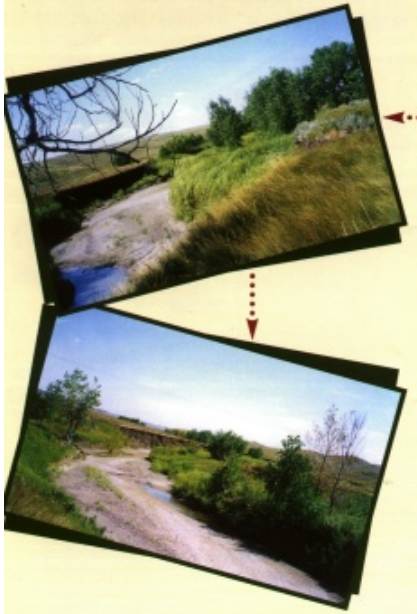

RIPARIAN
BIO-ENGINEERING
HUSTED RANCH
Installation
(October, 1996)
8 Months later
(May, 1997)
2nd Growing Season
(July, 1998)

RIPARIAN MANAGEMENT

Increased Effectiveness Over the Long Term

WEBB RANCH

10 Years — Late Fall Use

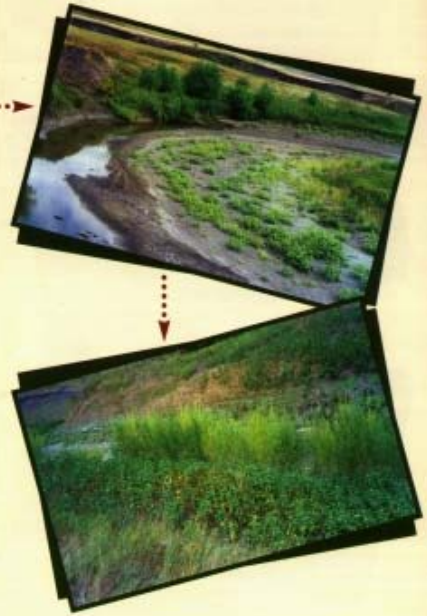


WILLOW CREEK

Note Trees in Riparian Zone

HALLIGAN RANCH

4 Years — Deferred Grazing



WEBB RANCH
BMP'S APPLIED

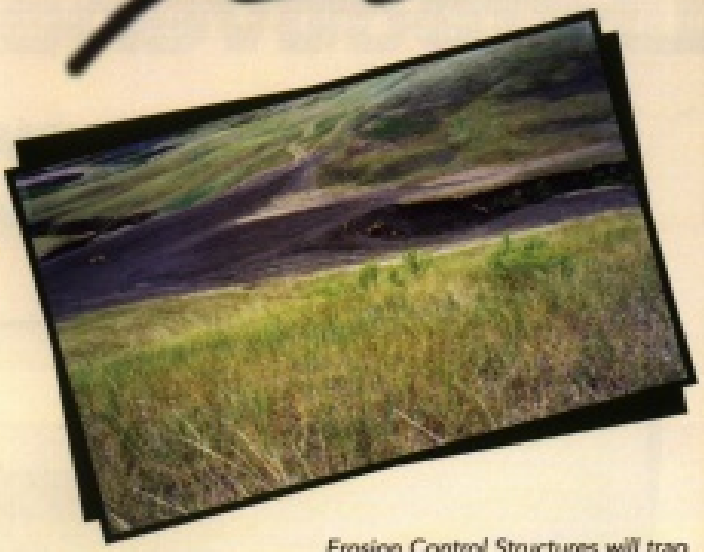
- Riparian Fencing
- Water Development
- Proper Grazing Use
- Planned Grazing System
- Streambank Stabilization
- Erosion Control Structures
- Rotational Deferred Grazing
- Livestock Windbreak Structures

