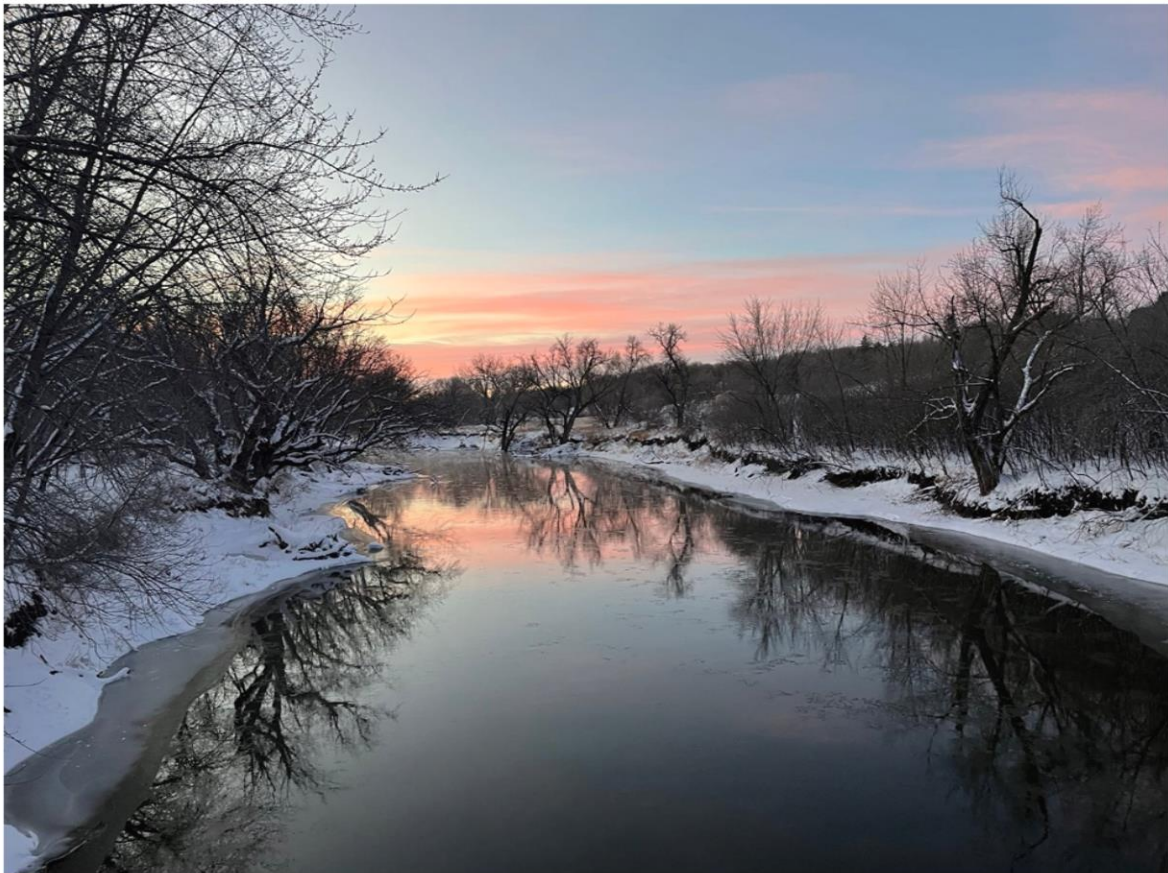


Draft
Big Sioux River Watershed Conservation Reserve
Enhancement Program
Programmatic Environmental Assessment

May 2022



**Prepared for South Dakota Game, Fish, and Parks on behalf of
U.S. Department of Agriculture Farm Service Agency**



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COVER PAGE

Proposed Action: The United States Department of Agriculture (USDA), Commodity Credit Corporation (CCC) and the South Dakota Department of Game, Fish, and Parks propose to implement the Big Sioux River Watershed Conservation Reserve Enhancement Program (BSRW CREP), a component of the Conservation Reserve Program (CRP). USDA is provided the statutory authority by the provisions of the Food Security Act of 1985, as amended (16 United States Code [USC] 3830 et seq.), and the Regulations at 7 Code of Federal Regulations (CFR) 1410. In accordance with the 1985 Act and the Agricultural Improvement Act of 2018 (Public Law [PL] 115-334; the 2018 Farm Bill), USDA/CCC is authorized to enroll lands. The Farm Service Agency (FSA) would administer the BSRW CREP on behalf of the CCC. CREP is a voluntary land conservation program for agricultural producers.

Type of Document: Programmatic Environmental Assessment (PEA)

Lead Agency: USDA, Farm Service Agency (on behalf of CCC)

Sponsoring Agency: South Dakota Department of Game, Fish, and Parks

Further Information: For further information, please contact:

Mr. Steven Littlefield, State Environmental Coordinator
FSA SD State Office
200 Fourth Street, Room 308
Huron, SD 57350

Comments: This Draft PEA has been prepared in accordance with the National Environmental Policy Act (NEPA) (PL 91-190); implementing regulations adopted by the Council on Environmental Quality (CEQ) (40 CFR 1500-1508); and FSA's implementing regulations, Environmental Quality and Related Environmental Concerns – Compliance with NEPA (7 CFR 799). A hard copy of this Draft PEA can be reviewed at the FSA SD State Office (address below).

Written comments regarding this assessment shall be submitted to:

Mr. Steven Littlefield, State Environmental Coordinator
FSA SD State Office
200 Fourth Street, Room 308
Huron, SD 57350

Or emailed to: steven.littlefield@usda.gov

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LIST OF ACRONYMS AND ABBREVIATIONS

APE	Area of Potential Effects
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
BMP	best management practice(s)
BSRW	Big Sioux River Watershed
CCC	Commodity Credit Corporation
CEC	Commission for Environmental Cooperation
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
COC	Community of Comparison
CP	Conservation Practice
CRP	Conservation Reserve Program
CREP	Conservation Reserve Enhancement Program
CWA	Clean Water Act
EA	Environmental Assessment
EE	Environmental Evaluation
EIS	Environmental Impact Statement
EO	Executive Order
ERS	Economic Research Service
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FOTG	Field Office Technical Guide
FSA	Farm Service Agency
GHG	Greenhouse gas(es)
GIS	Geographic Information Systems
lbs.	pounds
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NASS	National Agricultural Statistic Service
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
N ₂ O	nitrous oxide
NO ₂	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O ₃	ozone
Pb	lead
PEA	Programmatic Environmental Assessment
PM _{2.5}	respirable particulate matter (including particulates equal to or less than 2.5 microns in diameter)
PM ₁₀	respirable particulate matter (including particulates equal to or less than 10 microns in diameter)
PNS	primary nesting season
ROI	region of influence
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SD	South Dakota
SDDANR	South Dakota Department of Agriculture and Natural Resources
SDGFP	South Dakota Game, Fish, and Parks
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Office

SIP	State Implementation Plan
SO ₂	sulfur dioxide
STEPL	Spreadsheet Tool for Estimating Pollutant Loads
TCP	Traditional Cultural Property
TMDL	Total Maximum Daily Loads
TSP	Technical Service Provider
TDS	total dissolved solids
TSS	total suspended solids
U.S.C.	United States Code
US	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFS	United States Forest Service
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

1.0 INTRODUCTION

The United States Department of Agriculture (USDA) Commodity Credit Corporation (CCC) in cooperation with the South Dakota (SD) Department of Game, Fish and Parks (SDGFP) propose to implement the Big Sioux River Watershed (BSRW) Conservation Reserve Enhancement Program (CREP) in South Dakota. This Programmatic Environmental Assessment (PEA) describes the potential environmental consequences resulting from the implementation of the proposed BSRW CREP Agreement. The environmental analysis process is designed to ensure the public is involved in the process and informed about the potential environmental effects of the federal action and to help decision makers take environmental and socioeconomic factors into consideration when making decisions related to the Proposed Action.

1.1 BACKGROUND

On behalf of the CCC, the USDA Farm Service Agency (FSA) administers the Conservation Reserve Program (CRP), the federal government's largest private-lands conservation program. CRP is a voluntary program that supports the implementation of long-term conservation measures designed to improve the quality of ground and surface waters, control soil erosion, and enhance wildlife habitat on environmentally sensitive agricultural land. There are about 305,000 acres currently enrolled in CRP in the BSRW CREP counties (refer to **Figure 1-1** that displays SD counties); enrollment statistics are presented in **Appendix A**.

CREP was established in 1997 under the authority of the CRP to address agriculture related environmental issues by establishing conservation practices (CPs) on agricultural lands using funding from federal, state, and tribal governments as well as non-government sources. CREP addresses state designated high priority conservation issues in defined geographic areas such as watersheds. Producers who voluntarily enroll their eligible lands in CREP receive financial and technical assistance for establishing CPs on their land. In addition, property owners receive annual rental payments based upon the enrolled acreage. Once eligible lands are identified, site-specific environmental reviews and consultation with and permitting from other federal agencies are completed as appropriate in accordance with FSA's Handbook: Agricultural Resource Conservation Program for State and County Offices (FSA, 2021a).

There are 3.8 million acres within the BSRW that includes parts of 18 counties (Marshall, Roberts, Day, Grant, Clark, Codington, Hamlin, Deuel, Kingsbury, Brookings, Lake, Moody, McCook, Minnehaha, Turner, Lincoln, Clay, and Union) in eastern South Dakota. The BSRW CREP would initially enroll 25,000 acres with a future goal of enrolling a maximum of 100,000 acres of cropland and marginal pastureland within the watershed that would be voluntarily enrolled with CPs established. See **Figure 1-1** for the boundaries of the BSRW.

The BSRW is located in eastern South Dakota. The lower portion of the river forms the Iowa-South Dakota border. The basin drains an approximate 5,382 square miles in South Dakota and an additional 3,000 square miles in Minnesota and Iowa. The basin's primary economic activity is agriculture, but it also contains much of the state's light manufacturing, food processing, and wholesale industries (SDDENR, 2020a). Agriculture holds partial responsibility for many environmental impacts to waterbodies within the BSRW. The main issues in BSRW streams continue to be *Escherichia coli* bacteria and total suspended solids (TSS). The presence of bacteria in BSRW is mainly due to runoff from livestock operations and wet weather discharges from municipal areas (SDDENR, 2020a). Sediment sources are overland runoff from nearby croplands, inflow from tributaries, and streambank erosion. Lakes in the BSRW are susceptible to rapid changes produced by large nutrient and sediment loads from sizeable agricultural watersheds comprised of glacial soils. Watershed improvement projects within the BSRW, like the one described within this document, are focused on reducing bacteria, sediment, and nutrient loads from both manmade and natural sources (SDDENR, 2020a).

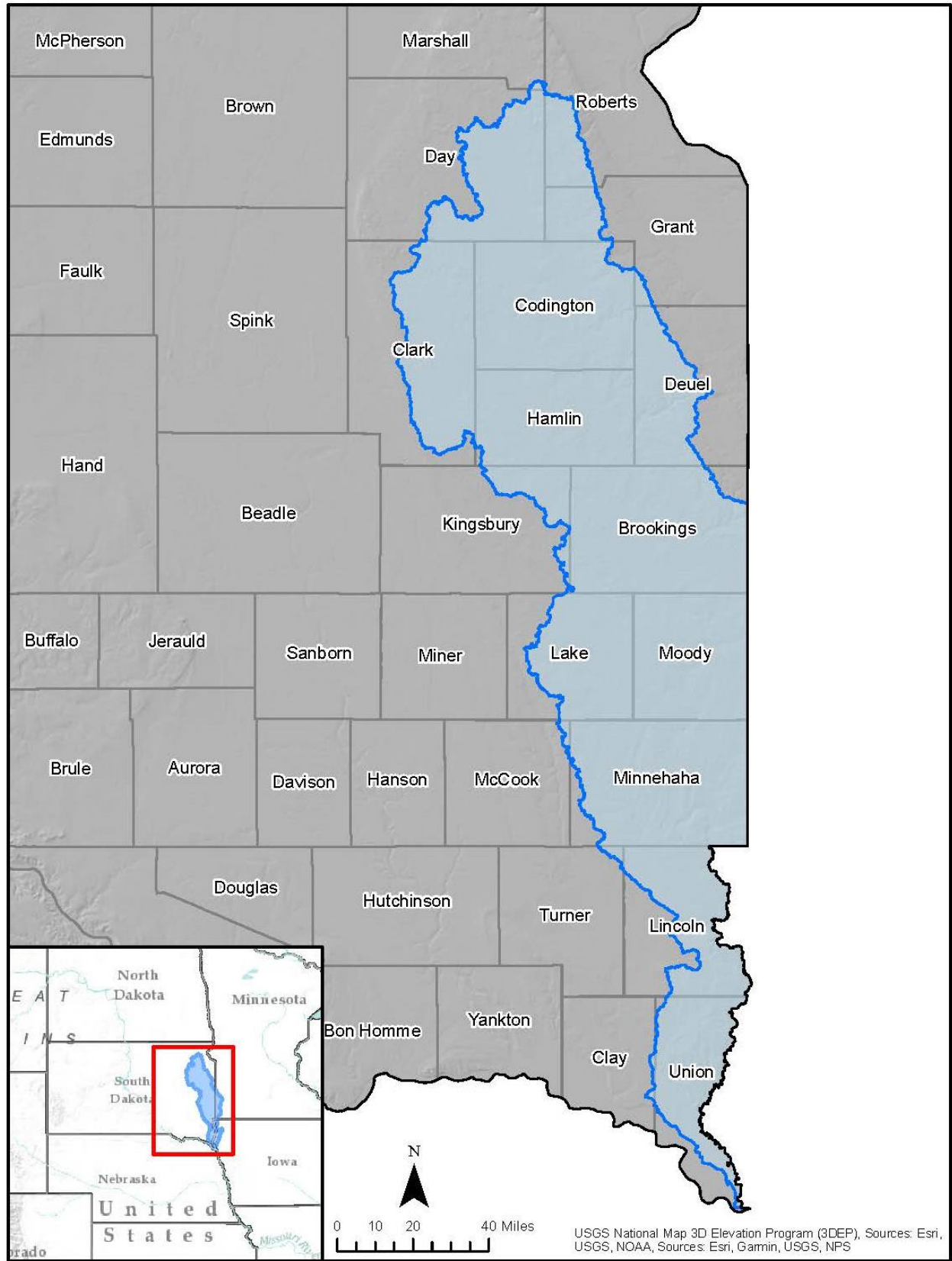


Figure 1-1. Big Sioux River Watershed Location and Counties

1.2 REGULATORY COMPLIANCE

The PEA has been prepared to satisfy the requirements of the National Environmental Policy Act (NEPA) (Public Law 91-190, 42 United States Code 4321 et seq.); Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 Code of Federal Regulations [CFR] §§ 1500–1508); 7 CFR Part 799, FSA NEPA Implementing Regulations; the FSA 1-EQ *Environmental Quality Programs Handbook*, and FSA’s handbook for the Conservation Reserve Program, 2-CRP, *Agricultural Resource Conservation Program* (FSA, 2021a).

NEPA is a law that requires federal agencies to consider the potential environmental consequences of Proposed Actions and alternatives to Proposed Actions. The law’s intent is to protect, restore, or enhance the environment through well-informed federal decisions. The CEQ was established under NEPA for the purpose of implementing and overseeing federal policies as they relate to this process. In 1978, the CEQ issued Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR Parts 1500 through 1508 [CEQ 1978]). On 14 September 2020, CEQ updated the NEPA regulations (85 Federal Register 43357 through 43376), which are being followed for this PEA. CEQ regulations specify that an EA be prepared to:

- briefly provide sufficient analysis and evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI);
- aid in an agency’s compliance with NEPA when no EIS is necessary; and
- facilitate preparation of an EIS when one is necessary.

A variety of other laws, regulations, and Executive Orders (EO) apply to actions undertaken by federal agencies. These form the basis of the analyses and are summarized in the PEA where applicable. These include but are not limited to:

- Endangered Species Act (ESA)
- National Historic Preservation Act (NHPA)
- Clean Water Act (CWA)
- EO 11988, Floodplain Management
- EO 11990, Protection of Wetlands
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to implement the BSRW CREP Agreement in eastern South Dakota. The details of the BSRW CREP Agreement are outlined below.

The BSRW contains the State’s largest urban community of Sioux Falls and contains primarily row crop agriculture with pasture along the creek and river bottoms. The Big Sioux River and many of its tributaries are impaired waters due largely to runoff from agriculture fields and pastures. The BSRW CREP is proposed to reduce agriculture environmental impacts to the watershed and specifically would:

- Improve and protect water quality for drinking water and recreation use;
- Improve local economies by restoring wildlife habitat and increasing pheasant, deer, and waterfowl populations that would increase hunting opportunities and bring more hunters back to the area which would generate revenue from lodging, gas, food, and recreational equipment;
- Increase the availability of habitat for monarch butterflies and other pollinators;
- Improve the availability of grasslands to provide forage for livestock producers to hay and or graze; and
- Improve quality of life by creating a minimum of 250 new places open to public hunting and fishing access in an area inhabited by a disproportionately large percentage of the state’s citizens.

1.4 CONSERVATION RESERVE ENHANCEMENT PROGRAM OBJECTIVES

The BSRW CREP would initially enroll 25,000 acres with a future goal of enrolling a maximum of 100,000 acres of cropland and marginal pastureland into resource conserving cover through CRP that would be open to public hunting and fishing. The objectives of the proposed BSRW CREP are to:

1. Create a minimum of 25,000 acres of conservation cover by restoring wetlands and grasslands to store water and serve as breeding habitat for migratory and resident wetland- and grassland-dependent species including the ring-necked pheasant, waterfowl, bobolink, upland sandpiper, western meadowlark, grasshopper sparrow, savannah sparrow, dickcissel, sedge wren, and the monarch butterfly. These are all either species of conservation concern or of economic importance to the State of South Dakota.
2. Establish a minimum of 5,000 acres of conservation cover adjacent to rivers and streams. This would be measured and monitored by performing a spatial analysis in Geographic Information System (GIS) software of the acres of land enrolled in the BSRW CREP that are adjacent to a river or stream. Vegetative cover adjacent to rivers and streams provides important water quality benefits by slowing down surface water flow and allowing sediment and other water-soluble nutrients to be captured before entering the river or stream and being carried downstream.
3. Establish and maintain minimum reductions of sediment, phosphorous, and nitrogen runoff from agricultural land previously used for row crops as follows: by 90 percent for sediment from 20,000 tons/year to 2,000 tons/year; by 75 percent for phosphorus from 33,500 pounds (lbs)/year to 8,375 lbs/year; and by 85 percent for nitrogen from 112,500 lbs/year to 16,875 lbs/year. This would be measured by evaluating each piece of land enrolled in CREP in the Spreadsheet Tool for Estimating Pollutant Loads (STEPL) model to estimate sediment, phosphorus, and nitrogen reductions. It would be monitored by the lands continuing to be maintained in perennial vegetative cover and complying with the CRP contract.
4. Provide upland game bird habitat to produce a minimum of an additional 71,250 pheasants annually. According to a 2006 report by Nielson et al., 25,000 acres of CRP is estimated to produce 71,250 ring-necked pheasants annually. Ring-necked pheasants are the number one game species in South Dakota with over 100,000 hunters pursuing them annually and contributing over \$200 million to the State's economy.
5. Provide wetland and waterfowl habitat to contribute a minimum of an additional 15,000 ducks to the fall flight annually. According to a 2007 report by Reynolds et al., 25,000 acres of CRP lands are estimated to produce 15,000 ducks annually. The BSRW is part of the Prairie Pothole Region which has been found to produce over 50 percent of the continental population of waterfowl. Waterfowl raised in South Dakota migrate up and down the central flyway providing table fare and recreational hunting opportunities for sportsmen from Canada to Mexico.
6. Open a minimum of 250 blocks of private land to public hunting and fishing access. Public hunting and fishing areas are increasingly being used by hunters and anglers as private lands have become more inaccessible. Creating additional places open to public hunting and fishing would increase access for those new to these sports, as well as motivating both former and current hunters and anglers to resume or continue these sports. The sale of hunting and fishing licenses helps SDGFP improve habitat for fish and wildlife to increase populations.