HALLIGAN RANCH
BMP'S APPLIED

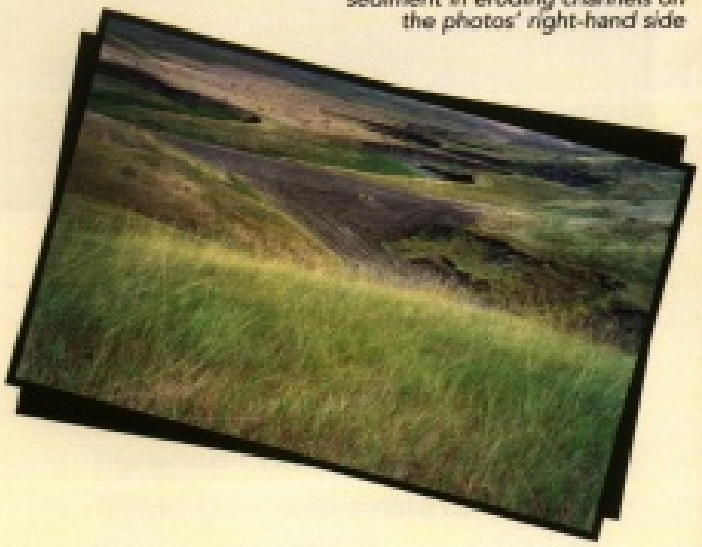
- Deferred Grazing
- Riparian Fencing
- Water Development
- Proper Grazing Use
- Erosion Control Structures
- Livestock Windbreak Structures

Natural Revegetation Through Management

RIPARIAN
MECHANICAL TREATMENT



Erosion Control Structures will trap sediment in eroding channels on the photos' right-hand side



For Additional Information Contact:

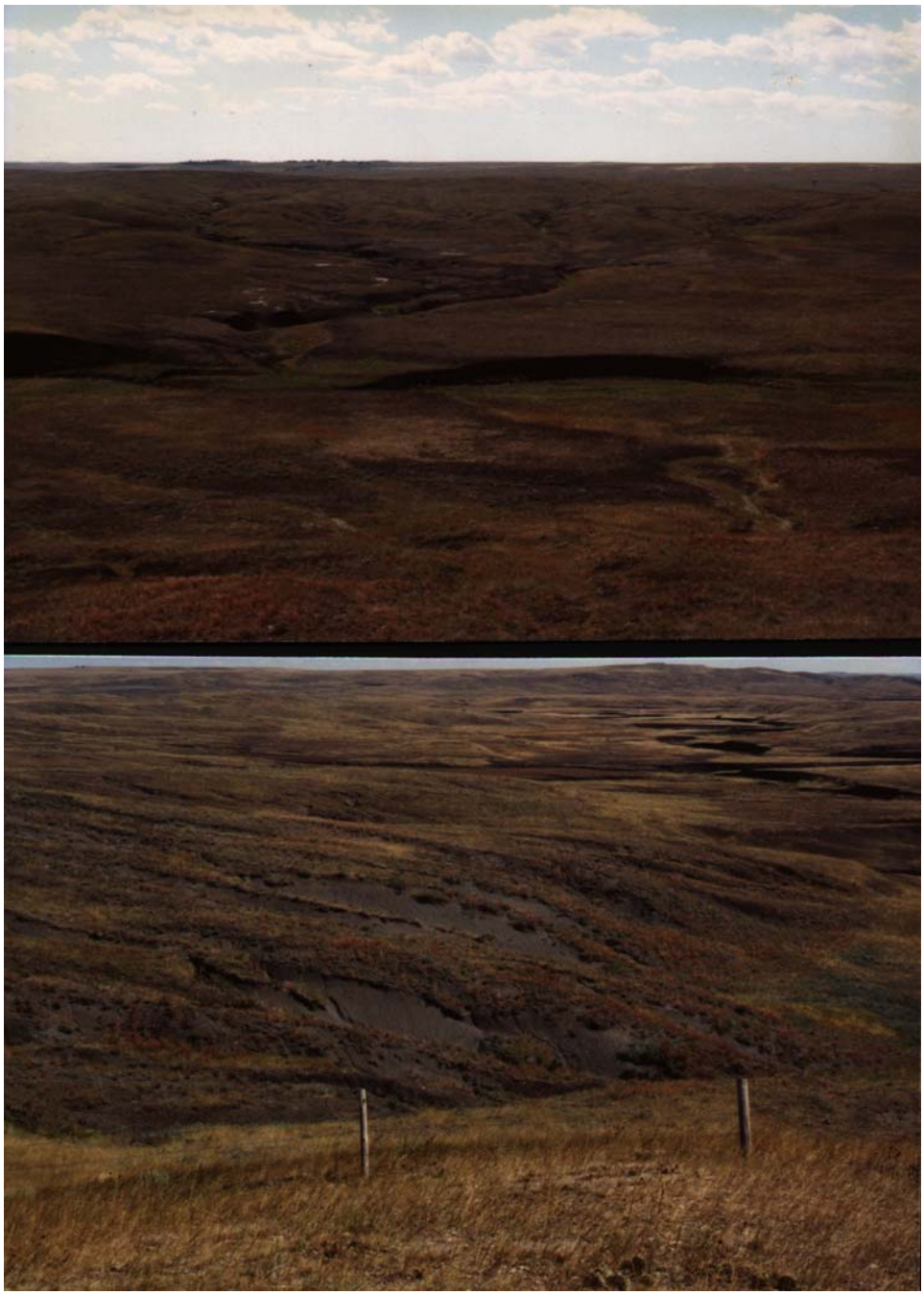
STANLEY COUNTY
CONSERVATION DISTRICT
Bad River Water Quality Project
PO Box 98 • Fort Pierre, South Dakota 57532
(605) 223-2253 • fax (605) 224-6689