Under the BSRW CREP, farmers and ranchers would voluntarily enter into contracts with the federal government for 10 to 15 years, agreeing to remove enrolled lands from agricultural production and plant them to an approved CP. In addition, all lands enrolled in the BSRW CREP would be open to free, unlimited access to the public for the purposes of recreational hunting and fishing by voluntarily executing associated contracts with the SDGFP. All access would be foot traffic only and does not require prior approval from the landowner.

1.5 ORGANIZATION OF THE PEA

This PEA assesses the potential impacts of the Proposed Action and alternatives on potentially affected environmental and socioeconomic resources. This chapter, Chapter 1, provides background information relevant to the Proposed Action and discusses its purpose and need. Chapter 2 describes the Proposed Action and alternatives. Chapter 3 describes the baseline conditions for each of the potentially affected resources and describes potential environmental consequences on these resources, including cumulative impacts. Chapter 4 contains a listing of the references cited in this PEA. Various appendices are also included to support the analysis in the PEA.

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2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

On behalf of the CCC, the FSA proposes to implement the BSRW CREP by allowing enrollment of up to 100,000 acres of cropland and marginal pastureland within the 18 counties comprising the BSRW. The watershed encompasses approximately 3.8 million acres on the eastern side of South Dakota, east of the Missouri River (see **Figures 1-1 and 2-1**). The watershed includes the Upper Big Sioux, Middle Big Sioux, and Lower Big Sioux hydrologic units. Because program participation is voluntary, the locations and sizes of specific parcels that would be enrolled are not known. Landowners participating in the CREP would receive support for the costs of installing and maintaining CPs, as well as annual rental payments for those specific lands enrolled in the program. **Table 2-1** summarizes the components of the BSRW CREP.

The proposed CREP authorizes the use of the following nine CPs and minimum acres targeted for the initial enrollment of 25,000 acres:

- CP4D, Permanent Wildlife Habitat (2,000 acres)
- CP21, Filter Strips (500 acres)
- CP23, Wetland Restoration (10,000 acres)
- CP23A, Wetland Restoration, Non-Floodplain (2,500 acres)
- CP25, Rare and Declining Habitat (5,000 acres)
- CP29, Marginal Pastureland Wildlife Habitat Buffer (500 acres)
- CP30, Marginal Pastureland Wetland Buffer (500 acres)
- CP37, Duck Nesting Habitat (3,000 acres)
- CP43, Prairie Strips (1,000 acres)

2.1.1 *Eligible Lands*

The BSRW contains portions of 18 out of the 66 counties within South Dakota. Lands eligible for enrollment in the proposed BSRW CREP would be required to meet the cropland or pastureland eligibility criteria in accordance with policy set forth by the Agriculture Improvement Act of 2018 (Farm Bill) and detailed in the FSA Handbook Agricultural Resource Conservation Program for County and State offices (FSA, 2021a). Eligible cropland must have been planted or considered planted with an agricultural commodity during four of the six crop years from 2012 through 2017 and must be physically and legally capable of being planted in a normal manner to an agricultural commodity as determined by County Committee. Land that meets the definition of cropland cannot be enrolled in CRP as marginal pastureland. Additionally, the State of South Dakota has specified enrolled tracts must be a minimum size of 40 contiguous acres. Cooperators may offer a combination of CREP lands and non-CREP lands to meet the 40-acre requirement. All land enrolled through the BSRW CREP must also be enrolled in the SDGFP-sponsored habitat and access program before the CRP contract is approved.

Land physically located outside South Dakota is not eligible to be enrolled or re-enrolled through the BSRW CREP or enrolled in the SDGFP-sponsored habitat and access program. To be eligible to be enrolled or re-enrolled, at least 51 percent of the land per CRP contract must be physically located within the CREP project area (see **Figures 1-1 and 2-1**), as determined by CCC. Land that is physically located within South Dakota, but outside the CREP project area, may be offered as a block with land physically located within in the CREP project area. Eligible acreage may be offered for enrollment through the BSRW CREP on a continuous basis.

Other state incentive criteria apply for enrollment. All land enrolled in the BSRW CREP would be open for public access for the purposes of recreational hunting and fishing. The location, size, and number of tracts that would be enrolled in CREP would be determined by individual contracts. Once eligible lands are identified, a site-specific environmental review (called an Environmental Evaluation [EE]) would be completed prior to executing a contract and a Conservation Plan would be developed that details the establishment and maintenance of CPs to ensure that no adverse impacts are anticipated and that the goals of CREP are met throughout the life of the contract.

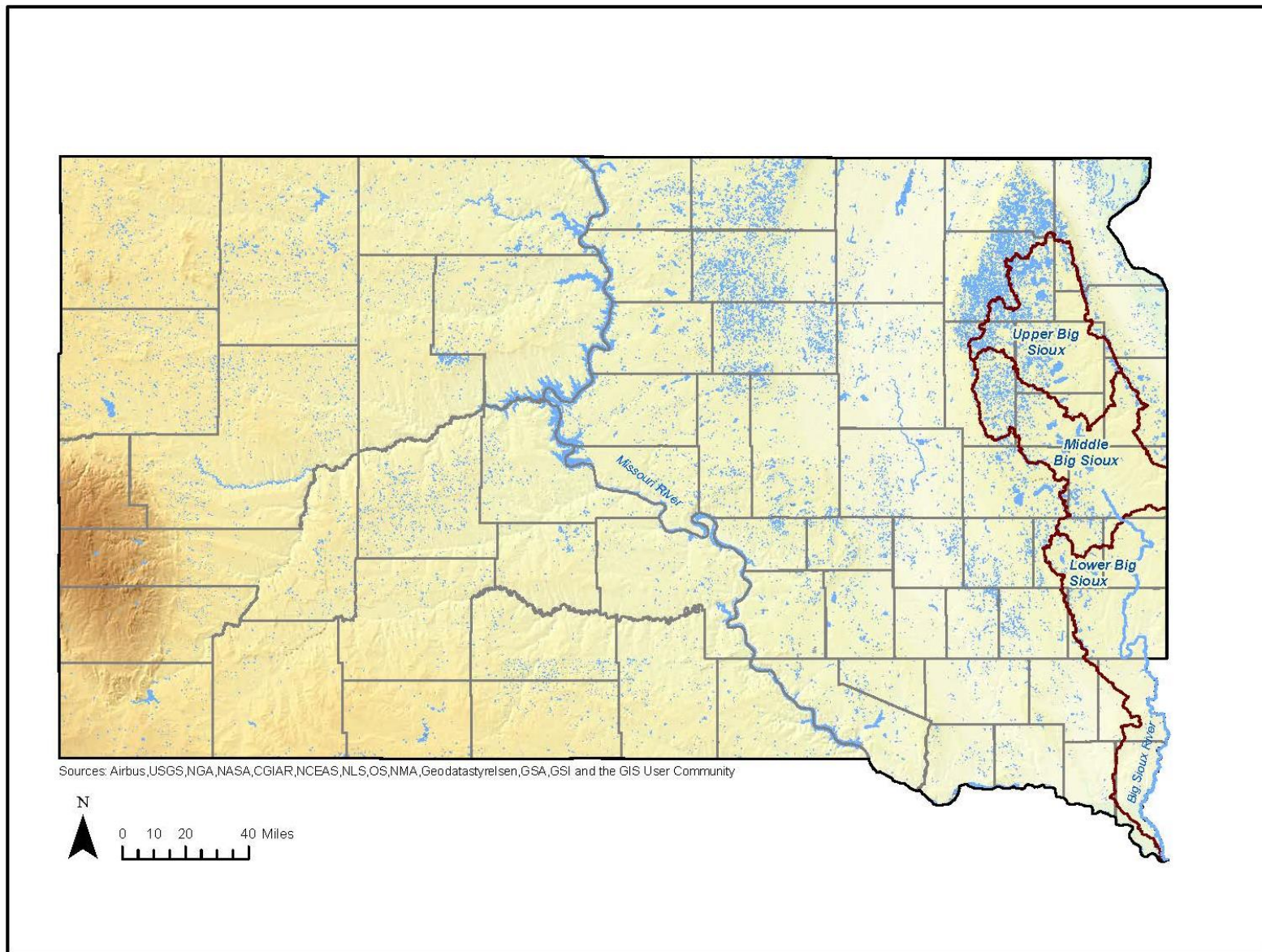


Figure 2-1. Big Sioux River Watershed and Hydrologic Units

Table 2-1. Components of the Big Sioux River Watershed Conservation Reserve Enhancement Program Agreement

Acreage	Up to 100,000 acres
CREP Duration	15 years
Funding	Federal and state funding for incentives and rental payments up to \$108.8 million (excluding non-federal in-kind services) for the initial 25,000 acres
Geographic Area	Big Sioux River Watershed Basin
Counties	18
Conservation Practices (Minimum estimated acreages)	CP4D, Permanent Wildlife Habitat (2,000 acres) CP21, Filter Strips (500 acres) CP23, Wetland Restoration (10,000 acres) CP23A, Wetland Restoration, Non-Floodplain (2,500 acres) CP25, Rare and Declining Habitat (5,000 acres) CP29, Marginal Pastureland Wildlife Habitat Buffer (500 acres) CP30, Marginal Pastureland Wetland Buffer (500 acres) CP37, Duck Nesting Habitat (3,000 acres) CP43, Prairie Strips (1,000 acres)
Contract Duration	10 to 15 years
Cost Share	Average USDA cost-share of \$180 per acre which includes 50 percent cost-share and 50 percent practice incentive payment for establishing grassland habitat on cropland.

CREP = Conservation Reserve Enhancement Program

The EE is completed by the Natural Resources Conservation Service (NRCS) or an approved Technical Service Provider (TSP) during the conservation planning process. NRCS or a TSP is responsible for the site-specific EE, technical leadership, and technical concurrence on Conservation Plans and any revisions. Similarly, they are responsible for collecting the data needed for FSA to ensure compliance with NEPA, NHPA, ESA, and other related laws, regulations, and EOs. The site-specific EE process is consistent with FSA's Environmental Quality and Related Environmental Concerns – Compliance with NEPA (7 CFR 799) and FSA's Handbook on Environmental Quality Programs for State and County Offices (1-EQ). FSA reviews and/or completes sections of the site-specific EE to document that FSA has completed any required consultation with regulatory agencies. The site-specific EE, previous programmatic NEPA documentation, and this PEA together complete regulatory compliance for each CRP contract.

2.1.2 Establish and Maintain Conservation Practices

The practices proposed under the CREP agreement are specific for conditions known to exist within the BSRW. The purpose of these practices, as a whole, is to restore wildlife and wetland habitat, improve water quality, and reduce erosion. **Appendix B** provides a description of each of the CPs approved for the BSRW CREP.

Installation and maintenance of CPs may include:

- Removal of existing vegetation and grading, leveling and filling for site preparation;
- Use of equipment to prepare the seedbed including disk, harrow, cultipacker, roller or similar equipment;
- Ongoing mechanical disturbance in which no more than 30 percent of the soil surface is opened up from August 2 and September 1;

- Application of nutrients, minerals, and seed, including to shrubs and trees;
- Planting of temporary covers if necessary;
- Installation of tree shelters, netting, plastic tubes, fencing or other animal damage control devices;
- Prescribed fires performed under an approved burn plan and outside the primary nesting season (PNS) of May 1 through August 1;
- Interseeding of upland acres completed early spring prior to May 1 or between August 2 and September 1.
- Seeding of firebreaks, fuelbreaks, or firelanes;
- Construction of structures to regulate flow and restore hydrology;
- Pipelines and water facilities outside the riparian buffer;
- Application of approved herbicides completed early spring prior to May 1 or between August 2 and September 1; and
- Temporary supplemental irrigation systems.

An approved Conservation Plan is required prior to CRP contract execution/implementation. A Conservation Plan identifies conservation objectives and assesses the natural resource issues that are site-specific to the project area and the proposed CPs. Conservation Plans are required to meet the NRCS Field Office Technical Guide (FOTG) planning criteria for each natural resource and must address economic and social considerations. The plan describes the schedule of operations and activities required to solve identified natural resource concerns. The approved plan is developed by the local NRCS representative or authorized TSP in cooperation with the participant. The approved Conservation Plan must:

- Contain all the practices necessary to successfully establish and maintain the vegetative cover on all proposed CRP acres including seeding mix design, planting densities and layout, water supply and drainage, thinning schedules, etc.
- Be technically adequate to meet the objectives of CRP.
- Incorporate all federal, state, and local permit requirements for use of agricultural chemicals such as fertilizer and herbicides.
- Be reviewed and approved by the conservation district.
- Ensure the conservation cover is not disturbed (i.e., haying and/or grazing) during PNS dates.
- Incorporate and adhere to county specific guidance from the NRCS Conservation Practice Standards, identified in the FOTG, and in state or county specific technical notes.

2.1.3 Provide Financial Support

Producers enrolled in the BSRW CREP would enter into federal contracts for a minimum of 10 and a maximum of 15 years that stipulate implementation of approved CPs to receive financial and technical assistance. Producers would be eligible for annual rental payments for the duration of the contract, as well as one-time cost sharing (50 percent) for establishing CPs and incentive payments for certain situations.

The total estimated project cost is \$108.8 million to enroll the initial 25,000 acres for 15 years. Estimated non-federal funded costs total \$22.2 million. Non-federal funding would come from state funds generated from the sale of hunting and fishing licenses and possible non-federal partner contributions covering less than 50 percent of the total project cost. Other non-federal sources of funding would come from the SD Habitat Fund, a 501c3 nonprofit organization that raises money for habitat development in South Dakota and other entities yet to be contacted.

Federal payments are the same incentive payments that a non-CREP recipient would receive for enrolling in the same practices under General or Continuous CRP. The non-federal payments are justifiable by the benefits of enrolling these lands in CREP to the State of South Dakota and that the state is providing only 20 percent of the total CREP project cost. If 100,000 acres were enrolled, the estimated project cost would be \$435.3 million, with \$88.9 million of non-federal funded costs and \$346.4 million of federal funded costs.

2.2 SCOPING

Scoping is an early and open process for developing the breadth of issues to be addressed in an EA and for identifying significant concerns related to an action. Per the requirements of EO 12372, *Intergovernmental Review of Federal Programs*, as amended by EO 12416, federal, state, and local agencies with jurisdiction that could potentially be affected by the Proposed Action or alternatives were notified during the development of this PEA. Pursuant to Section 106 of the NHPA and its implementing regulations in 36 CFR Part 800 “Protection of Historic Properties”, potentially affected Tribal governments were also contacted to help in identifying historic properties, cultural resources, and sites of religious or cultural significance that might be affected by the Proposed Action. The list of agencies contacted, copies of notification letters sent, and responses received are included in **Appendix C**.

The SDGFP through the state CREP manager would administer programs implementing the proposed CREP, including public outreach. Landowners may be advised through meetings, or direct mail by organizations involved in the project. Several organizations have been and continue to be involved in developing the BSRW CREP. These include:

- USDA FSA and NRCS
- South Dakota Department of Agriculture and Natural Resources (SDDANR)
- U.S. Fish and Wildlife Service (USFWS)

2.3 ALTERNATIVES SELECTED FOR ANALYSIS

2.3.1 *Proposed Action Alternative (Preferred Alternative)*

Under the Proposed Action Alternative, the BSRW CREP would be fully implemented as described above. This would allow agricultural practices on up to 100,000 acres of eligible lands to be replaced by conservation cover and restoration of wetland and prairie habitat. Nine CPs would be made available for producers. CPs would be established and maintained on eligible lands and producers would receive one-time payments for establishing the conservation cover, as well as annual rental and maintenance payments, and other incentives offered. The total cost of the program is estimated to be \$108.8 million for the initial 25,000 acres.

2.3.2 *No Action Alternative*

Under the No Action Alternative, the State of South Dakota’s BSRW CREP Agreement would not be implemented. No land would be enrolled in CREP and the goals of CREP would not be met. Though eligible lands could be enrolled in CRP or other conservation programs, the benefits of CREP – targeting land in South Dakota’s BSRW for enrollment, providing financial incentives to producers, creating additional public hunting and fishing access, and using non-federal financial resources would not be realized. This alternative does not satisfy the purpose and need but will be carried forward in the analysis to serve as a baseline against which the impacts of the Preferred Alternative can be assessed.

2.4 COMPARISON OF POTENTIAL ENVIRONMENTAL CONSEQUENCES

The potential impacts associated with Proposed Action Alternative and No Action Alternative are summarized in **Table 2-2**. The summary is based on information discussed in detail in **Chapter 3** and includes a concise definition of the issues addressed and the potential environmental impacts associated with each alternative.

Table 2-2. Comparison of Potential Environmental Consequences of the Alternatives by Resource

Resource	Proposed Action Alternative	No Action Alternative
Biological Resources	There would be long-term beneficial impacts to vegetation, wildlife, Threatened and Endangered species, and critical habitat.	The proposed BSRW CREP Agreement would not be implemented and lands that would have been eligible for enrollment would remain in agricultural production. The continued use of land for agriculture or the conversion of land to another type of agricultural production would reduce vegetative diversity, increasing susceptibility to invasion by exotic species, thus reducing wildlife habitat. The runoff of agricultural chemicals, animal wastes, and sediment would continue to degrade water quality, threatening biodiversity.
Cultural Resources	Actions in this PEA may have potential direct, indirect, and cumulative effects on cultural resources. Changes in farming practices or other actions that would disturb previously undisturbed areas may result in impacts to known or unknown historic properties and Traditional Cultural Properties. Evaluation of cultural resources impacts for specific lands to be enrolled in CREP, including the identification of previously undisturbed land, is performed through site-specific EEs. Once these specific areas of concern have been identified, per Section 106 of the NHPA, these details would be reviewed in consultation with the South Dakota State Historic Preservation Office, tribes, and participating state and federal agencies during the planning and implementation phases.	The continuation of farming in previously disturbed areas is not expected to impact cultural resources. Conversion of lands to other types of agricultural production that would disturb previously undisturbed areas may result in impacts to known or unknown historic and cultural resources.
Water Resources	There would be long-term beneficial impacts on surface water, wetlands, floodplains, and groundwater. Installation of CPs may result in increased levels of sediment runoff, resulting in short-term negligible adverse impacts to surface water quality and wetlands, but mitigated by stormwater controls and best management practices. There would be short-term negligible adverse impacts to surface water from the use of herbicides during the establishment of CPs.	The proposed BSRW CREP would not be implemented. The use of land for agriculture or conversion of lands to other types of agricultural production could result in the continued degradation of water quality from runoff of agricultural chemicals, animal waste, and sediment. Potential benefits to surface water, wetlands, floodplains, and groundwater would not be realized. Impaired waterways within the BSRW would not be improved and there would be no recreational benefit from improved water quality.