Programs and services are offered on a nondiscriminatory basis

Appendix C

Bad River Winter View

The above pictures of winter in the Bad River bottom give an indication of the abrupt change in elevation from the river bottom to the breaks area leading to the upland areas.



Typical Range Sites

The pictured range sites give an indication of the types of soils that are typical to this region of the Bad River Watershed. A large portion of the sites are shallow clay range sites close to shale outcrop or dense clayey bottoms. The areas of the pictures where there is no vegetation is growing are extremely susceptible to winter freeze thaw action and become highly erodible when sufficient moisture for runoff becomes available.

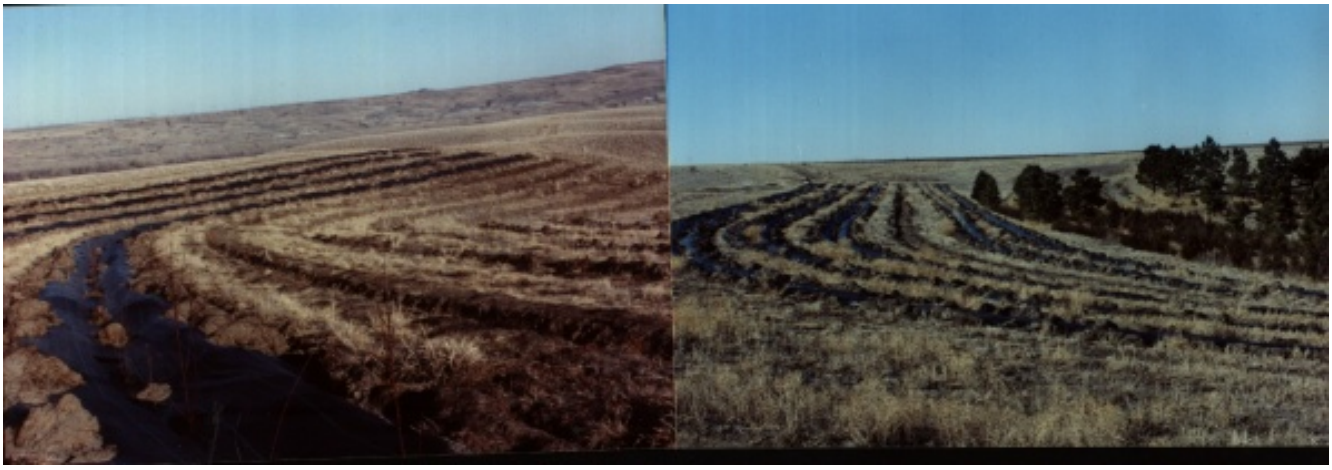
Sediment Sources

Sediment delivery comes from a variety of sources. They include stream bank erosion in times of high stream flow, over grazing of fragile rangeland and wind erosion of inadequately protect croplands. The lower pictures show the results of wind erosion as a result of an abnormal winter wind event in Stanley County. Erosion assessment data indicates that while cropland erosion is a problem, it is not a major contributor of the sediment being delivered to the Bad River. The major source is from rangeland.

Bad River Sediment Delivery

The above photographs illustrate sediment delivery from the Bad River into Lake Sharpe, a Missouri River mainstem reservoir. The mouth of the Bad River is located on the left hand side of the photographs. LaFramboise Island and the city of Pierre are shown directly across the river on the right hand side of the photographs. Oahe Dam and reservoir are located approximately six miles upriver from the mouth of the Bad River and can be seen in the uppermost parts of the photographs.

Typical BMPs to Address Concerns



Livestock Windbreak Shelters

Prior page photographs show typical fabricated livestock windbreak structures which were cost-shared with landowners within the project. They were constructed to facilitated location of wintering livestock from the river bottoms, which was traditional, to upland areas where possible. The photographs on this page illustrate new and improved tree plantings to provide for livestock protection.

Range Renovation

A large renovator was purchased by the project to facilitate rangeland aeration. This method of renovation was much less invasive than previous methods. It allowed for opening the range site for increased moisture penetration and fracturing of the underground hardpan to enhance moisture uptake and storage.

Riparian Revegetation by Hand Planting

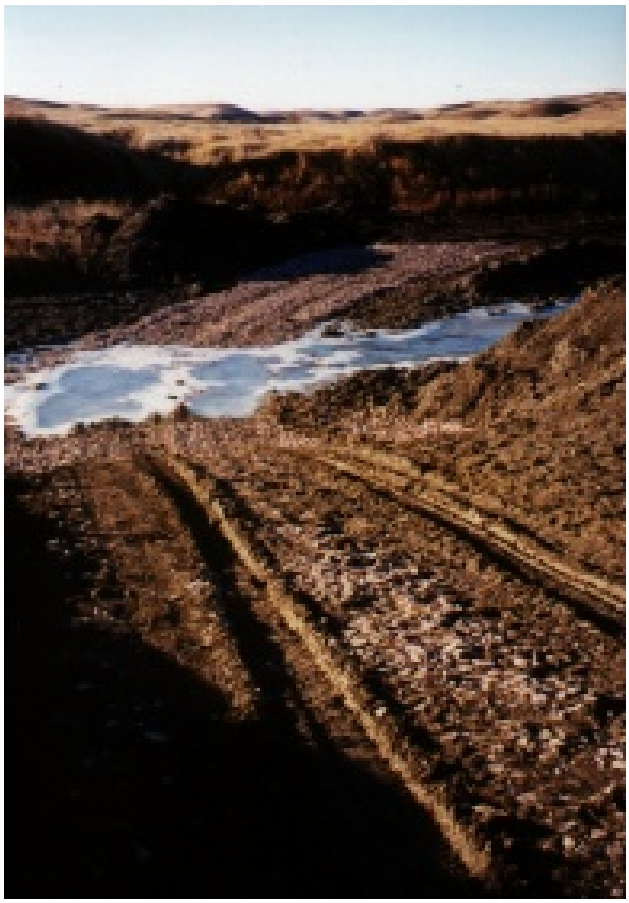
Riparian hand planting of trees and grass species was conducted in areas where natural vegetation was non-existent.

Riparian Revegetation

The preceding photographs give and indication of what riparian management can accomplish within a drainage area. The upper right hand photograph shows a cut bank area directly above and adjacent to the area of the other three photographs. The upper left hand and lower photographs illustrate what riparian deferment with installation of livestock exclusion fencing can do to protect a riparian zone.

Erosion Control Structures

Erosion control structures were a common practice. They were designed to be multi-use structures. In addition to erosion control (sediment retention) they provide a water source for livestock and wildlife.



Critical Area Structures (stream crossings)

Crossings on streams to minimize stream bank erosion were install in many areas of the watershed. They provide a low water crossing for livestock and vehicles that does not add to the erosion problems. It is critical that stream hydrology is known. This is necessary to insure that the crossings continue functioning and are not constructed in areas where sediment will deposit. Livestock will travel over one mile to utilize the crossings. The aggregate that is utilized provides of solid crossing bottom.

Appendix D

Project Information & Education

HUGHES & STANLEY COUNTY

CONSERVATION DISTRICT

316 South Coteau - Suite 103
Pierre, SD 57501-3109

Published Quarterly • April 2002

Phone (605) 224-1694, ext. 3
Fax (605) 224-6689

A Job Well Done . . .

My lifetime goal was to plant 100 acres of trees on my farm. I am at 120 acres right now and I am not done planting so I'm going to have to rethink that goal." That statement by Lee Kleinschmidt accurately summarizes the tree planting activity on the Kleinschmidt farm throughout the past few years.

The Kleinschmidt Farm is located 29 miles east of Pierre on highway 34 and 6 miles north. The headquarters is on Chapelle Creek and has abundant activity during the calving season. Lee began farming in the early 1970's with his father and started farming his "own" land in 1983. His wife, Dawn, and their children, Benson, Summer, April, Jonathon Fanger and Varlerie Marso, (Mrs. Brian Marso of Harrold) all help. Oh yes, we cannot forget the youngest, which is granddaughter Sydney.

They annually calve 300 Limousine cross cows that have been bred to Hereford bulls. The calves are fed until February before being sold. Lee feels his breeding program provides an excellent calf with a high birth success rate that matures well and is easily marketed. The other half of the Kleinschmidt farm is wheat, sunflowers, corn and annual forage for the livestock. There are also about 640 acres in the grassland CRP.