Resource	Proposed Action Alternative	No Action Alternative
Air Quality	There would be long-term beneficial air quality impacts in the BSRW region from decreased GHG emissions, decreased criteria air pollutant emissions, and carbon sequestration in vegetative cover. Installation of CPs could increase fugitive dust and particulate matter emissions and increase emissions from fuel burning equipment, but these emissions would be localized, temporary, and minor. It is not anticipated that prescribed burning would have a significant negative impact on the regional air quality.	This alternative would not change existing air quality conditions. The CPs would not be implemented. Existing agricultural practices would continue and air quality conditions would not improve.
Soils and Topography	Long-term beneficial impacts are expected to occur from localized stabilization of soils and topography. Short-term disturbances to soils during implementation of the CPs could include grading, leveling, tilling, or installation of various structures such as fences and temporary irrigation features. These activities may result in temporary minor increases in soil erosion; however, they would be reduced by implementing erosion control best management practices.	The proposed CREP would not be implemented. Eligible lands would not be enrolled in the proposed CREP and potential benefits to soils and topography would not occur. The beneficial impacts associated with the expected reduction in agricultural runoff would not occur and soil degradation would continue.
Other Protected Resources	Long-term beneficial impacts would be anticipated from the restoration of natural lands located near protected lands. Agricultural lands participating in the proposed CREP would be converted to improved natural lands, wildlife habitat, vegetative cover, or restored wetlands. Improved water quality would result in long-term beneficial impacts to the downstream portions of the Missouri River that are designated Wild and Scenic.	The proposed CREP would not be implemented. Conversion of agricultural lands to conservation cover would not occur. Agricultural lands would continue to operate under current production or may be converted to another use that may conflict with adjacent protected lands. Protected lands would not realize the benefits from the restoration of natural lands located near protected lands.
Socioeconomics and Recreation	There would be long-term beneficial impacts to producers and the local economy and a beneficial long-term impact on recreational resources within the BSRW. There would be no impact to the regional population from implementation of the Proposed Action. The loss of agricultural lands could have short-term minor impact to local economy, but this is offset by gains in the recreational sector and net societal benefits of	There would be no changes to the sales or spending patterns of the producers. However, there would be the lost benefits associated with the CPs that include water quality improvement, soil retention, improved wildlife habitat, and increased wildlife habitat acreage. Also, public hunting lands would continue to be burdened within the region as no new areas would be developed for general access hunting and fishing. Any regional

Resource	Proposed Action Alternative	No Action Alternative
	reduced soil erosion, improved water quality, improved wildlife habitat, increases in wildlife habitat acreage, and improved access to wildlife-related recreational opportunities.	economic benefits from increased hunting, fishing, and wildlife-watching expenditures would not be realized.
Environmental Justice	There would be no impact to environmental justice issues. There is no potential for the producer benefits of the BSRW CREP to be disproportionately low for minority or low-income populations. Some negligible to minor adverse impacts have been identified in this PEA. These adverse impacts are temporary and do not rise to the level of major (significant) and would generally be felt equally by all populations within the BSRW.	There would be no changes to the existing agricultural lands in the BSRW, therefore, implementation of this alternative would not result in disproportionate adverse environmental or health effects on low-income or minority populations.

CREP = Conservation Reserve Enhancement Program; BSRW = Big Sioux River Watershed; PEA = Programmatic Environmental Assessment; NHPA = National Historic Preservation Act; EE = Environmental Evaluation; CP = Conservation Practices; GHG = Greenhouse gases.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter analyzes the potential impacts on existing environmental conditions associated with the Proposed Action in the BSRW. The analysis considers the current, baseline conditions of the affected environment and compares those to the conditions that might occur should the FSA implement the Proposed Action Alternative or the No Action Alternative.

A justification for those resources eliminated from analysis is provided in this section. Then, each resource included in the analysis is defined and its evaluation criteria are outlined. Lastly, a description of the existing conditions and a discussion of potential direct, indirect, and cumulative impacts are presented by location.

3.1 RESOURCE AREAS ELIMINATED FROM ANALYSIS

Several resources were considered relative to the Proposed Action but were not carried forward for detailed analysis. They include resources whose baseline conditions lacked a relationship to, and any potential to be altered by, implementation of the Proposed Action.

3.1.1 *Prime and Unique Farmland*

The Farmland Protection Policy Act was passed by Congress as part of the Agriculture and Food Act of 1981. The Act is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Any acres of farmland that might be enrolled in the BSRW CREP could be converted back to farmland in the event of cancellation of a CRP contract or the expiration of a 10-to-15-year CRP contract. CRP contracts are not irreversible, and some CPs continue to allow agricultural use through haying and grazing provisions. For these reasons, the Proposed Action Alternative is not expected to have effects of consequence to Prime and Unique Farmland.

3.1.2 *Noise*

Implementing the Proposed Action Alternative would not permanently increase ambient noise levels at or adjacent to the project area. Noise from heavy equipment is common on agricultural lands and farmlands that could be enrolled in the BSRW CREP. The potential for increased noise levels associated with implementing CPs would be minor, temporary, localized, and would cease once implementation of the approved CPs was completed.

3.1.3 *Coastal Zone Management and Coastal Barriers*

The proposed CREP for the Big Sioux River Watershed located in the eastern portion of South Dakota is not within or near a designated Coastal Zone Management Area, therefore, the Coastal Zone Management Act of 1972 does not apply. Similarly, the proposed BSRW CREP does not include development on coastal barriers, so the Coastal Barrier Resources Act of 1982 does not apply.

3.1.4 *Sole Source Aquifers*

Sole source aquifers are protected under the Safe Drinking Water Act. Special care must be taken to protect aquifers which the U.S. Environmental Protection Agency (USEPA) has designated as sole source aquifers, which are aquifers that supply at least 50 percent of the drinking water consumed in the area overlying the aquifer. There are no designated sole source aquifers in South Dakota (USEPA, 2022a).

3.2 ANALYZED RESOURCES AND EVALUATION CRITERIA

The following is provided in this section: a description of general evaluation criteria and impact levels, the list of analyzed resources, and a description of the geographic scope or region of influence (ROI) of potential consequences for the resources analyzed.

The ROI for the resources analyzed in this PEA is the land within the watershed boundary of the BSRW. The specific criteria for evaluating impacts and assumptions for the analyses are presented under each

resource area. Evaluation criteria for most potential impacts were obtained from standard criteria; federal, state, or local agency guidelines and requirements; and legislative criteria.

Impacts are defined in general terms and are qualified as adverse or beneficial, and as short- or long-term. For the purposes of this PEA, short-term impacts are generally considered those impacts that would have temporary effects. Long-term impacts are generally considered those impacts that would result in permanent effects. Adverse impacts are defined as:

- negligible, the impact is localized and not measurable or at the lowest level of detection;
- minor, the impact is localized and slight but detectable;
- moderate, the impact is readily apparent and appreciable; or
- major, the impact is severely adverse or highly noticeable and considered to be significant.

Major impacts are considered significant and receive the greatest attention in the decision-making process. The significance of an impact is assessed based on the relationship between context and intensity. Major impacts require application of a mitigation measure to achieve a less than significant impact. Moderate impacts may not meet the criteria to be classified as significant, but the degree of change is noticeable and has the potential to become significant if not effectively mitigated. Minor impacts have little to no effect on the environment and are not easily detected; impacts defined as negligible are the lowest level of detection and generally not measurable. Beneficial impacts provide desirable situations or outcomes.

Impacts and their significance are discussed for each resource, including any best management practices (BMPs) as applicable for reducing potential adverse environmental impacts. Resource areas that are evaluated include: biological resources, cultural resources, water resources, air quality, soils and topography, other protected resources, socioeconomics and recreation, and environmental justice. Reasonably foreseeable future actions that could result in increased impacts to these environmental resources in conjunction with the Proposed Action are discussed in **Appendix D**.

3.3 BIOLOGICAL RESOURCES

3.3.1 *Definition of Resource*

Biological resources include all plant and animal species and the habitats in which they occur. For this analysis, biological resources are divided into the following categories: vegetation, wildlife, and threatened or endangered species and critical habitat. Vegetation and wildlife refer to the plant and animal species, both native and introduced, which characterize a region. For this analysis, noxious weeds are not discussed since CREP contracts require conservation plans that include control of such species. Threatened or endangered species are those federally listed and protected by the ESA. The USFWS designates critical habitat as essential for the recovery of species specifically listed as threatened or endangered, and, like those species, critical habitat is protected under the ESA.

The organizing principle of the biological resources analysis is based upon Level I ecoregions defined by the Commission for Environmental Cooperation (CEC) (CEC, 1997). Ecoregions are areas of relatively homogenous soils, vegetation, climate, and geology, each with associated wildlife adapted to that region. South Dakota consists of two CEC Level I ecoregions, namely the Great Plains and Northwestern Forested Mountains. The BSRW is within the Great Plains ecoregion and includes both tallgrass and mixed-grass prairie lands. Further subdivisions of ecoregions (CEC Level IV) within the BSRW CREP area include the Prairie Coteau, Big Sioux Basin, James River Lowland, Loess Prairies, and Missouri Alluvial Plain. **Table 3-1** presents a brief description of the major characteristics of these regions.

3.3.2 Affected Environment

3.3.2.1 Vegetation

The majority of land cover in the BSRW is cropland or pastureland. Other land cover types include rangeland, forest, wetland, open water, and urban land. Approximately 6.8 percent of the land cover in the BSRW is riparian forest, dominated by the silver maple-elm-cottonwood forest type (Ley, 2012). Some remnants of native mixed-grass prairie remain. Mixed-grass prairie is a transition zone between tallgrass and shortgrass prairies thus it is comprised of many species characteristic of other prairie types. Western wheatgrass (*Pascopyrum smithii*), big bluestem (*Andropogon gerardii*), porcupine grass (*Miscanthus sinensis*), and little bluestem (*Schizachyrium scoparium*) are dominant components of these grassland prairies (Johnson and Larson, 1999). Warm season grasses' peak growth occurs from June through August. Cool season grasses actively grow during cooler temperatures and are tolerant of cold temperatures. These prairies have historically experienced a natural disturbance at an interval of three to five years in the form of fire. However, through settling and development, this historical disturbance has been suppressed (Umbanhowar, 1996).

Table 3-1. Level IV Ecoregions within the Big Sioux River Watershed

Ecoregion	BSRW %	Description
Prairie Coteau	49%	The Prairie Coteau ecoregion is the result of stagnant glacial ice melting beneath a sediment layer. The tightly undulating, hummocky landscape has no drainage pattern; it is perforated with closely spaced semipermanent and seasonal wetlands. It has a chain of large lakes that were formed where there was little ice shear, and higher precipitation levels that allow widespread burr oak woodlands near wetland margins.
Big Sioux Basin	25%	The Big Sioux Basin is a trough penetrating the core of the Prairie Coteau. Its topography was affected by pre-Wisconsinan glaciation; later advances of the Wisconsin glacier diverged around the basin. In contrast to the neighboring Prairie Coteau, the basin has a well-developed drainage network. There is more tilled land in the Big Sioux basin due to the relative paucity of wetlands and the gentler topography.
James River Lowland	6%	The lowlands are characterized by mesic soils, warm temperatures, and a long growing season, which all are reflected in the types of crops planted. Winter wheat, corn, and soybeans are prevalent in this milder climate. The overall area is approximately 9,227 sq miles with an elevation from 1,200-1,850 feet. The area is glaciated and level to slightly rolling with dense concentrations of wetlands. The geology is represented by glacial till over Cretaceous Pierre Shale and sandstone of the Niobrara Formation.
Loess Prairies	19%	The Loess Prairies of Iowa and South Dakota surround the perimeter of the Des Moines lobe of the Late Wisconsinan glaciation. Of the two areas in South Dakota, the northern one is distinguished from neighboring regions by its rock-free soil and a paucity of wetlands. The southern area is more highly dissected, with deciduous woodland and brush on the steeper slopes and in the draws.
Missouri Alluvial Plain	1%	The human development of the Missouri Alluvial Plain over the last two centuries has separated the Missouri River from its floodplain. A system of dams, levees, and stream channelization has largely controlled the flood cycles to allow intensive agriculture in the river bottomland. Much of the northern floodplain forest has been cut, and oxbow lakes and wetlands have been drained to reclaim additional agricultural land.

Sources: U.S. Geological Survey, 2006; CEC, 1997.

3.3.2.2 Wildlife

The BSRW is inhabited by a number of wildlife species. Many of these species are relatively common throughout South Dakota and include bird species such as the red-tailed hawk (*Buteo jamaicensis*), mallard (*Anas platyrhynchos*), blue-winged teal (*Spatula discors*), canvasback (*Aythya valisineria*), ring-necked pheasant (*Phasianus colchicus*), Virginia rail (*Rallus limicola*), yellow-billed cuckoo (*Coccyzus americanus*), downy woodpecker (*Picoides pubescens*), least flycatcher (*Empidonax minimus*), cliff swallow (*Petrochelidon pyrrhonota*), white breasted nuthatch (*Sitta carolinensis*), eastern bluebird (*Sialia sialis*), warbling vireo (*Vireo gilvus*), and bobolink (*Dolichonyx oryzivorus*) (SDGFP, 2014).

Common mammals throughout South Dakota include the white-tailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), eastern cottontail (*Sylvilagus floridanus*), white-tailed jackrabbit (*Lepus townsendii*), thirteen-lined ground squirrel (*Ictidomys tridecemlineatus*), western harvest mouse (*Reithrodontomys megalotis*), white-footed mouse (*Peromyscus leucopus*), and the meadow vole (*Microtus pennsylvanicus*). Wildlife with habitat requirements more specific to the BSRW include the northern bobwhite (*Colinus virginianus*), American woodcock (*Scolopax minor*), gray partridge (*Perdix perdix*), eastern wood-pewee (*Contopus virens*), sharp-tailed grouse (*Tympanuchus phasianellus*), pygmy shrew (*Sorex minutus*), least weasel (*Mustela nivalis*), eastern gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), Franklin's ground squirrel (*Poliocitellus franklinii*), northern river otter (*Lontra canadensis*), and the woodchuck (*Marmota monax*) (SDGFP, 2014).

Fish species commonly found in the BSRW include freshwater drum (*Aplodinotus grunniens*), bluegill (*Lepomis macrochirus*), channel catfish (*Ictalurus punctatus*), blue catfish (*Ictalurus furcatus*), largemouth bass (*Micropterus salmoides*), northern pike (*Esox lucius*), walleye (*Sander vitreus*), white crappie (*Pomoxis annularis*), black crappie (*Pomoxis nigromaculatus*), yellow bullhead (*Ameiurus natalis*), and sauger (*Sander canadensis*). Fish species found primarily in the BSRW include the smallmouth buffalo (*Ictiobus bubalus*), flathead catfish (*Pylodictis olivaris*), pumpkinseed (*Lepomis gibbosus*), and logperch (*Percina caprodes*) (SDGFP, 2014).

3.3.2.3 Threatened and Endangered Species and Critical Habitat

There are 12 species of federally threatened or endangered plants and animals known to occur in the 18 counties within the BSRW (USFWS, 2022a). **Appendix E** lists the species that could occur in the project area, along with the county where each is known to occur, and the federal listing status. The listed species include one mammal, three birds, two fish, one plant, one mussel, and three insects. Critical habitat has been designated by the USFWS for four of these species: the piping plover (*Charadrius melodus*), Topeka shiner (*Notropis topeka*), Dakota skipper (*Hesperia dacotae*), and poweshiek skipperling (*Oarsima poweshiek*), however, only the Dakota skipper and poweshiek skipperling have critical habitat within the BSRW. The Dakota skipper critical habitat is in Brookings, Day, Deuel, Grant, and Roberts counties. The poweshiek skipperling critical habitat is in Brookings, Day, Deuel, Grant, Moody, and Roberts counties.

State-listed species known to occur in the watershed include: osprey (*Pandion haliaetus*), least tern (*Sternula antillarum*), whooping crane (*Grus americana*), piping plover, banded killifish (*Fundulus diaphanous*), blacknose shiner (*Notropis heterolepis*), finescale dace (*Chrosomus neogaeus*), northern redbelly dace (*Chrosomus eos*), pallid sturgeon (*Scaphirhynchus albus*), sicklefin chub (*Macrhybopsis meeki*), sturgeon chub (*Macrhybopsis gelida*), eastern hognosed snake (*Heterodon platirhinos*), false map turtle (*Graptemys pseudogeographica*), and lined snake (*Tropidoclonion* sp.) (SDGFP, 2022).

Some State species of greatest conservation need known to occur in the watershed include: Richardson's ground squirrel (*Urocyon richardsonii*), Blanchard's cricket frog (*Acris crepitans*), Cope's treefrog (*Hyla chrysoscelis*), marbled godwit (*Limosa fedoa*), chestnut-collared longspur (*Calcarius ornatus*), burrowing owl (*Athene cunicularia*), black tern (*Chlidonias niger*), Baird's sparrow (*Ammodramus bairdii*), lark bunting (*Calamospiza melanocorys*), LeConte's sparrow (*Ammodramus leconteii*), Iowa skipper (*Atrytone arogos iowa*), ottoe skipper (*Hesperia ottoe*), blackside darter (*Percina maculate*), and logperch (*Percina caprodes*) (SDGFP, 2014).

3.3.3 *Environmental Consequences Evaluation Criteria*

Impacts to biological resources would be considered significant if implementation of an action or program resulted in reducing wildlife populations to a level of concern, removing land with unique vegetation characteristics, or an incidental or otherwise take of a protected species or critical habitat.

3.3.4 *Environmental Consequences – Proposed Action Alternative*

The assessment of impacts in the following sections is general in nature because the location, size, and number of tracts that would be enrolled in CREP is currently unknown. This information would be determined by individual contracts. Once eligible lands are identified, a site-specific EE would be completed prior to executing a contract. The EE is completed by NRCS or an approved TSP during the conservation planning process and approved by FSA. The site-specific evaluation process includes collecting and documenting the data, consultation, and permitting needed for FSA to ensure compliance with the ESA and other related laws, regulations, and EOs. It includes identifying the presence of migratory birds, invasive species, and endangered or threatened species.