Continued on page 2

Another Job Well Done . . .

The Clifford and Peggy Tibbs Ranch consists of two grazing units that are separated by nearly thirty miles (cross-country). The headquarters and primary calving ranch is located on the east side of Mission Ridge about four miles south of the Cheyenne River. They winter graze and calve about 180 cows at the headquarters. Most of the cropland is located here as well, which provides much of the forage used for the wintering herd.

Continued on page 2

INSIDE THIS ISSUE...

This newsletter is aimed at providing up-to-date information about conservation issues affecting county residents. Please take the time to let us know what you think of this publication and any topics you would like to read about in future issues by calling 224-1694, ext. 3.

PUBLISHED QUARTERLY APRIL 2002

Kleinschmidt . . .

continued from page 1

The farm will be seeing several changes in the next few years. A recent contract with the US Fish and Wildlife Service will install two new livestock water ponds, a cross fence and a new grazing rotation to help improve the grass vigor. (See the article "New Cost Share Programs available" in this issue). The calving pastures will have more trees planted in addition to the fifteen acres that are scheduled to be installed this spring and in 2003. And their newest venture, The Pheasant Crossing, offers wild pheasant, grouse, partridge and late season goose hunts. For more information on The Pheasant Crossing, go to www.pheasantcrossing.com.

Well done Lee, Dawn and family.

Tibbs . . .

continued from page 1

The second grazing unit is located about six miles south of highway 14/34 in the west-central part of Stanley County. This unit is comprised of 6,000 acres of deeded grazing land and two other ranches that are leased. Clifford's son, Darren, and his wife Kelly, live near the south ranch and help calve the remaining 100 cows.

During summer grazing, the 280 cows are run together. In late October, the calves are sold right of the cows, and the cowherd is divided for winter grazing.

The south deeded land encompasses about three miles of the lower end of Plum Creek where the Bad River Water Quality Project initially started. This land is divided into four pastures and uses a rest/rotation type grazing pattern. The result is maximum forage production, while sustaining the range land resource.

Ranchers like the Tibbs', are managing their grasslands in the best manner possible and are the primary reason that the water quality in Bad River is improving each year. A job well done!

TANK SPRAYER FOR RENT

Once again, the Hughes County Conservation District is offering their 300-gallon tank sprayer for private use. The sprayer will be available on a first come first serve basis. The sprayer will rent for $50.00 per day and features:

- 24' Yamaha, height adjustable spray-boom.
- 5.5 hp Honda motor with pump.
- Mechanical boom control valve.
- Adjustable wheel width to accommodate any row crop spacing.
- Easy towing with pickup or tractor.

Call (605) 224-1694 ext. 3 to add your name to the list!

Bad River Water Quality Project Success

Ranchers along the Bad River are to be commended for their efforts to reduce erosion. The monitoring station at the mouth of the Bad River shows a sediment decrease of nearly 40% which exceeds the expectations for the Bad River Water Quality Project.

The BRWQP began in July of 1990 following the completion of the assessment. Emphasis was initially placed on the Plum Creek Watershed. In 1995 the project was expanded to include all of the Bad River and Antelope Creek watersheds in Stanley County. In 1999 part of Jones County was included.

Sediment being delivered to Lake Sharpe from Bad River is on a steady decline. The Lake Sharpe goal for reduction of sediment delivery was 30% from the Bad River.

Results documented by the United States Geological Survey (USGS) are:

Plum Creek

- 1990-92 – Runoff was 10,670 acre feet with 49.03 tons of sediment/ac-ft annually.
- 1993-95 – Runoff was 27,820 acre feet with 10.2 tons of sediment/ac-ft annually.

While annual runoff increased by 261%, sediment was reduced by 79%.

At Ft. Pierre

- 1972-77 – Runoff was 73,650 acre feet with 22.73 tons sediment/ac.-ft annually.
- 1978-94 – Runoff was 104,200 acre feet with 17.93 tons sediment/ac.-ft annually.
- 1995-2000 – Runoff was 267,800 acre feet with 13.77 tons sediment/ac.-ft annually.

When comparing the first six years of data with the last six years, there was a 364% increase in runoff with a 39% decrease in sediment. When comparing the first 23 years with the last six years there was a 274% increase in runoff with a 31% decrease in sediment.

The credit for this success goes entirely to the cooperating landowners and operators. It proves that voluntary programs with proper incentives do work..

This project is gaining national acclaim due to its large size and the demonstrated success. Is the Bad River clean? Not by any means; but it is getting better, faster than thought possible.

STANLEY COUNTY CONSERVATION DISTRICT
2001 ANNUAL REPORT

MISSION STATEMENT: The Stanley County Conservation District is committed to assist the people of our community by helping to manage our natural resources.

TREE PROGRAM: District staff planted 54.8 acres of trees and shrubs. The district also applied fabric on 24.8 miles of the trees planted. Approximately 4,800 hand plant trees were sold to area residents.

EDUCATION: A large quarterly newsletter was maintained and shared with Hughes County. Funding to continue and finance the newsletter was achieved through the sale of business card-size ads to area businesses.

The District also participated in the NACD Poster Contest. Local winners include Micah Palmer, grades K-1, Trevor Swanson, grades 2-3, and Evan Fuller, grades 4-6. These three students were submitted to the state contest. Trevor Swanson received first place recognition at the state level, and his poster was forwarded to the national contest.

CRP: Stanley County currently has 41,775.8 acres in the CRP program, according to the Farm Service Agency.

GRASS DRILLS: The district rented their drills to landowners and seeded approximately 87.5 acres.

BAD RIVER WATER QUALITY PROJECT ACTIVITIES:

Erosion Control Structures	3	Grade Stabilization Structures	8
Rotational Grazing	1,355 acres	Livestock Windbreak Structures	3
Riparian Vegetation Sites	3	Riparian Deferred Grazing	10,214 acres
No-Till Cropland	25,000 acres	Grassed Waterway Seeding	5280 ft.
Cross Fencing	20,181 ft.	Pasture & Hay-land Planting	184 acres
Livestock tanks	11	Pipeline	41,224 ft.
Wells	9	Range Renovation	235 acres

Hughes District Purchases New Equipment

Due to the increased interest in planting trees, the district purchased a JD 3020 tractor and a new Wolters Welding Tree Planter. This new equipment will enable Hughes County to keep two planting crews and two fabric applicating crews up and running.

Information and Education

The first four pages of this section are an example of the newsletter that is sponsored cooperatively by the Stanley and Hughes County Conservation Districts. This newsletter is mailed to approximately 650 households in the counties. Reports on the project were regularly published in the newsletter. Project cooperators who were involved in the Project were highlighted in the newsletter as the example show. Project progress was also reported in the newsletter.

Public tours were also a part of the project. They included group tours as well as tours given to individuals who expressed interest in project activities.

Appendix E

Bad River Water Quality Project

Summary of Applied Practices
Phase II (7/90 thru 4/95) & Phase III (5/95 thru 12/04)

Practice	Phase II	Phase III	Total
Rangeland:			
1. Planned Grazing Systems	35,511 ac.	108,305 ac.	143,816 ac.
2. Proper Grazing Use	72,794 ac.	151,361 ac.	224,155 ac.
3. Deferred Grazing	7,397 ac.	12,252 ac.	19,649 ac.
4. Cross Fencing	48,787 ft.	176,846 ft.	225,653 ft.
5. Livestock Wells	8 ea.	23 ea.	31 ea.
6. Pipelines	218,480 ft.	300,785 ft.	519,265 ft.
7. Tanks	64 ea.	83 ea.	147 ea.
8. Livestock Ponds	7 ea.	72 ea.	79 ea.
9. Livestock Windbreak Struct.	15 ea.	32 ea.	47 ea.
10. Range Seedings	210 ac.	2149 ac.	2359 ac.
11. Riparian Revegetation	2 ea.	23 ea.	25 ea.
12 Water Spreaders	3 ea.		3 ea.
13. Erosion Control Structures	16 ea.	48 ea.	64 ea.
14. Farmstead & Feedlot W.B.	1,589 rr.		1,589 rr.
15. Wildlife Habitat Management	10,191 ac.		10,191 ac.
16. Critical Area Structures		7 ea.	7 ea.
Cropland:			
1. Stripcropping	4,113 ac.		4,113 ac.
2. Grassed Waterways	3 ac.		3 ac.
3. Cropland Wind Strips	400 ac.		400 ac.
4. Conservation Tillage	16,878 ac.	52,500 ac.	70,378 ac.
5. Cropland Reserve Program	22,169 ac.	25,000 ac.	57,169 ac.
6. Conservation Compliance	76,641 ac.	52,500 ac.	129,141 ac.