3.3.4.1 *Vegetation*

Implementing the Proposed Action Alternative is expected to result in beneficial long-term impacts to vegetation. The establishment of plant communities that would result from CPs with either natural or introduced species in areas where crops were once grown is expected to result in greater vegetative species diversity. Establishment and continuation of Permanent Wildlife Habitat (CP-4D), Wetland Restoration (CP-23), Wetland Restoration - Non-Floodplain (CP-23A), Marginal Pastureland - Wetland Buffer (CP-30), and Marginal Pastureland Wildlife Habitat Buffer (CP-29) conservation practices are expected to restore perennial plant and wildlife communities while reducing the occurrence of noxious plants. Establishing Filter Strips (CP-21), Prairie Strips (CP-43), Rare and Declining Habitat (CP-25), and Duck Nesting Habitat (CP-37) practices are expected to reduce runoff of agricultural chemicals, excess nutrients, and sediment. This would improve the quality of habitats for aquatic plants by decreasing turbidity and enrichment from fertilizers, which would allow more sunlight to reach submerged rooted plants. These practices would also slow and retain runoff, increase water infiltration, and minimize flooding which would promote the establishment and growth of native vegetation.

3.3.4.2 *Wildlife*

Impacts of the Proposed Action Alternative on wildlife would be beneficial and long-term. Fields of seeded grasslands enrolled in federal long-term set-aside programs, such as the CRP in the United States and the Permanent Cover Program in Canada, provide important nesting habitat for grassland birds (Allen and Vandever, 2012; Shaffer and DeLong, 2019). Although CRP grasslands are floristically less diverse than native prairie, several declining grassland bird species occur in CRP fields during the breeding season, such as dickcissel, lark bunting (*Calamospiza melanocorys*), Baird's sparrow, Henslow's sparrow, grasshopper sparrow, clay colored sparrow (*Spizella pallida*), and bobolink (Johnson and Schwartz, 1993; Johnson and Igl, 1995; Herkert, 1998). Ryan et al. (1998) reviewed literature on bird use of CRP grasslands and determined that more than 90 species have been reported using CRP grasslands during the breeding season and that at least 42 species have nested in these habitats. Approved ongoing management practices such as mechanical disturbance, interseeding, application of herbicides, and prescribed burning would be performed outside PNS dates to minimize impacts to birds that use CRP lands.

Studies clearly show that the CRP has provided great benefits for duck production in the Prairie Pothole Region (Reynolds et al., 2007). Since 1992, when CRP acres peaked, net increases of about 2 million additional ducks per year were produced in the Prairie Pothole Region of North Dakota, South Dakota, and northeastern Montana. This represents an estimated 30 percent increase in duck production compared to the same area without CRP cover on the landscape. Increased duck nest success was documented in all major habitats throughout the Prairie Pothole Region between 1992 and 2004.

Nielson (et.al 2006) estimated a 22 percent increase in ring-necked pheasant counts along a Breeding Bird Survey route associated with every increase of 788 acres of CRP herbaceous vegetation within a 1,000-meter buffer around the survey route. Neilson also reported that other grassland species would be expected to have increases in breeding populations due to the presence of CRP fields in their breeding range, including sharp-tailed grouse, sedge wren (*Cistothorus platensis*), and common yellowthroat (*Geothlypis trichas*).

Like many wildlife species across South Dakota, deer populations responded significantly to the presence of large undisturbed habitat blocks created across much of the landscape (SDGFP, 2017). Studies pre-dating the CRP emphasized the importance of woodlands, wetlands, and riparian areas as key fawning areas of white-tailed deer in east-central South Dakota, and agricultural fields as key late-summer foraging and security areas (Sparrowe and Springer, 1970). CRP lands also provide important bedding habitat to fawning does (Grovenburg et al., 2012). In the Clark County region of eastern South Dakota, white-tailed deer may have demonstrated shorter migration distances because of the high abundance of suitable habitat (i.e., wetlands and CRP grasslands) available (Robling, 2011). In the Prairie Pothole Region of eastern South Dakota, Robling (2011) documented that white-tailed deer use CRP grasslands, standing corn, and tree cover during winter in significantly higher proportions than agriculture, pasture, wetlands, and road/development cover types.

The BSRW CREP Agreement goal of establishing permanent vegetative cover by restoring wetlands and grasslands would benefit both wetland- and grassland-dependent species, including some State species of greatest conservation need. These include the Richardson's ground squirrel because conversion of native prairie and rangeland to agricultural lands is the leading threat to this species. Water quality improvements would also benefit other state-listed species including the black tern, LeConte's sparrow, Blanchard's cricket frog, Cope's treefrog, false map turtle, banded killifish, and logperch if they happen to occur on or adjacent to enrolled lands.

The restoration of grasslands would benefit both of the state-listed insect species (Iowa and ottoe skippers), chestnut-collared longspur, Baird's sparrow, lark bunting, and the lined snake, as these species occur primarily in native prairie habitat. The establishment of permanent vegetative cover adjacent to rivers and streams would benefit the marbled godwit which nests in shortgrass prairies near wetlands.

3.3.4.3 Threatened and Endangered Species and Critical Habitat

Impacts to threatened or endangered species and critical habitat would be beneficial and long-term. Prior to enrollment in the program, site-specific EEs would identify the potential for protected species to be present. If a species is present, consultation with the USFWS would be undertaken to assess possible impacts. If any adverse impacts are identified and cannot be mitigated, it is not likely the land would be accepted into the program. In 2016, the USFWS concurred with the determinations of "No Effect" and "May Affect but Not Likely to Adversely Affect" in a Programmatic Biological Assessment for implementing NRCS CPs throughout South Dakota prepared by the USDA (USDA, 2016). Section 7 consultation with the USFWS is required for those areas that support habitats where protected species could occur (see species list in **Appendix E**) to determine if there are any conditions for implementing the CPs necessary to ensure that the proposed action would be covered under the USDA's Programmatic Biological Assessment (see **Appendix F**).

Similar to vegetation and wildlife, some threatened and endangered species (both federal and state listed) are expected to experience long-term benefits from the improvements in surface water quality both within and downstream of the enrolled land, and from the establishment of native plant communities. The CREP Agreement goal of establishing long-term vegetative cover by restoring wetlands and grasslands would benefit both wetland- and grassland-dependent species, including the monarch butterfly (*Danaus plexippus*), whooping crane, osprey, piping plover, lined snake, and the northern long-eared bat (*Myotis septentrionalis*). Restored wetlands and grassland would also benefit the two listed insect species in the BSRW, as the primary constituent elements for both the Dakota skipper and poweshiek skipperling, described in the designation of critical habitat (USFWS, 2013), include wet-mesic tallgrass or mixed-grass untillied prairie, native grasses and native flowering forbs, and adjacent dispersal grassland habitat. The

aquatic habitat used by the pallid sturgeon, Topeka shiner, as well as numerous state-listed fish species - false map turtle, scaleshell mussel (*Leptodea leptodon*), and Higgins eye (pearlymussel; *Lampsilis higginsii*) is expected to improve as a result of reduced runoff of agricultural chemicals and reduced soil erosion from Filter Strips (CP-21), Prairie Strips (CP-43), and wetland restoration practices (CP-23, CP-23A, CP-30, CP-37). Such water quality improvements are also expected to improve the foraging habitat of the piping plover and whooping crane. Establishment of Permanent Wildlife Habitat (CP-4D) and Duck Nesting Habitat (CP-37) would benefit the western prairie fringed orchid.

It is unlikely that there would be any long-term adverse effects on threatened and endangered species by the actions of the BSRW CREP since none of these species benefits from cropland monocultures or disturbed habitat. Approved ongoing management practices such as mechanical disturbance, interseeding, application of herbicides, and prescribed burning would be performed outside PNS dates to minimize impacts to threatened and endangered bird species.

3.3.5 *Environmental Consequences – No Action Alternative*

3.3.5.1 Vegetation

Under the No Action Alternative, the proposed BSRW CREP Agreement would not be implemented. Lands that would have been eligible for enrollment would remain in agricultural production. The continued use of land for agriculture or the conversion of land to another type of agricultural production would reduce vegetative diversity, increasing susceptibility to invasion by exotic species, thus reducing wildlife habitat. The runoff of agricultural chemicals, animal wastes, and sediment would continue to degrade water quality, threatening biodiversity.

3.3.5.2 Wildlife

Under the No Action Alternative, the BSRW CREP Agreement would not be implemented. Eligible lands would not be enrolled in the CREP; the benefits of increased and improved habitat for terrestrial wildlife, and the benefits for aquatic species from wetland restoration and buffer practices would not be realized. The runoff of agricultural chemicals, animal wastes, and sediment would continue to degrade water quality, threatening biodiversity.

3.3.5.3 Threatened and Endangered Species and Critical Habitat

Under the No Action Alternative, the proposed BSRW CREP Agreement would not be implemented. Lands that would have been eligible for enrollment would remain in agricultural production. The continued use of land for agriculture or the conversion of land to another type of agricultural production would continue to have adverse impacts on threatened, endangered, and sensitive species by reducing or degrading available habitat and degrading water quality through the runoff of agricultural chemicals, animal wastes, and sediment, threatening endangered or threatened species and critical habitat.

3.3.6 *Reasonably Foreseeable Future Actions and Other Environmental Considerations*

Implementation of the Proposed Action would result in long-term beneficial impacts to biological resources. These would be additive to the beneficial impacts from other similar USDA programs and other state and federal conservation programs that aim to restore habitat and improve water quality in the watershed. The James River Watershed CREP program, located in some of the same counties as the Proposed Action, and more counties to the west of the BSRW, was implemented in 2021. At large scales, beneficial impacts are more complex and synergistic than the additive impacts of individual restoration projects (Diefender et al., 2021).

3.4 CULTURAL RESOURCES

3.4.1 *Definition of Resource*

Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture or community for scientific, traditional, religious, or other purposes. These resources are protected and identified under several federal laws and EOs.

Cultural Resources include the following subcategories:

- Archaeological (i.e., prehistoric or historic sites where human activity has left physical evidence of that activity, but no structures remain standing);
- Architectural (i.e., buildings or other structures or groups of structures, or designed landscapes that are of historic or aesthetic significance); and
- Traditional Cultural Properties (resources of traditional, religious, or cultural significance to Native American tribes and other communities).

Significant cultural resources are called historic properties and are listed on the National Register of Historic Places (NRHP) or have been determined to be eligible for listing. To be eligible for the NRHP, historic properties must be 50 years old and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. They must possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and association to convey their historical significance, and meet at least one of four criteria (National Park Service, 2002):

- Associated with events that have made a significant contribution to the broad patterns of our history (Criterion A);
- Associated with the lives of persons significant in our past (Criterion B);
- Embody distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); and/or
- Have yielded or be likely to yield information important in prehistory or history (Criterion D).

Properties that are less than 50 years old can be considered eligible for the NRHP under Criterion Consideration G if they possess exceptional historical importance. Those properties must also retain historic integrity and meet at least one of the four NRHP Criteria for Evaluation (Criterion A, B, C, or D). The term “Historic Property” refers to National Historic Landmarks, NRHP-listed, and NRHP-eligible cultural resources.

Federal laws protecting cultural resources include the Archaeological and Historic Preservation Act of 1960 as amended, the American Indian Religious Freedom Act of 1978, the Archaeological Resources Protection Act of 1979, the Native American Graves Protection and Repatriation Act of 1990, and the NHPA, as amended through 2016, and associated regulations (36 CFR Part 800). The NHPA requires federal agencies to consider effects of federal undertakings on historic properties prior to making a decision or taking an action and integrate historic preservation values into their decision-making process. Federal agencies fulfill this requirement by completing the Section 106 consultation process, as set forth in 36 CFR Part 800. Section 106 of the NHPA also requires agencies to consult with federally recognized American Indian tribes with a vested interest in the undertaking.

Section 106 of the NHPA requires all federal agencies to seek to avoid, minimize, or mitigate adverse effects on historic properties (36 CFR § 800.1[a]). For cultural resource analysis, the Area of Potential Effects (APE) is used as the ROI. APE is defined as the “geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist,” (36 CFR § 800.16[d]) and thereby diminish their historic integrity. The APE defined to analyze direct and indirect effects for this PEA covers 3.8 million acres within 18 counties included in BSRW in eastern South Dakota (see **Figure 1-1**).

3.4.2 *Affected Environment*

South Dakota exhibits extreme physiographic diversity, encompassing such landscapes as the Black Hills and Badlands in the west; the Missouri River Trench center-state, the Prairie Pothole Region in the northeast; the James and Big Sioux River valleys in the east. As such, prehistoric human groups developed special patterns of adaptation to survive in each of these unique environments. South Dakota was home to diverse life-ways covering a time span of some 14,000 years. The state has been divided into 24 archaeological regions to help capture these localized differences in environment and life-way adaptations. The BSRW encompasses the Upper and Lower Big Sioux regions as well as a portion of the Prairie Coteau region (Sundstrom, 2018).

There are approximately 19,000 archaeological sites recorded in South Dakota. They represent a wide range of purpose and function including hunting and animal processing, temporary residence, tool-stone gathering and working, mounds, earth lodge villages, homesteading, stock-raising, eagle trapping, and religious activities. Pre-European contact sites are typically categorized as artifact scatters, hearths, villages, fortifications, burials, bison or antelope kill sites, eagle-trapping pits, tool-stone procurement and tool manufacture, rock cairns, rock shelters, stone alignments, rock art, stone circles, vision quest locales, and timber lodges. Contact-era and recent sites are most commonly categorized as farmsteads, roads, railroads, foundations, depressions, alignments, burials, cairns, cabins, trading posts, school foundations, town sites, dams, dumps, earthworks, fence-lines, forts, mines, quarries, industrial sites, monuments, and wells or cisterns (Sundstrom, 2018).

The distribution of archaeological sites is geographically patterned. Localities with deeper soils, including alluvial fans, valley floodplains, mesa tops, and rock overhangs often contain buried, deeply stratified sites with excellent potential for both archaeological studies and research on past environmental conditions. Prehistoric and Protohistoric period Woodland and Plains Village sites, including mounds, are largely confined to the major rivers of eastern and central South Dakota, including the BSRW. Historic sites are more evenly scattered throughout the state, with farmsteads more common in the east and ranches in the west (Sundstrom, 2018).

There are 1,379 historic properties listed on the NRHP in South Dakota. Though thousands of archaeological sites have been recorded in the state, and some portion of this number certainly retain integrity sufficient to convey significance for NRHP eligibility, most of the properties formally listed on the register are architectural resources. There are 406 historic properties located in the 18 counties included in the proposed BSRW CREP; all are architectural resources. As noted at the state level, there is a high potential for archaeological sites to exist as well given known patterns of site distribution and the potential richness of archaeological and cultural sites along the floodplain of the Big Sioux River (NPS, n.d.; Sundstrom, 2018).

In addition to archaeological sites and architectural resources, many places sacred to Native Americans exist in South Dakota. These places can be natural landscape features such as hills, springs, caves, and large glacial erratics, as well as culturally modified spaces. Some of these sacred spaces could also be considered Traditional Cultural Properties (TCPs) for purposes of formal evaluation of sites for inclusion in the NRHP under federal law. At present, TCPs are not recorded as archaeological sites in South Dakota unless they contain artifacts or features (Sundstrom, 2018).

3.4.3 *Environmental Consequences Evaluation Criteria*

Adverse effects on cultural resources might include physically altering, damaging, or destroying all or part of a resource or altering characteristics of the resource that make it eligible for listing in the NRHP. Those effects can include introducing visual or audible elements that are out of character with the property or its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate enforceable restrictions or conditions to ensure preservation of the property's historic significance. For this PEA, an effect is considered adverse if it alters the integrity of a NRHP-listed or eligible resource or if it has the potential to adversely affect TCPs and the practices associated with the property.

3.4.4 *Environmental Consequences – Proposed Action Alternative*

The intent of this PEA is to analyze the potential environmental impacts from implementing the BSRW CREP within a geographical area spanning 3.8 million acres. Given the purpose, need, scope and scale of the Proposed Action, a meaningful inventory of historic properties and determination of effects cannot be provided. There is a high potential, however, for recorded and unidentified significant archaeological sites to exist within the BSRW CREP lands, especially those near water sources (rivers and streams, springs, marshes), areas of known habitation or other cultural activities, certain topographic or geologic features, and prehistoric and historic trails. There is also the potential for significant architectural resources and TCPs.

Should the Proposed Action Alternative be implemented, up to 100,000 acres of eligible land would be identified for potential conversion from agricultural use to conservation cover, such as restored wetlands and prairie habitat. Continuation of farming would not be expected to impact cultural resources, however, changes in farming practices or other actions that would disturb previously undisturbed areas may result in impacts to known or unknown historic properties and TCPs. Evaluation of cultural resources impacts for specific lands to be enrolled in CREP, including the identification of previously undisturbed land, is performed through site-specific EEs. Once specific areas of concern have been identified, per Section 106 of the NHPA, these details would be reviewed in consultation with the South Dakota State Historic Preservation Office (SHPO), tribes, and participating state and federal agencies during the planning and implementation phases. This includes definition of specific APEs, development of historic properties inventories, determination of effects to historic properties, and plans for mitigation of adverse effects (as appropriate). This work would also require a Class I literature search to determine if previous cultural resource inventories have been conducted on these properties and if any further investigations are warranted.

To summarize, the cultural resources analysis in this PEA concludes that the Proposed Action Alternative may have potential direct, indirect, and cumulative effects on cultural resources. Site-specific EEs would evaluate the potential for an individual CRP contract to impact cultural resources. The following would apply to individual CRP contracts:

- All future work initiated under the BSRW CREP and associated contracts would meet required federal and state historic preservation statutes, regulations, and guidelines. Any permitting or ground-disturbing actions would be preceded by consultation with South Dakota SHPO and tribal representatives and followed by archival and field investigations as warranted.
- Potential indirect, direct, and cumulative adverse effects on significant cultural resources would be determined and mitigation plans developed for the protection of historic properties, the treatment of TCPs, and unanticipated discoveries.
- CPs would be installed on a mosaic of federal, State, and private lands and different ecologies. Some environmental settings would carry a higher potential for cultural and paleontological resources. Installation of CPs may require participation by, and consultation with, several public and private agencies, some of which would have oversight and permitting roles.

3.4.5 *Environmental Consequences – No Action Alternative*

Under the No Action Alternative, the proposed BSRW CREP would not be implemented. The use of land for agriculture or conversion of lands to other types of agricultural production could result in adverse effects to historic properties. Though the continuation of farming in previously disturbed areas is not expected to impact cultural resources, a change in farming practices that would disturb previously undisturbed areas may result in impacts to known or unknown cultural resources.

3.4.6 *Reasonably Foreseeable Future Actions and Other Environmental Considerations*

Assuming compliance with Section 106 of the NHPA as outlined above, when considered in combination with other reasonably foreseeable future actions, the incremental impact of the Proposed Action is not expected to result in adverse effects to historic properties.

3.5 WATER RESOURCES

3.5.1 *Definition of Resource*

Water resources are natural and man-made sources of water that are available for use by, and for the benefit of, humans and the environment. Water resources relevant to the Proposed Action include surface water, wetlands, groundwater, and floodplains. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes and ensures compliance with the CWA of 1972 (33 [US] Code [U.S.C.] § 1251 et seq.). Each sub-section below will first define the resource and then describe the existing conditions and potential environmental consequences for that resource.

3.5.2 *Affected Environment*

3.5.2.1 Surface Water and Wetlands

Surface water includes natural, modified, and man-made water confinement and conveyance features above groundwater that may or may not have a defined channel and discernable water flow. These features are generally classified as streams, springs, wetlands, natural and artificial impoundments (e.g., ponds, lakes), and constructed drainage canals and ditches.

The CWA regulates discharges of pollutants into surface waters of the United States. Jurisdictional waters, including surface water resources as defined in 33 Code of Federal Regulations § 328.3, are regulated under § 401 and § 404 of the CWA and § 10 of the Rivers and Harbors Act. Man-made features not directly associated with a natural drainage, such as upland stock ponds and irrigation canals constructed in uplands, are generally not considered jurisdictional waters. The CWA establishes federal limits, through the National Pollutant Discharge Elimination System (NPDES) permit process, for regulating point (end of pipe) and nonpoint (e.g., stormwater) discharges of pollutants into the waters of the United States and quality standards for surface waters. The term “waters of the United States” has a broad meaning under the CWA and incorporates deep water aquatic habitats and special aquatic habitats (including wetlands).

The Big Sioux River is a major perennial river which has an average annual discharge of 246 cubic feet per second and on average exceeds bank full stage every 2-3 years. However, periods of low flow are common in the late summer to winter seasons, with a low flow of 0.1 cubic feet per second having been recorded. (NRCS, 2016). The north end of the watershed annually averages around 22 inches of rainfall and 37 inches of snowfall, and the south end of the watershed annually averages around 26 inches of rainfall and 27 inches of snowfall. The river begins near the town of Summit in northeastern South Dakota and flows south for 420 miles to its confluence with the Missouri River near Sioux City, Iowa. The river drops in elevation from 1,826 feet at Summit to 1,085 feet above sea level at the Missouri River (NRCS, 2016). The water from the Big Sioux River flows into the Missouri River then into the Mississippi River and ultimately the Gulf of Mexico. The water quality from the BSRW impacts water users all the way to Louisiana. The Big Sioux River is the heaviest populated river basin in the state and provides drinking water from its surface water and aquifer to approximately 40 percent of the population of South Dakota (NRCS, 2016).

The major tributaries to the Big Sioux River are Peg Munky Run, North Deer Creek, Six Mile Creek, Skunk Creek, Split Rock Creek, Beaver Creek, and Brule Creek. These tributaries are all shown in **Figure 3-1**. There are numerous intermittent tributaries which convey water only during spring snow melt, rainfall events or when field drainage tile is discharging directly into them.

Several water bodies, over a substantial geographic area, are impaired within the BSRW. The impairments impact the use of the river and streams for boating, fishing, swimming, and other recreational uses. Further, while the impairments have not yet affected use of the river as a domestic water supply, the increased loading may require more extensive purification treatment in the future (EDWDD, 2020). SDDANR has assessed 45 lakes and maintains 26 water quality monitoring sites within the BSRW (SDDANR, 2022). Seventeen water quality monitoring sites are located on the Big Sioux River itself.

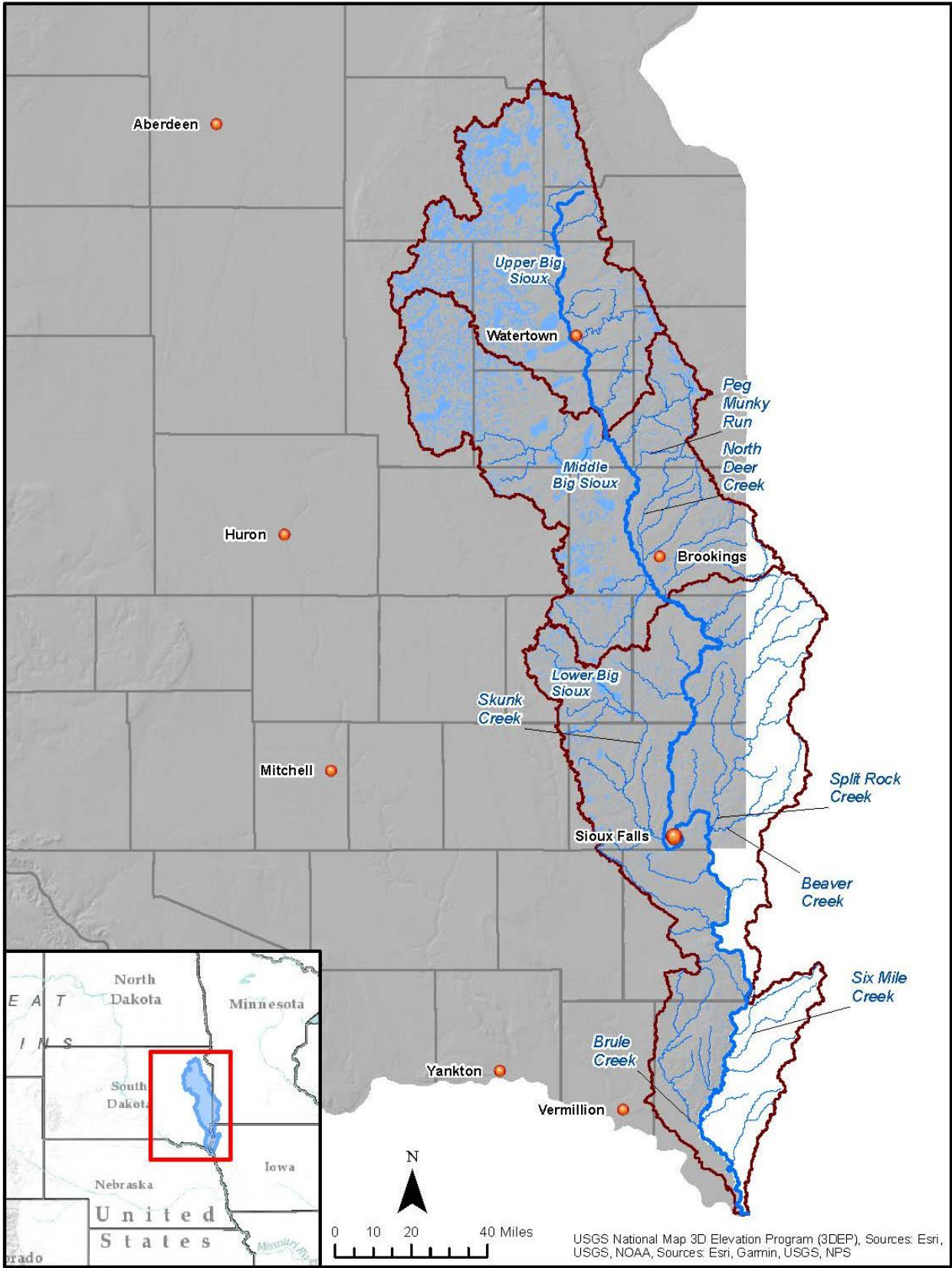


Figure 3-1. Surface Water in the Big Sioux River Watershed

In The BSRW, the 2022 *Draft South Dakota Integrated Report for Surface Water Quality* lists 78 different waterbody segments or lakes with approved USEPA Total Maximum Daily Loads (TMDLs) and 48 different waterbody segments or lakes on the Section 303 (d) list for waters that are impaired by a pollutant and in need of a TMDL.

The main causes of nonsupport within BSRW streams continue to be *Escherichia coli* bacteria and TSS. Agriculture holds partial responsibility for many environmental impacts to waterbodies within the BSRW. Livestock access to waterbodies has led to increased nutrient and bacterial loading which can cause harmful algae blooms and contribute to elevated *Escherichia coli* levels. Sediment sources are overland runoff from nearby croplands, inflow from tributaries, and streambank erosion. Lakes in the BSRW are susceptible to rapid changes produced by large nutrient and sediment loads from sizeable agricultural watersheds comprised of glacial soils (SDDENR, 2020a).

The U.S. Army Corps of Engineers (USACE) defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions” (Environmental Laboratory, 1987). Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR Part 328).

Wetlands are an important natural system and habitat because of the diverse biologic and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat detention, and erosion protection. Wetlands are protected as a subset of the “the waters of the United States” under Section 404 of the CWA. Section 404(b)(1) of the CWA directs the USEPA to develop guidelines for the placement of dredged or fill material (33 U.S.C. § 1341[b]). These guidelines developed by USEPA are known as the “404(b)(1) Guidelines” and are located at 40 CFR Part 230. The stated purpose of the Guidelines is to “restore and maintain the chemical, physical, and biological integrity of waters of the United States through the control of discharges of dredged or fill material” (40 CFR § 230.1[a]). Federal protection of wetlands is also promulgated under EO 11990, Protection of Wetlands, the purpose of which is to reduce adverse impacts associated with the destruction or modification of wetlands. This order directs federal agencies to provide leadership in minimizing the destruction, loss, or degradation of wetlands. The USACE administers Section 404 of the CWA and in South Dakota has primary jurisdictional authority to regulate wetlands and waters of the United States.

In 2009, South Dakota had an estimated 1,870,790 acres of shallow water wetlands (Dahl, 2014). The total number of wetlands in South Dakota declined by 2.8 percent from 1997 to 2009 (Dahl, 2014). Small temporary wetlands comprised the primary type of emergent wetland loss. South Dakota did exhibit gains in all other emergent wetland classes, especially larger seasonal and semipermanent classes between 1997 and 2009. The wetland acreage estimates provided by Dahl (2014) represent the most recent documentation of wetland extent available for South Dakota. GIS data from the USFWS’ National Wetland Inventory indicates that there are 251,000 acres of wetlands, 13,000 acres of freshwater ponds, 76,000 acres of lakes, and 20,613 acres of riverine wetlands within the BSRW. Open water and wetlands comprise 9.4 percent of the total watershed area.

The general loss of small temporary wetlands and gain in larger seasonal and semipermanent wetlands can be attributed to agricultural drainage practices. Portions of eastern South Dakota lack open channel ditch networks to convey water from wetland depressions in agricultural fields to riverine systems. Drainage from small temporary wetlands is often conveyed by drain tile networks to downstream basins contributing to the increase in seasonal or semipermanent wetland habitats. The loss of temporary wetlands and overall increase in acreage of seasonal and semi-permanent is the current general trend (SDDANR, 2022).

3.5.2.2 Floodplains

Floodplains are areas of low, level ground present along rivers, stream channels, or coastal waters that are subject to periodic or infrequent inundation due to rain or melting snow. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, nutrient cycling, water quality maintenance, and provision of habitat for a diversity of plants and animals. Flood potential is evaluated by the Federal Emergency Management Agency, which defines the 100-year floodplain as an area within which there is a 1 percent chance of inundation by a flood event in a given year, or a flood event in the area once every 100 years. The risk of flooding is influenced by local topography, the frequency of precipitation events, the size of the watershed above the floodplain, and upstream development. EO 11988, *Floodplain Management* (42 FR 26951, 1979), requires that federal agencies: "...take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains..." Federal agencies are required to avoid, to the extent possible, adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development. Additionally, all earthmoving, grading, and construction in a Special Flood Hazard Area (as defined by the Federal Emergency Management Agency) would require a Floodplain Development Permit to ensure compliance with the National Flood Insurance Program regulations.

Along the Big Sioux River, floods are relatively common due to a combination of flat land, heavy snows, and heavy spring rains. According to the First Street Foundation (2020), South Dakota has about 9.9 percent of its total properties at substantial risk of flooding. Sioux Falls, located in the southern portion of the BSRW, is number two on the list of municipalities in South Dakota with the greatest number of properties at risk, with 3,150 properties at risk for flooding. Madison and Watertown, both within the BSRW, are in the top 10 South Dakota municipalities with the greatest proportion of properties at risk for flooding, at 16 percent and 13 percent respectively (First Street Foundation, 2020). Efforts to reduce flood damage in the BSRW include river channelization, construction of dams and levees, removal of debris that clogs channels, and restoration of natural stream flow and riparian vegetation.

3.5.2.3 Groundwater

Groundwater exists in the saturated zone below the ground surface that collects and flows through permeable zones in aquifers. Groundwater is an essential resource that discharges to surface water supplying baseflow and is used for drinking, irrigation, and industrial purposes. Groundwater typically can be described in terms of depth from the surface, aquifer or well capacity, water quality, recharge rate, and surrounding geologic formations.

Groundwater quality and quantity are regulated under several federal and state programs. Groundwater resources are regulated on the federal level by the USEPA under the Safe Drinking Water Act (SDWA), 42 U.S.C. § 300f et seq. The federal Underground Injection Control regulations, authorized under the SDWA, require a permit for the discharge or disposal of fluids into a well. The SDDANR Drinking Water Program reviews projects for the potential to impact public drinking water sources (groundwater wells and surface water intakes) and sets standards for groundwater to protect human health.

In South Dakota, approximately 52 percent of the public drinking water systems rely solely on groundwater and approximately 74 percent of South Dakota's citizens use ground water as their source of drinking water (Iles, 2008). South Dakota does not suffer from a lack of ground water as there are many aquifers, or subsurface water-bearing units, in the state. However, the water-producing units may be deep (very expensive drilling and well installation), may have undesirable water quality, or may not yield the desired quantity of water where it is needed (Iles, 2008).

In eastern South Dakota, glacial outwash aquifers are very important. There are approximately 444 public water supply systems east of the Missouri River and 392 of them utilize glacial outwash aquifers (Iles, 2008). In contrast with the bedrock-type aquifers such as the Deadwood Formation and Dakota Sandstone,

glacial outwash aquifers are extremely difficult to predict in the subsurface. The glacial outwash aquifers commonly possess water quality which is better than more deeply buried bedrock-type aquifers. Most areas of South Dakota are underlain by more than one aquifer.

The major aquifer in the BSRW is the Big Sioux aquifer, a major glacial drift unconfined aquifer, which extends most of the length of the basin along the Big Sioux River and its tributaries (Davis et.al., 2019). Recharge to the Big Sioux aquifer in the study area is by infiltration of precipitation and seepage from the Big Sioux River. Natural discharge is by evapotranspiration and seepage to the Big Sioux River. Groundwater levels fluctuate seasonally in response to changes in recharge or discharge (Koch, 1982).

According to the 2016 *Big Sioux River Watershed Strategic Plan*, the groundwater is hard but is of good quality with the median level of total dissolved solids (TDS) at about 350 parts per million in the Rolling Till Prairie and Loess Upland Common Resource Areas (CRAs), which cover the Middle Big Sioux and Lower Big Sioux hydrologic units. Water in the Till Prairie CRA, which is generally in the Upper Big Sioux hydrologic unit, averages about 670 parts per million TDS, which exceeds the national standard for drinking water (NRCS, 2016). Groundwater obtained from the Big Sioux and Skunk Creek aquifers and several other minor aquifers are the sources of most good quality potable water used in the BSRW. Water in these surficial aquifers is easily susceptible to contamination from barnyards, feedlots, dump grounds, septic disposal fields, and crop fertilizers because they are near the land surface and covered with permeable material (NRCS, 2016). The Prairie Coteau is the next deep aquifer buried beneath the clay till. Its water is generally of poor quality and many tested wells were high in nitrates (NRCS, 2016). Data from the South Dakota Groundwater Quality Monitoring Network indicates that many of the monitoring wells in the BSRW have high nitrate/nitrite concentrations above the USEPA standard for nitrate in drinking water. Additionally, the monitoring well data shows TDS concentrations above the drinking water standard (500 mg/L) throughout the watershed and some areas with high phosphorus and ammonia concentrations (SDDANR, n.d.).

3.5.3 *Environmental Consequences Evaluation Criteria*

Evaluation criteria for potential impacts on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. Adverse impacts to water resources would occur if the proposed or alternative actions:

- Reduce water availability or supply to existing users;
- Overdraft groundwater basins;
- Adversely affect groundwater recharge;
- Exceed safe annual yield of water supply sources;
- Adversely affect water quality;
- Threaten or damage unique hydrologic characteristics;
- Endanger public health by creating or worsening health hazard conditions; or
- Violate established laws or regulations adopted to protect water resources.

3.5.4 *Environmental Consequences – Proposed Action Alternative*

3.5.4.1 *Surface Water and Wetlands*

Implementation of the proposed BSRW CREP Agreement would have long-term beneficial impacts on surface water. Impaired waterways within the BSRW would be improved and the CPs established would contribute to meeting existing TMDLs and other water quality standards. Four of the nine CPs described in **Section 2.1** are designed primarily to improve water quality (CP21, Filter Strips, CP29, Marginal Pastureland Wildlife Habitat Buffer, CP30, Marginal Pastureland Wetland Buffer, and CP43 Prairie Strips).

Under the Proposed Action Alternative, Filter Strips (CP21) and Prairie Strips (CP43) would be established on eligible lands. Filter Strips and Prairie Strips are designed to reduce the runoff of sediments, nutrients, pesticides, and other contaminants by slowing the velocity of runoff. A decrease in velocity allows sediments

to settle and soluble pollutants to be taken up by vegetation before reaching water bodies. Prairie Strips (CP43) have a secondary purpose to provide wildlife and beneficial insect habitat. Marginal Pastureland Wildlife Habitat Buffers (CP29) and Marginal Pastureland Wetland Buffers (CP30) are also designed to improve water quality with additional purposes of restoring wildlife habitat and restoring degraded wetland habitat respectively. Specifically, implementation of Marginal Pastureland Wildlife Habitat Buffers (CP29) would establish buffers of native plant communities on marginal pastureland. These buffers would be situated adjacent to permanent water bodies to stabilize stream banks and reduce pollutant and sediment runoff. Implementation of Marginal Pastureland Wetland Buffers (CP30) would restore or enhance plant communities associated with existing or degraded wetlands to reduce nutrient and pollutant levels entering surface water.

Implementation of the Proposed Action Alternative would result in a beneficial long-term impact on wetlands that would be restored under CP23 and CP23A and wetlands adjacent to acreage enrolled in the other CPs described above. Wetland Restoration (CP23) and Wetland Restoration, Non-Floodplain (CP23A) are designed to restore the functions of natural wetlands. Wetlands purify water by removing phosphorus and nitrogen content commonly found around agricultural communities. Removing phosphorus and nitrogen from water sources reduces algae blooms that deplete the oxygen content in surface water. The Duck Nesting Habitat (CP37) CP would also benefit wetlands as its purpose is to enhance duck nesting habitat on the most duck-productive areas to restore the functions and values of wetland ecosystems that have been devoted to agricultural use. The remaining CPs (CP4D, Permanent Wildlife Habitat; CP25, Rare and Declining Habitat; and CP37, Duck Nesting Habitat) are primarily for the purpose of providing and enhancing wildlife habitat. However, these CPs are required to improve environmental benefits to less than the soil loss tolerance and to prevent degradation of environmental benefits from recurring.

Installation of CPs may involve the clearing of vegetation and some soil disturbance from activities such as grading, leveling, fencing, seedbed preparation, or installation of pipelines or other infrastructure for water conveyance. These activities may result in increased levels of sediment runoff, resulting in short-term negligible adverse impacts to surface water quality and wetlands. The use of filter fencing or similar BMPs to control erosion and invasive plant species would reduce impacts and contain sediment within the site. These potential impacts are short-term and localized and would cease with conclusion of land preparation activities.

Herbicides could be used in the establishment of some CPs. All herbicides used would be registered with the USEPA and applied according to label requirements. CP implementation that requires the use of herbicides, fertilizers, lime, or any other such applications, as well as the timing of implementation, must be both allowable under the CP continuous signup policy and pre-approved through a Conservation Plan developed with the NRCS. There would be short-term negligible adverse impacts to surface water from use of these chemicals.

3.5.4.2 Floodplains

Many of the CPs would result in the establishment of permanent vegetation on enrolled acreage that would reduce erosion and improve the function and stabilization of floodplains. This permanent vegetation would result in a beneficial long-term impact on floodplains. Additionally, the CPs that include wetland restoration would allow more flood water to be captured in the wetlands. The restored wetlands would slowly release flood waters over the floodplain which would decrease flood heights and flood risks to BSRW community.

3.5.4.3 Groundwater

Implementation of the proposed BSRW CREP Agreement would result in a beneficial long-term impact on groundwater quality and quantity within the State. The enhancement or addition of native vegetation through the proposed CPs would slow the rate of rainwater flow over the ground, creating greater rates of aquifer recharge. Filter strips can also be placed strategically near groundwater recharge areas to increase infiltration rates. Restored wetlands could also result in additional groundwater recharge. The improvement

in surface water quality discussed previously would result in improved quality of groundwater recharged by these surface waters. The leaching of nutrients into groundwater would be reduced due to the discontinuation of agricultural practices on enrolled acreage. Groundwater quality is expected to benefit from the reduction in cropland as improvements in concentrations of TDS, nitrates/nitrites, phosphorus, and ammonia in groundwater would be expected.

3.5.5 *Environmental Consequences – No Action Alternative*

3.5.5.1 Surface Water and Wetlands

Under the No Action Alternative, the proposed BSRW CREP would not be implemented. The use of land for agriculture or conversion of lands to other types of agricultural production could result in the continued degradation of water quality from runoff of agricultural chemicals, animal waste, and sediment. Potential benefits to surface water would not be realized. Impaired waterways within the BSRW would not be improved and there would be no contribution to meeting existing TMDLs and other water quality standards.

Under the No Action Alternative, the CPs described in **Section 2.1** would not be implemented and no wetland restoration would occur. Continued runoff of agricultural chemicals, erosion of soils, and the impacts of these to wetlands would be expected if the No Action Alternative were implemented.

3.5.5.2 Floodplains

Under the No Action Alternative, the CPs described in **Section 2.1** would not be implemented and no wetland restoration and no increase in permanent floodplain vegetation would occur. The beneficial impacts to floodplains and flood control would not be realized.

3.5.5.3 Groundwater

Under the No Action Alternative, the CPs described in **Section 2.1** would not be implemented and there would be no increase in permanent vegetation, wetland acreage, or improvement of surface water quality. The beneficial impacts of increased groundwater recharge and improved groundwater quantity and quality from implementation of the CPs would not be realized.

3.5.6 *Reasonably Foreseeable Future Actions and Other Environmental Considerations*

The incremental contribution of impacts of the Proposed Action, when considered in combination with other reasonably foreseeable future actions described in **Appendix D**, are expected to add positively to the long-term cumulative impacts to water resources in the BSRW. Short-term, adverse impacts to surface water may occur during establishment of CPs, but these impacts would be negligible, well controlled with BMPs, and would not impact water quality at the regional level.

3.6 AIR QUALITY

3.6.1 *Definition of Resource*

Air quality in various areas of the country is affected by air pollutants emitted by numerous sources, including natural and man-made sources. Weather conditions and topography of the area will further influence the amounts and types of pollutants that are present in the ambient air.

To manage pollutant emission levels in ambient air, the USEPA was mandated under the federal Clean Air Act to set standards for select pollutants that are known to affect human health and the environment. These standards, known as National Ambient Air Quality Standards (NAAQS), are currently established for six criteria air pollutants: ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable particulate matter (including particulates equal to or less than 10 microns in diameter [PM₁₀] and particulates equal to or less than 2.5 microns in diameter [PM_{2.5}]), and lead (Pb).

To evaluate compliance with NAAQS, the USEPA has divided the country into geographical regions with regulatory areas that are designated as an attainment area or nonattainment area for each of the criteria pollutants depending on whether it meets or exceeds the NAAQS. Attainment areas that were reclassified from a previous nonattainment status to attainment are called maintenance areas. For areas designated as nonattainment or maintenance for one or more criteria pollutants, the state must prepare a State Implementation Plan (SIP) or a Maintenance Plan to show how the area will meet or maintain the NAAQS within a specified timeframe.

Federal actions in NAAQS nonattainment and maintenance areas are also required to comply with the USEPA's General Conformity Rule (40 CFR 93). Federal actions are evaluated to determine if project emissions are below *de minimis* levels for each of the pollutants as specified in 40 CFR § 93.153. If project emissions are below *de minimis* levels (or are minimal), no further evaluation is required. If project emissions are exceeded for any of the pollutants, detailed analysis is necessary.

Some areas of the country have been designated as Class I federal wilderness areas to address the problem of visibility (40 CFR 81.410, 81.425, and 81.434). Class I areas include national parks larger than 6,000 acres, national wilderness areas and national memorial parks larger than 5,000 acres, and international parks. To maintain good air quality in these pristine areas in the country, the SIPs must also address visibility as an air quality issue.

Greenhouse gases (GHGs) are gases occurring from natural processes and human activities that trap heat in the atmosphere. The accumulation of GHGs in the atmosphere helps regulate the earth's temperature and are believed to contribute to global climate change. The USEPA regulates GHG emissions via permitting and reporting requirements that are applicable mainly to large stationary sources of emissions. Agricultural activities contribute directly to emissions of GHGs including carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). These emissions result through a variety of activities such as the use of diesel-fueled farm equipment, enteric fermentation, agricultural soil and manure management, and crop and field burning.

The air quality analysis for this PEA considers the area within the BSRW that includes parts of the 18 counties in eastern South Dakota (see **Figure 1-1**). Also considered are the potential effects of activities, such as site preparation and construction, that would take place in the BSRW and could lead to increases in air emissions.

3.6.2 Affected Environment

South Dakota lies in the Northern Great Plains, and due to its location in the center of the North American continent, the state experiences large temperature extremes. Winters are cold and summers are warm, with some hot days. The average January temperatures range from less than 10°F-15°F in the northeast to more than 25°F in the southwest, while average July temperatures range from about 65°F in Black Hills National Forest to more than 75°F in the south-central region. Temperatures of 100°F or more occur nearly every year (NOAA, 2022). In general, the eastern third of the state has precipitation amounts that can average 20 inches or more per year. Dry periods can occur but are usually short-term events affecting only some areas. High winds can occur at any time of the year and can be a source of localized high PM₁₀ concentrations. The levels of PM₁₀ are the highest when high winds are associated with extended drought (SDDENR, 2020b).

SDDANR is the agency responsible for meeting and maintaining the federal NAAQS in the state. SDDANR has implemented a network of ambient air monitoring sites across the state to monitor ambient air pollutant levels of criteria pollutants. The ambient air monitors located in the BSRW include the Brookings Research Farm site, the Watertown site, and the Sioux Falls site; these monitors all show that the NAAQS were met for the calendar years 2018 to 2020 (SDDANR, 2021a). The air is generally considered to be clean in the areas under consideration for this analysis and these areas are in attainment of primary and secondary regulatory standards for ambient air quality. Also, the state's two Class I areas at Badlands and Wind Cave National Parks are in the western region of the state, and thus, issues related to visibility and regional haze are not a concern for this PEA.

Within the BSRW, the sources of criteria pollutants in agriculture (not including fuel combustion sources) include crops and livestock dust, fertilizer application, livestock waste, and agricultural field burning. Agriculture contributes to the overall air quality concerns of the State in a significant way. Emissions from PM₁₀ and from PM_{2.5} from the agriculture sector in South Dakota make up approximately 50 percent of the total particulate matter emissions (USEPA, 2017).

In 2020, at the national level, the agriculture sector was responsible for 594.7 million metric tons of CO₂-equivalent emissions, or 10.0 percent of total greenhouse gas emissions in the country, with the majority of N₂O emissions being generated from agricultural soils. Emissions of N₂O through activities such as fertilizer application and other agricultural practices accounted for 74 percent of total GHG emissions in the U.S. (USEPA, 2020).

3.6.3 *Environmental Consequences Evaluation Criteria*

The entire state of South Dakota, including all the 18 counties covered by the BSRW, meet the federal standards for emissions of criteria pollutants and are in attainment of the NAAQS for all specified pollutants (40 CFR 17 Part 81.342). In general, air quality impacts in these attainment areas would be considered significant if air emissions associated with the Proposed Action violated the NAAQS. Impacts would also be considered significant if:

- Any national, State, or local ambient air quality standard is violated by pollutant emissions associated with the Proposed Action;
- Sensitive receptors (e.g., residential areas, hospitals, etc.) are exposed to substantially increased pollutant concentrations during implementation of the Proposed Action; or
- Pollutant emissions associated with the Proposed Action exceed any significance criteria established by the SIP.

In addition, for this analysis, the impact to GHG emissions from the potential implementation of the BSRW CREP is evaluated in a qualitative manner. GHG emissions are qualitatively evaluated because it is not known at this time when and where the CPs would be implemented.

3.6.4 *Environmental Consequences – Proposed Action Alternative*

The BSRW CREP would replace agricultural practices on up to 100,000 acres of eligible lands with conservation cover, including restored wetland and prairie habitat. These actions would result in long-term beneficial air quality impacts in the BSRW region.

The beneficial impacts on air quality would be associated with a reduction in GHG and criteria pollutant emissions from the reduction in typical farm activities, such as preparing agricultural land, burning fossil fuels, and the application of herbicides. Air quality would also greatly benefit in the long-term from implementation of the proposed CPs for the BSRW CREP due to increased capture and storage of carbon dioxide from the atmosphere by planted vegetative and forest cover. The potential for carbon sequestration and the potential reduction in criteria pollutant emissions would have an overall beneficial impact on air quality in the region and would help mitigate climate change.

Many of the CPs proposed include restoration of grassland and wetland habitats or establishing and maintaining forest cover. Establishing and maintaining forest cover, and specifically, planting of native and other desirable plant species, would allow for an increased level of capture and storage of atmospheric carbon as compared to that for agricultural land. Trees reduce the amount of carbon in the atmosphere by sequestering carbon in new tissue growth and can help mitigate climate change. A United States Forest Service (USFS) study related to pollution removal by trees in urban areas of South Dakota estimated that urban trees remove 170 metric tons of air pollutants (CO, NO₂, PM₁₀, SO₂) per year and sequester an estimated 9,000 metric tons of carbon per year (USFS, 2020). Implementation of the Proposed Action would also reduce other GHG emissions, such as N₂O and CH₄ due to a reduction in certain agricultural activities, including manure management and livestock enteric fermentation. Increasing vegetative cover would also reduce particulate matter emissions because of decreased wind erosion, thus further benefitting air quality.

Activities such as grading, compacting, site preparation and debris removal associated with CP installation and maintenance can produce dust or release particulate matter into the air. These emissions are primarily fugitive in nature and are temporary. Watering exposed soil during and after such ground-disturbing activities would reduce dust emissions. The use of diesel vehicles and heavy-duty equipment for site preparation, tilling, and seed-bed preparation (e.g., tractors, backhoes, rolling harrow, cultipacker) would emit air pollutants as exhaust emissions from the combustion of fuel. These emissions are negligible and similar to emissions from vehicles and equipment already in use on farms.

For the installation and ongoing maintenance of CPs, mechanical disturbance may take place in combination with prescribed burning of vegetative material such as trees, leaves, and agricultural crops. The exact location and extent of prescribed burning that would take place for this Proposed Action is not known at this time. Burning could release PM₁₀, PM_{2.5}, CO, and NO₂ into the air. The type and quantity of these pollutants would be determined by the type of vegetation being burned and the weather conditions. Depending on where the burn takes place, there could be restrictions to burning in the area. Prior consultation with state and local permitting agency is recommended to determine the open burning regulations for the affected county since these regulations can change each season. For example, South Dakota's Wildland Fire Division requires that a person obtain an open burning permit for burns in the Black Hills Forest Protection District. Also, in some cases, a permit from the local fire department may also be required. If open burning is planned, there are specific guidelines to follow, provided by SDDANR (SDDANR, 2021b). It is not anticipated that burning would have a significant negative impact on the local air quality as adequate precautions would be followed and because of the small-scale nature of these potential prescribed burns.

Construction of structures, such as firebreaks, hydrological barriers, and irrigation systems would require various types of equipment, such as backhoes, front-end loaders, tractors and skid-steer loaders. Diesel vehicles and heavy-duty diesel equipment used for such operations would emit pollutants such as CO, VOCs, NO_x and PM, but these emissions would be localized, temporary, and minor. Routine and proper maintenance of equipment and vehicles and use of BMPs for construction activities would reduce criteria pollutant emissions. As with site preparation activities, fugitive emissions from construction activities would be reduced using dust suppression practices, as needed.

None of the CREP installation and maintenance activities are anticipated to result in visual impairment of any Class I areas, cause or contribute to a violation of any NAAQS, or expose sensitive receptors to substantially increased pollutant concentrations. Overall, air quality is expected to benefit in the long-term due to the potential for carbon sequestration by increased vegetative cover and reduction in emissions from agricultural activities.

3.6.5 Environmental Consequences – No Action Alternative

Implementation of the No Action Alternative would not change existing air quality conditions. The CPs described in **Section 2.1.2** would not be implemented. As part of the No Action Alternative, existing agricultural practices would continue, and air quality conditions would not improve.

3.6.6 Reasonably Foreseeable Future Actions and Other Environmental Considerations

As part of the Proposed Action Alternative, the enrollment of existing cropland and marginal pastureland into the CREP and into CPs would add to land already participating in CRP or other similar conservation programs. If more such land is brought under conservation programs, there would be additional improvement in air quality in the long-term due to the reduction in emissions from agricultural practices on enrolled land and the increase in vegetative cover.

3.7 SOILS AND TOPOGRAPHY

3.7.1 *Definition of Resource*

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of structure, elasticity, strength, shrink-swell potential, and erosion potential affect the ability of a given area to support certain applications or uses. In certain cases, soil properties must be assessed for their compatibility with particular construction activities or types of land use. Topography and physiography pertain to the general shape and arrangement of the land surface, including the height and position of natural and man-made features.

3.7.2 *Affected Environment*

The BSRW primarily consists of nearly level to gently sloping plains, with numerous depressions. The BSRW drains a unique land formation known as the Coteau des Prairies or the Hill of the Prairies. Approximately 200 miles long and 100 miles wide, the Coteau des Prairies elevation ranges from 2,000 feet above mean sea level (msl) to 1,600 feet above msl. During the Wisconsin glaciation, about 12,000 years ago, drainage from glacial ice formed two streams. The James Lobe in the west and the Des Moines Lobe in the east deepened the flanking lowlands to form the Coteau des Prairies plateau. As the glacier ice melted, large blocks of ice left numerous depressions in the form of wetlands and lakes in the topography of the Coteau des Prairie and BSRW (NRCS, 2016).

Drift plains, large glacial lake basins, and shallow river valleys with level to undulating surfaces and deep soils, provide the basis for a crop agriculture. The young geologic age has left an immature drainage system leaving the ecoregion dotted with substantial numbers of wetland depressions, ranging in size and permanence (see **Section 3.5.2.1** for a discussion of wetlands). This moderately high concentration of semi-permanent and seasonal wetlands is commonly referred to as Prairie Pothole Region (NRCS, 2016).

The BSRW is primarily classified by the NRCS as part of the Central Feed Grains and Livestock Region, in which the predominant soils are Alfisols, Entisols, Inceptisols, or Mollisol. Soils in the BSRW are generally very deep, ranging from well-drained to very poorly drained and loamy. Major soil resource concerns in the watershed include water erosion and maintenance of organic matter in the soils due to agricultural runoff from nearby croplands and pastures (USDA, 2006; Malo et. al, 2010; SDDENR, 2020a).

3.7.3 *Environmental Consequences Evaluation Criteria*

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating potential impacts of the Proposed Action on geological resources. Generally, impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering design are incorporated into project development.

Effects on geology and soils would be adverse if they would alter the lithology, stratigraphy, or geological structures that control groundwater quality or availability. Impacts would also be considered adverse if implementation changes the soil composition, structure, or function of soil within the environment or if implementation permanently increases the potential for erosion.

3.7.4 *Environmental Consequences – Proposed Action Alternative*

Under the Proposed Action Alternative, long-term beneficial impacts are expected to occur from localized stabilization of soils and topography. Reduced erosion and runoff as a result of permanent vegetative cover adjacent to both grasslands and waterbodies (from CP4D, CP21, CP29, and CP30) would stabilize riverbanks, resulting in reduced rates of erosion and sediment runoff from agricultural land. The restoration and addition of wetlands (CP23 and CP23A) and waterfowl habitat (CP37) promotes aquatic vegetation that slows the velocity of water runoff and reduces flooding and its erosive potential.

Short-term disturbances to soils during implementation of the CPs could include grading, leveling, tilling, or installation of various structures such as fences and temporary irrigation features. These activities may result in temporary minor increases in soil erosion; however, they would be reduced by implementing erosion control BMPs such as establishing stable grades, applying water to limit airborne dust in windy environments, and installing silt fencing. Under the Proposed Action Alternative, erosion and soil compaction would be properly controlled during CP installation resulting in minor impacts to soils.

3.7.5 Environmental Consequences – No Action Alternative

Under the No Action Alternative, the proposed CREP would not be implemented. Eligible lands would not be enrolled in the proposed BSRW CREP and potential benefits to soils and topography would not occur. The beneficial impacts associated with the expected reduction in agricultural runoff would not occur and soil degradation would continue.

3.7.6 Reasonably Foreseeable Future Actions and Other Environmental Considerations

The incremental contribution of impacts of the Proposed Action, when considered in combination with other reasonably foreseeable future actions, are expected to add positively to the long-term cumulative impacts to soils and topography in the BSRW. Short-term, adverse impacts to soils may occur during establishment of CPs, but these impacts would be minor, well controlled with BMPs, and would not impact soil erosion rates at the regional level.

3.8 OTHER PROTECTED RESOURCES

3.8.1 Definition of Resource

Other protected resources are lands preserved and managed for the federal government for the purpose of conservation, recreation, or research. This includes National Historic Landmarks, Wetland Management Districts, National Wildlife Refuges, Wild and Scenic Rivers, and American Indian Reservations. National Historic Landmarks preserve historic properties that represent an outstanding aspect of American history and culture and are managed by the National Park Service. The USFWS manages Wetland Management Districts and National Wildlife Refuges. These public lands and water are protected to conserve America's fish, wildlife, plants, and people. Wild and Scenic Rivers are managed by the National Wild and Scenic Rivers System Interdisciplinary Council of four federal land agencies including the Bureau of Land Management, National Park Service, USFWS, and the U.S. Forest Service. Under Public Law 90-542, certain rivers with outstanding natural, cultural, and recreational values are preserved in a free-flowing condition for the enjoyment of present and future generations (National Wild and Scenic Rivers, 2022). American Indian reservations are tracts of land governed by a federally recognized tribal nation that are accountable to the U.S. Bureau of Indian Affairs.

3.8.2 Affected Environment

Protected lands within the boundaries of the BSRW include Blood Run National Historic Landmark, Madison Wetland Management District, Waubay National Wildlife Refuge, Waubay National Wetland Management District, and the Lake Traverse Indian Reservation (Sisseton Wahpeton Oyate of the Lake Traverse Reservation, 2022). **Table 3-2** provides the county(ies) where the protected land is located, the federal managing agency, and a description of the protected land. While portions of the Missouri River along the South Dakota southern border are designated as Wild and Scenic, they are located downstream and outside the boundaries of the BSRW.

Table 3-2. Protected Lands within the Boundaries of the Proposed Conservation Reserve Enhancement Program Area

Protected Land/Waters	Location (Counties)	Managing Agency	Description
Blood Run National Historic Landmark	Lincoln (Portions of the landmark are located in Iowa)	NPS	This site is the largest known and most complex site of the late prehistoric Oneota tradition. Remnants of the community include mounds and stone circles. ¹
Madison Wetland Management District	Deuel	USFWS	This region covers about 313,000 square miles. The purpose of the district is to restore and preserve the vital habitats of the Prairie Pothole Region. ²
Waubay National Wildlife Refuge	Day	USFWS	This area provides refuge and breeding ground for over 245 species of migratory birds and other wildlife in the Prairie Pothole Region. ²
Waubay National Wetland Management District	Day	USFWS	This district provides prime breeding and nesting habitat for a variety of waterfowl species and offers recreational opportunities including sport fishing, hunting, and trapping. ²
Lake Traverse Indian Reservation	Codington, Day, Grant, Marshall, Roberts (portions of the Reservation are located in North Dakota)	BIA	This is an American Indian Reservation of the Sisseton Wahpeton Oyate Nation. ³

NPS = National Park Service; USFWS = U.S. Fish and Wildlife Service; BIA = Bureau of Indian Affairs

¹Iowa Department of Cultural Affairs, 2022

²USFWS, 2022b.

³Sisseton Wahpeton Oyate of the Lake Traverse Reservation, 2022.

3.8.3 Environmental Consequences Evaluation Criteria

Impacts to other protected resources would be adverse if an action interfered with the ability of the agency managing the protected resource to carry out the conservation or research mission of that resource. For example, an action that would interfere with public access or experience at a National Park, wildlife refuge, or historic landmark would be considered an adverse impact.

3.8.4 Environmental Consequences – Proposed Action Alternative

Adverse impacts on protected lands are not expected. Agricultural lands participating in the proposed BSRW CREP would be converted to improved natural lands, wildlife habitat, vegetative cover, or restored wetlands. Improved water quality would result in long-term beneficial impacts to the downstream portions of the Missouri River that are designated Wild and Scenic. Increasing wetlands and wildlife habitat may reduce fragmentation of habitats (and hunting grounds) and would provide beneficial impacts to adjacent wildlife refuges and wetland management districts. Overall, enhancing the ecosystem would provide added benefits to protected lands. Long-term beneficial impacts would be anticipated from the restoration of natural lands located near protected lands.

3.8.5 *Environmental Consequences – No Action Alternative*

Under the No Action Alternative, the proposed CREP would not be implemented. Conversion of agricultural lands to conservation cover would not occur. Agricultural lands would continue to operate under current production or may be converted to another use that may conflict with adjacent protected lands. Protected lands would not realize the benefits from the restoration of natural lands located near protected lands.

3.8.6 *Reasonably Foreseeable Future Actions and Other Environmental Considerations*

The incremental contribution of impacts of the Proposed Action, when considered in combination with other reasonably foreseeable future actions, are expected to add positively to the long-term cumulative impacts to other protected resources in the BSRW.

3.9 SOCIOECONOMICS AND RECREATION

3.9.1 *Definition of Resource*

Socioeconomic analyses generally include detailed investigations of the prevailing population, income, employment, and housing conditions of a community or region. The socioeconomic conditions of a region could be affected by changes in the rate of population growth, changes in the demographic characteristics of a region, or changes in employment caused by the implementation of a Proposed Action.

Socioeconomic resources within this document include total population, rural population, total number of farms, and acreage eligible for available CPs associated with the BSRW CREP implementation within South Dakota. The sections below identify the information essential to describe the broad-scale demographic and economic components of the statewide affected agricultural population. Additionally, outdoor recreational activities within South Dakota are described in terms of their overall monetary and non-monetary societal benefits. The ROI for this resource is the BSRW, however, in many cases data is available by county; therefore, the analysis includes all 18 South Dakota counties with land in the BSRW.

3.9.2 *Affected Environment*

3.9.2.1 General Population Characteristics

Population

The state of South Dakota experienced population growth of about 9 percent between 2010 and 2020, from 814,180 persons to 886,667 persons (U.S. Census Bureau, 2022). The population in the BSRW is estimated to have been around 370,000 persons in 2019 and around 340,000 in 2010 (estimated using user defined polygons in the USEPA Environmental Justice Screening and Mapping Tool; USEPA, 2022b). This represents growth of about 9 percent, which suggests that the population growth in the BSRW is similar to the population growth at the state level. Much of the growth in the BSRW is driven by the City of Sioux Falls. The population of Sioux Falls was 153,888 persons in 2010 and 172,304 persons in 2019, an increase of 20,213 persons or 12 percent (USEPA, 2022c). Some of the more rural counties in the BSRW lost population from 2010 to 2020, including Lake County, Moody County, Deuel County, Day County, and Marshall County (U.S. Census Bureau, 2022).

Personal Income and Earnings

The median household income for South Dakota was \$58,275 in 2019 dollars and the per capita income was \$30,733 (U.S. Census Bureau, 2022). The per capita income in the BSRW is estimated to be \$31,907 (estimated using user defined polygons in the USEPA Environmental Justice Screening and Mapping Tool; USEPA, 2022b). In the counties covered in the BSRW, the median household income in 2019 dollars ranged from the lowest in Day County at \$46,679 and the highest in Lincoln County at \$82,473 (U.S. Census Bureau, 2022).

Table 3-3 illustrates data from the Bureau of Economic Analysis (BEA) for earnings by place of work between 2015 to 2020 as a combined BSRW region (includes data from all counties in the watershed). The BEA defines earnings as the sum of three components of personal income: wage and salary disbursements, supplements to wages and salaries, and proprietors' income. Personal income across South Dakota increased approximately 24.9 percent between 2015 to 2020 at an average annual rate of approximately 4.8 percent (BEA, 2022a). Farm proprietors' income and nonfarm proprietor's income fluctuated widely during the period from 2015 to 2020. Likewise, farm earnings have also fluctuated, whereas nonfarm earnings grew at an annual average rate of 4.5 percent. The large increase in farm proprietor's income and farm earnings from 2019 to 2020, can be attributed to various federal government payments for coronavirus relief. The BEA estimates that in 2020, South Dakota farm proprietors received \$900 million from the Coronavirus Food Assistance Program and \$66.4 million from the Paycheck Protection Program (BEA, 2020).

Table 3-3. Earning Measures for the Big Sioux River Watershed in Thousand Dollars¹

Earnings Measure	2015	2016	2017	2018	2019	2020
Personal Income	21,762,798	22,262,959	23,122,938	24,410,154	26,081,146	28,203,733
Farm Proprietor's Income	547,883	412,069	270,305	534,801	550,449	1,354,131
Nonfarm Proprietor's Income	3,155,521	3,047,772	3,049,751	3,203,369	3,899,636	3,881,243
Farm Earnings ²	623,567	494,499	373,754	628,356	666,945	1,469,156
Average Farm Earnings Per County	34,643	27,472	20,764	34,909	37,053	81,620
Nonfarm Earnings	15,209,222	15,557,808	16,135,173	16,942,333	17,998,803	18,962,821

Source: BEA, 2022a.

Notes:

¹ Except where the average is calculated, these are the totals for all the counties covered by the BSRW CREP.

² Farm Earnings are comprised of the net income of sole proprietors, partners, and hired laborers arising directly from the current production of agricultural commodities, either livestock or crops. It includes net farm proprietors' income and the wages and salaries, pay-in-kind, and supplements to wages and salaries of hired farm laborers; but specifically excludes the income of non-family farm corporations.

Employment

The Bureau of Labor Statistics (BLS) compiles current and historic data on the labor force, the number of persons employed, the number of persons unemployed, and the unemployment rate. South Dakota, between 2015 to 2020, increased the total labor force by approximately 2.2 percent to approximately 463,257 persons (BLS, 2022a). The annual average unemployment rate increased 1.6 percentage points from 2016 to 4.6 percent in 2020, though South Dakota has the second lowest annual average unemployment rate in the country (BLS, 2022b). For the counties covered by the BSRW, between 2015 to 2020, the labor force increased by approximately 4.8 percent to approximately 241,530 persons (BLS,

2020). The annual average unemployment rate was 4.5 percent in 2020 for the counties within the BSRW (BLS, 2020).

The BEA also tracks employment characteristics at the farm and nonfarm levels. **Table 3-4** illustrates the employment levels between 2015 to 2020 for the State of South Dakota and the combined counties in the BSRW region. The data for both South Dakota and the BSRW show overall increases in total employment and farm employment from 2015 to 2020, with considerable annual variation. Total employment numbers dropped significantly in both regions from 2019 to 2020, which can generally be contributed to the coronavirus pandemic.

Table 3-4. Employment in the State and Big Sioux River Watershed Region 2015-2020

Type of Employment	2015	2016	2017	2018	2019	2020
State of South Dakota						
Total Employment	592,591	597,324	601,286	610,122	610,822	594,556
Farm Employment	31,705	30,910	31,475	31,264	31,974	32,529
Nonfarm Employment	560,886	566,414	569,811	578,858	578,848	562,027
BSRW Region						
Total Employment	302,155	305,609	308,873	315,040	317,392	308,816
Farm Employment	11,993	11,674	11,869	11,793	12,069	12,280
Nonfarm Employment	290,162	293,935	297,004	303,247	305,323	296,536

BSRW = Big Sioux River Watershed
Source: BEA, 2022b.

3.9.2.2 General Agricultural Characteristics

The National Agricultural Statistic Service (NASS) estimated that there were approximately 29,968 farms with approximately 43.2 million acres of land in farms in South Dakota in 2017 (NASS, 2017). The FSA detailed in their December 2021 CRP monthly report that there were 13,500 South Dakota farms with CRP contracts with 1.7 million acres in CRP practices (FSA, 2021b).

For the BSRW region, the best available data at the county level was compiled in the 2017 Agricultural Census and can be found in **Table 3-5**. In 2017, the BSRW counties accounted for approximately 8.1 million acres in South Dakota (17 percent of the land area of the State) with approximately 7.3 million acres in farms (17 percent of the land in farms in South Dakota) (NASS, 2017). This amount is significantly higher than the acreage of the watershed (3.8 million acres), because the boundaries of the counties are much larger than the watershed itself. The counties in the BSRW region accounted for approximately 29 percent of the total cropland in South Dakota and 31 percent of the harvested cropland (NASS, 2017). The counties in the BSRW region also accounted for approximately 32 percent of the total CRP acres in 2017 (NASS, 2017). The amount of total cropland and CRP enrolled acre per county within the BSRW region can be found in **Appendix A**.

The land use of the BSRW counties is estimated at about 70 percent cropland with the production of row crops and hay as the primary cropland uses (see **Table 3-5**). The principal crops are corn, soybeans, alfalfa, and spring wheat (SDDENR, 2020a). Grazing lands used for livestock operations make up approximately 15 percent of the acres. Row crops, such as corn and soybeans, dominate but significant tracts are also in grass and/or pastureland. Native grass pastures do exist in the watershed but constitute a small percentage of the pastureland that is grazed. Most of the pastureland that remains has been converted over time with continuous grazing to tame grass pastures with the bulk of those acres occurring in riparian areas along rivers and streams (SDDENR, 2020a). There are approximately 1,525 animal feeding operations located within the BSRW (SDDENR, 2020a).

Table 3-5. 2017 Agricultural Land Use in the Big Sioux River Watershed and South Dakota

Land Use	BSRW Region (acres)	BSRW Area (percent)	South Dakota (acres)	Percent of South Dakota
Approximate Land Area (all counties)	8,051,200	100%	48,566,168	17%
Land in Farms	7,278,708	90%	43,243,742	17%
Total Cropland	5,649,753	70%	19,813,517	29%
Harvested Cropland	5,071,108	63%	16,371,543	31%
Woodland	40,811	1%	284,905	14%
Pasture and Rangeland	1,240,046	15%	21,997,620	6%
Land in Houses, Roads, Ponds, etc.	348,098	4%	1,147,700	30%
Land Enrolled in CRP	315,402	4%	986,598	32%

Source: NASS 2017 Census of Agriculture
BSRW = Big Sioux River Watershed

3.9.2.3 Regional Production Expenses, Agricultural Sales, and Other Farm Related Income

Farm production expenses in 2017 for the BSRW counties were estimated to exceed \$3.2 billion and total agricultural sales exceeded \$3.8 billion (NASS, 2017). Other farm related income (i.e., recreation, custom farming, cooperative patronage rebates, cash rents, etc.) attributed an additional \$207 million to farm balance sheets in 2017 (NASS, 2017). In 2017, the average production expenses per farm was \$296,868, the average agricultural sales per farm was \$357,065, and the average farm related income per farm was \$27,284. Additional detailed data by county within the BSRW and the regional total can be found in **Appendix G**.

Data from the 2017 Agricultural Census indicates that the average farm production expenses per acre (using the total acres in farms minus land in houses, roads, ponds, etc. within the region) was \$480.20 per acre (NASS, 2017). Farm income from agricultural sales was estimated to have been \$579.07 per acre (using the total acres in farms minus land in houses, roads, ponds, etc.) with income from farm related sources adding \$30.94 per acre (NASS, 2017).

3.9.2.4 General Outdoor Recreation Characteristics

Recreational hunting and fishing are important land uses around the many natural waterbodies within the BSRW. Recreation has experienced an increased interest among residents in and around the watershed. Canoeing, kayaking, fishing, and swimming are the primary activities that continuously take place in the watershed (EDWDD, 2020). In 2017, agri-tourism and recreational services accounted for \$12.6 million of the total income from farm-related sources in the state of South Dakota (NASS, 2017).

According to the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, in 2016, 103.7 million U.S. residents 16 years old and older, 41 percent of the population, participated in wildlife-related recreational activities (USFWS, 2016). These recreationists spent \$156.9 billion on their fishing, hunting, and wildlife watching, which is up from \$144.7 billion in 2011 (USFWS, 2016; U.S. DOI, 2011). The 2016 survey did not collect data by state, so data was gathered from the 2011 and 2006 surveys to understand wildlife-associated recreation trends in South Dakota.

There was a 15.7 percent increase in total wildlife-recreationists in South Dakota from 2006 to 2011, with the total wildlife-related recreationists at 662,000 individuals (U.S. DOI, 2006 and 2011). The number of anglers increased 98.5 percent to 268,000 individuals and the number of hunters increased 57.9 percent to 270,000 individuals (U.S. DOI, 2006 and 2011). Total wildlife-watching participants decreased about 11.1 percent to 384,000 individuals. Individuals partaking in wildlife-watching around the home increased

slightly, whereas individuals partaking in wildlife-watching away from the home decreased 18.1 percent. These figures are presented below in **Table 3-6**.

Table 3-6. Wildlife-Associated Recreation Participation in South Dakota in 2006 and 2011

	2006	2011	Percent Change
Total wildlife-related recreationists	572,000	662,000	15.7%
Total sportspersons	251,000	430,000	71.3%
Anglers	135,000	268,000	98.5%
Hunters	171,000	270,000	57.9%
Total wildlife-watching participants	432,000	384,000	-11.1%
Wildlife-watching around the home	257,000	267,000	3.9%
Wildlife-watching away from home	270,000	221,000	-18.1%

Source: U.S. DOI, 2006 and 2011

National survey data also show that expenditures for wildlife recreation also increased between 2006 and 2011. In South Dakota, wildlife-recreation expenditures increased 118 percent to \$1.2 billion in 2011 from \$550 million in 2006 (U.S. DOI, 2006 and 2011). Hunting expenditures increased the most from \$185 million in 2006 to \$597 million in 2011, a 223 percent increase (U.S. DOI, 2006 and 2011). Fishing expenditures increased from 2006 to 2011, whereas expenditures for wildlife-watching decreased. These figures are presented below in **Table 3-7**.

Table 3-7. Wildlife-Related Recreation Expenditures in South Dakota in 2006 and 2011

	2006		2011		Percent Change
	\$ Million	Percent	\$ Million	Percent	
Total Wildlife-related Recreation Expenditures	550	100%	1,200	100%	118%
Fishing Expenditures, Total	131	100%	203	100%	55%
Trip-related (lodging, transportation, etc.)	59	45%	133	66%	125%
Equipment (rods, reels, lines, etc.)	39	30%	65	32%	67%
Other (licenses, permits, stamps, etc.)	34	26%	5	2%	-85%
Hunting Expenditures, Total	185	100%	597	100%	223%
Trip-related (lodging, transportation, etc.)	117	63%	338	57%	189%
Equipment (guns, ammunition, etc.)	32	17%	115	19%	259%
Other (licenses, permits, land leasing, etc.)	37	20%	143	24%	286%
Wildlife-watching Expenditures, Total	183	100%	167	100%	-9%
Trip-related (lodging, transportation, etc.)	130	71%	134	80%	3%
Equipment (binoculars, special clothing, etc.)	47	26%	30	18%	-36%
Other (membership dues, land leasing, etc.)	6	3%	2	1%	-67%

Source: U.S. DOI, 2006 and 2011

In 2017, the SDGFP collaborated with South Dakota State University to complete the 2017 South Dakota Outdoor Recreation Survey, as a part of the as part of the South Dakota Statewide Comprehensive Outdoor Recreation Plan (SCORP). The survey found that public participants indicated a significant need for more hunting areas, shooting ranges, nature areas, fishing areas, archery ranges, walking/biking trails, campgrounds, and canoe/kayak water trails (SDGFP, 2018). SDGFP also conducted a 2013 survey for the 2013 SCORP. Hunting areas was the number one area people would like to see more of in both the 2013 and 2017 surveys, indicating a continuing need for hunting areas (SDGFP, 2018). While demand for more swimming beaches went down in 2017, the need for improvement in the facilities increased (SDGFP, 2018).

Another finding of the 2017 survey was that lack of time and high costs were the main barriers to participation. Survey participants listed high activity fees, high equipment costs, and high admission fees as significant barriers to their participation (SDGFP, 2018). Survey participants listed preserving open space and the environment, making the community a more desirable place to live, improving health and fitness, and improving mental health and reducing stress as the top four most important benefits of parks and outdoor recreation (SDGFP, 2018).

According to a 2015 survey and report, deer, waterfowl, and upland game hunting in South Dakota contribute significantly to the state economy (Loomis et. al, 2015). The economic contribution of resident and non-resident deer hunting represents \$20 million in value added and the economic contribution of resident and non-resident waterfowl hunting represents \$21.6 million in value added (Loomis et. al, 2015). About 23 percent of deer hunters indicated they hunted on CRP lands and about 21 percent of waterfowl hunters hunt on CRP lands in South Dakota. Upland game bird hunting is even more popular than deer and waterfowl hunting. The economic contribution of resident and non-resident upland game bird hunting represents \$87 million in value added (Loomis et. al, 2015). Based on the 2015 Loomis survey and report, about 56 percent of South Dakota upland game bird hunters hunt on CRP land, so about \$35.4 million of the overall South Dakota non-resident upland game hunting economic impact (i.e., value added) and \$273.7 million in hunter benefits is associated with hunters using existing CRP land.

3.9.3 Environmental Consequences Evaluation Criteria

A significant impact to socioeconomic conditions can be defined as a change that is outside the normal or anticipated range of those conditions that would flow through the remainder of the economy and community creating substantial adverse effects. For small percentage changes in individual attributes, it would be unlikely that the changes would result in significant impacts at the total level of analysis (i.e., statewide). Changes to the statewide economy of greater than agriculture's normal contribution could be considered significant, as this could affect the general economic climate of other industries on a much greater scale.

Additional changes in demographic trends (i.e., population movements) would be considered significant if a substantial percentage of the population were to enter or leave a particular area based on the changing economic conditions associated with the alternatives, rather than projected changes or changes generated by economic activities as a whole.

3.9.4 Environmental Consequences – Proposed Action Alternative

Implementation of the Proposed Action would allow for up to approximately \$435.3 million in discounted spending by federal, state, and local agencies to conserve, protect, and convert up to 100,000 acres of cropland and marginal pastureland to approved CPs.

Under the Proposed Action, up to 100,000 acres would be enrolled in the BSRW CREP foregoing active crop and livestock production on these lands for a period of 10 to 15 years. In 2017, there were approximately 5.6 million acres of total cropland within the counties located in the ROI, with 5.1 million acres having been harvested (NASS, 2017). Of the total cropland within the region, if all 100,000 acres proposed for the CREP were enrolled, that would account for approximately 1.8 percent of the total cropland. This number is a bounding number, as it over-represents the amount of cropland converted as some portion of the enrolled acres would be pastureland. In 2017, there were approximately 1.2 million acres of pasture and rangeland within the BSRW region (NASS, 2017). Of the total pasture/rangeland within the region, if all 100,000 acres proposed for the CREP were enrolled, that would account for approximately 8.1 percent of the total pasturelands. This number is also a bounding number, as it over-represents the amount of pastureland converted as some portion of the enrolled acres would be croplands. Additionally, the pastureland targeted for enrollment is marginal land that may not be currently utilized for livestock production.

A fully implemented scenario was developed by assuming full enrollment of 100,000 acres being enrolled for 15 years in applicable CPs in year one. A more likely scenario is a gradual conversion up to a certain point of less than full adoption. Full adoption within the first year is an extreme scenario with the most potential to negatively impact socioeconomic resources. This approach provides a mechanism to gauge the potential effects to the socioeconomic conditions of the region through the implementation of the Proposed Action.

Table 3-8 indicates the potential fully implemented scenario using the full averages for expenses, sales, other farm income related benefits, and potential CREP spending. Under the full implementation scenario there would be less than a 1 percent change in both agricultural sales and farm production expenses per year during the BSRW CREP enrollment period. Producers with land enrolled in the CREP would discover an economic advantage from enrolling their eligible acreage in CREP. The CREP would produce a decline in the total volume of farm production expenses; however, when compared to the region as a whole, that effect would be small and should reach a new equilibrium within a few years after acres are enrolled and CPs are installed. In 2017, only 2 out of the 18 counties had greater than 10 percent of total cropland enrolled in CRP (NASS, 2017). The general CRP ensures that no more than 25 percent of total cropland within any one county is enrolled.

Table 3-8. Estimated Maximum Effects from Full Implementation

Metric	Total Discounted Value	Average Discounted Value Per Year
CREP Spending (to Producer)	\$309,673,852	\$20,644,923
Producer Cost Share (Initial Year)	\$8,579,600	-
Potential Foregone Sales	\$605,138,301	\$40,342,553
Potential Foregone Farm-Related Income	\$32,332,842	\$2,155,523
Potential Foregone Farm Production Expenses	\$501,817,418	\$33,454,495

CREP = Conservation Reserve Enhancement Program

Under the 2018 Farm Bill, the ability to incorporate haying and grazing into CPs gives landowners flexibility to adapt to circumstances as needed. This flexibility allows for marginal economic benefits and increases the potential income for farms. Wu and Weber (2012) reviewed the existing studies on the impacts of CRP and concluded that the economic benefits outweigh the costs to taxpayers. Economic benefits of CRP include the reduction of soil erosion, the improvement of recreational conditions, and the increase in land values (Wu and Weber, 2012).

Additionally, part of the evaluation of all lands offered for enrollment in CRP is a site-specific EE, which includes an evaluation of potential negative impacts on the local social and economic conditions. The site-specific EE would ensure that enrollment of specific lands into the BSRW CREP would not result in significant impacts to the local economy.

Implementation of the Proposed Action Alternative would result in long-term beneficial impacts to producers and the local economy.

3.9.4.1 General Population Impacts

Given the relatively small amount of acreage proposed, implementing the Proposed Action is unlikely to produce measurable changes in the general population characteristics of the region in either the short-term or long-term. There would be a period of transition as acreage is enrolled with the CREP program; however, even at full implementation the effects would produce less than a 1 percent decline in the purchase of farm production expenses (i.e., feed, seed, fertilizers, etc.). As such, no anticipated declines in population or personal income are anticipated. There would be no impact to the regional population from implementation of the Proposed Action.

Recent research supports this conclusion. A study conducted by the USDA's Economic Research Service showed that declines in agriculture and supporting industries due to enrollment of land in CRP are on average offset by increases in other businesses and industries such as recreation (Sullivan et al. 2004; Brown, Lambert, and Wojan, 2018). The study also concluded that there was no evidence that CRP contributed to outmigration and population decline in rural counties (Sullivan et al. 2004; Brown, Lambert, and Wojan, 2018).

3.9.4.2 General Outdoor Recreation Impacts

Implementation of the Proposed Action Alternative would have a beneficial long-term impact on recreational resources within the BSRW. Establishing the proposed CPs would increase the availability and quality of habitat for terrestrial wildlife species. This, in turn, would increase the abundance of these species and increase the opportunities for hunting. By improving water quality, the CPs would have beneficial impacts in the BSRW region as well as downstream. Improved water quality would support an increase in fish populations and provide for additional fishing opportunities and increase public swimming opportunities. The increase in game, game birds, and fish populations may increase funds spent on hunting and fishing licenses, equipment, and trip-related expenses and improve socioeconomic conditions in the area. In addition to hunting and fishing impacts, the proposed CPs would increase the desirability of land to be used for hiking, camping, and wildlife-watching by improving overall aesthetics. Increases in recreation participation may also result in improved public health outcomes, as both fitness and mental health were important benefits of outdoor recreation and parks identified by South Dakotans (Loomis et. al, 2015). Construction activities may displace wildlife species associated with recreation during installation of the proposed CPs; however, this impact would be temporary and negligible.

In the BSRW watershed, lack of hunting areas, fishing areas, and nature areas have been identified as a recreational issue, as well as high admissions fees. All of the lands enrolled in the BSRW CREP would be open for free, unlimited public access for the purposes of recreational hunting and fishing. This would increase access and remove barriers to a highly desired recreational resource, in an area inhabited by a disproportionately large percentage of the state's citizens.

3.9.5 *Environmental Consequences – No Action Alternative*

Under the No Action Alternative, the BSRW CREP would not be implemented, and current farming practices would continue. Unlike the Proposed Action Alternative, no acreage would be enrolled in the CPs within the watershed. This alternative would not produce any measurable changes to the general population characteristics of the region as there would be no changes to the sales or spending patterns of the agricultural producers. However, there would be the lost benefits associated with the CPs that include water quality improvement, soil retention, improved wildlife habitat, and increases in wildlife habitat acreage. Also, public hunting lands would continue to be burdened within the region as no new areas would be developed for general access hunting and fishing. The lack of new CREP acreage would also keep some marginal pasturelands in agricultural production, instead of the more societally beneficial conservation practices. Lastly, any regional economic benefits from increased hunting, fishing, and wildlife-watching expenditures would not be realized.

3.9.6 *Reasonably Foreseeable Future Actions and Other Environmental Considerations*

The Proposed Action along with reasonably foreseeable future actions could result in direct or indirect impacts to the economy of the region. The loss of agricultural lands could have short-term minor impact to local economy, but this is offset by gains in the recreational sector and net societal benefits such as reduced soil erosion, improved water quality, improved wildlife habitat, and increased wildlife habitat acreage. As with other USDA conservation programs, long-term beneficial impacts to recreation would occur. Recreational opportunities indirectly benefit from other federal and state conservation programs that protect and restore habitat, resulting in cumulative beneficial impacts to wildlife-related recreational opportunities.

No significant adverse cumulative impacts to socioeconomics and recreation are expected from the Proposed Action when added to the other reasonably foreseeable future actions identified in **Appendix D**.

3.10 ENVIRONMENTAL JUSTICE

3.10.1 Definition of Resource

Federal agencies, through EOs, are required to address disproportionate environmental and human health effects in minority and low-income communities. For the purposes of this analysis, minority populations are defined as Alaska Natives and American Indians, Asians, Blacks or African Americans, Native Hawaiians, and Pacific Islanders or persons of Hispanic origin (of any race). Low-income populations include persons living below the poverty threshold as determined by the U.S. Census Bureau.

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, pertains to environmental justice issues and relates to various socioeconomic groups and disproportionate impacts that could be imposed on them. This EO requires that federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. EO 12898 was enacted to ensure fair treatment, meaningful involvement, and access to benefits for all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of federal environmental laws, regulations, and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a Proposed Action.

The ROI for this resource is the BSRW, however, in many cases environmental justice data is available by county; therefore, the analysis includes all 18 South Dakota counties with land in the BSRW.

3.10.2 Affected Environment

Per CEQ guidance, minority populations are identified where either the minority population of the affected area exceeds 50 percent or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. Following the Office of Management and Budget's Statistical Policy Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty.

In order to determine if minority or low-income populations exist in the project area, the ROI must be compared to a larger regional area that includes the affected area and serves as a Community of Comparison (COC). The State of South Dakota is the COC under this environmental justice analysis. Data on ethnicity was estimated in the ROI using a user defined polygon of the watershed in the USEPA Environmental Justice Screening and Mapping Tool. Data on the poverty rate in the ROI was calculated using the average of the county poverty rates.

As of 2019, 4 percent of the ROI population was of Hispanic or Latino origin, which is the same as the State of South Dakota and much lower than the U.S. at 18.5 percent (U.S. Census Bureau, 2022). The percentage of persons with a race of Alaska Natives and American Indians, Asians, Blacks or African Americans, Native Hawaiians, and Pacific Islanders is 13 percent, which is the same as the State of South Dakota, but lower than the U.S. at 21 percent (U.S. Census Bureau, 2022). The average poverty rate of 10.3 percent for ROI residents is slightly lower than the South Dakota poverty rate of 11.6 percent and the U.S. poverty rate of 11.4 percent (U.S. Census Bureau, 2022). Compared to the COC, the ROI as whole does not have a significantly higher proportion of minorities or low-income populations. However, according to the USEPA's Environmental Justice Screening and Mapping Tool, which offers data at the block group level, within the BSRW there are some low-income communities located around Brookings, Sioux Falls, Pipestone, Hawarden, Watertown, and Garden City.

In 2017, within the counties located in the ROI, there were 75 producers of Hispanic, Latino, or Spanish origin. This represents about 26 percent of the total Hispanic, Latino, or Spanish origin producers (289 producers) in the entire state of South Dakota in that year (NASS, 2017). Additionally, there were 57 producers that identified with a minority race of Alaska Natives and American Indians, Asians, Blacks or African Americans, Native Hawaiians, or Pacific Islanders within the counties of the ROI in 2017. This represents about 5.3 percent of the total minority race producers (1,082 producers) in the entire state of South Dakota in that year (NASS, 2017). There were 45 farms in the ROI counties that utilized migrant farm workers in 2017. This represents 39.8 percent of the total farms in South Dakota that utilized migrant farm workers in 2017 (NASS, 2017). In the entire state of South Dakota, there were 493 migrant farm workers hired in 2017 (NASS, 2017).

3.10.3 Environmental Consequences Evaluation Criteria

Environmental justice analysis applies to potential disproportionate effects on minority or low-income populations. Environmental justice issues could occur if an adverse environmental or socioeconomic consequence to the human population fell disproportionately upon minority or low-income populations. Environmental justice issues could also occur if the benefits of a Proposed Action are disproportionately low for minority or low-income populations.

3.10.4 Environmental Consequences – Proposed Action Alternative

The majority of the environmental impacts described in this PEA are beneficial to the BSRW region and the producers enrolling land into the BSRW CREP. The enrollment of lands into the BSRW is voluntary and open to any producer with qualifying land. There is no potential for the producer benefits of the BSRW CREP to be disproportionately low for minority or low-income populations. Some negligible and minor adverse impacts have been identified in this PEA. These adverse impacts are temporary and do not rise to the level of major (significant) and would generally be felt equally by all populations within the ROI. Additionally, only 45 farms in the ROI utilized migrant farm workers in 2017. Given the decrease in agricultural lands, there may be a small decrease in the number of migrant farm workers utilized in the ROI. A major decrease in migrant workers utilized is not expected for a 1.4 percent decrease in acreage of land in farms in the ROI.

Lastly, part of the evaluation of all lands offered for enrollment in CRP is a site-specific EE, which includes an evaluation of potential environmental justice impacts. The site-specific EE would ensure that enrollment of specific lands into the BSRW CREP would not result in disproportionately adverse human health or environmental effects to minority or low-income communities. There would be no impact to environmental justice issues from implementation of the Proposed Action Alternative.

3.10.5 Environmental Consequences – No Action Alternative

Under the No Action Alternative, there would be no changes to the existing agricultural lands in the BSRW, therefore, implementation of this alternative would not result in disproportionate adverse environmental or health effects on low-income or minority populations. The No Action Alternative would not substantially affect populations covered by EO 12898 by excluding persons, denying persons benefits, or subjecting persons to discrimination or disproportionate environmental or human health risks.

3.10.6 Reasonably Foreseeable Future Actions and Other Environmental Considerations

The Proposed Action Alternative would not result in any significant long-term adverse environmental impacts. Therefore, there would be no disproportionate adverse impacts to low-income or minority populations. Any adverse environmental impacts from the Proposed Action Alternative are negligible to minor on their own and when added to other reasonably foreseeable future actions.

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APPENDIX A
CONSERVATION RESERVE PROGRAM LANDS LISTED BY BIG SIOUX RIVER WATERSHED
COUNTY

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Table A-1. Conservation Reserve Program Lands Listed by Big Sioux River Watershed County

County	CRP Enrolled Acres¹
Brookings	20,110
Clark	24,954
Clay	6,640
Codington	17,172
Day	41,172
Deuel	17,671
Grant	10,365
Hamlin	13,976
Kingsbury	8,189
Lake	7,373
Lincoln	7,955
Marshall	42,468
McCook	12,574
Minnehaha	5,133
Moody	9,543
Roberts	41,651
Turner	9,489
Union	8,300

Notes:

¹Enrolled acres as of January 1, 2022

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APPENDIX B
CONSERVATION PRACTICE DESCRIPTIONS

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Table B-1. Conservation Practice Descriptions

Conservation Practice	Stated Purpose	Short Text Purpose
CP4D Permanent Wildlife Habitat	This practice is to establish new or maintain existing permanent wildlife habitat cover to enhance environmental benefits for the wildlife habitat of the designated or surrounding areas.	Create new or maintain existing permanent wildlife habitat
CP21 Filter Strips	This practice removes nutrients, sediment, organic matter, pesticides, and other pollutants from surface runoff and subsurface flow by deposition, absorption, plant uptake, denitrification, and other processes, and thereby reduce pollution and protect surface water and subsurface water quality while enhancing the ecosystem of the water body. An additional purpose is to increase conservation benefits associated with organic farming operations.	Establish permanent vegetation to improve water quality.
CP23 Wetland Restoration	The purpose of this practice is to restore the functions and values of wetland ecosystems that have been devoted to agricultural use.	Restoration of wetland functions and values
CP23A Wetland Restoration, Non-Floodplain	The purpose of this practice is to restore the functions and values of wetland ecosystems that have been devoted to agricultural use. The practice must be located outside the 100-year floodplain and outside of playas.	Restoration of wetland functions and values
CP25 Rare and Declining Habitat	The purpose of this practice is to restore the functions and values of critically endangered, endangered, and threatened habitats.	Habitat restoration
CP29 Marginal Pastureland Wildlife Habitat Buffer	The purpose of this practice is to remove nutrients, sediment, organic matter, pesticides, and other pollutants from surface runoff and subsurface flow by deposition, absorption, plant uptake, denitrification, and other processes, and thereby reduce pollution and protect surface water and subsurface water quality while enhancing the ecosystem of the water body. By restoring native grass communities, characteristics for the site will assist in stabilizing stream banks, reducing flood damage impacts, and restoring and enhancing wildlife habitat.	Development or restoration of a wildlife habitat buffer to improve water quality
CP30 Marginal Pastureland Wetland Buffer	The purpose of this practice is to remove nutrients, sediment, organic matter, pesticides, and other pollutants from surface runoff and subsurface flow by deposition, absorption, plant uptake, denitrification, and other processes, and thereby reduce pollution and protect surface water and subsurface water quality while enhancing the ecosystem of the wetland. The practice will enhance and/or restore hydrology and plant communities associated with existing or degraded wetland	Development or restoration of a wetland buffer to improve water quality.

	complexes. The goal is to enhance water quality, reduce nutrient and pollutant levels, and improve wildlife habitat.	
CP37 Duck Nesting Habitat	This practice is to enhance duck nesting habitat on the most duck-productive areas of Iowa, Minnesota, Montana, North Dakota, and South Dakota to restore the functions and values of wetland ecosystems that have been devoted to agricultural use. The level of restoration of the wetland ecosystem will be determined by the producer in consultation with FSA and NRCS or TSP.	Duck nesting habitat restoration.
CP43 Prairie Strips	The purpose of this practice is to establish strips of diverse, dense, herbaceous, predominately native perennial vegetation designed and positioned on the landscape to most effectively address soil erosion and water quality while providing food and cover for wildlife and beneficial insects. The primary purpose of prairie strips is to reduce soil erosion and pollution transport to protect water quality by intercepting surface and subsurface water flow to remove nutrients, sediment, organic matter, pesticides, and other pollutants by deposition, absorption, plant uptake, denitrification, and other processes. The secondary purpose is to provide wildlife and beneficial insect habitat by establishing diverse plant communities.	Reduce soil erosion and pollution transport to protect water quality

APPENDIX C
AGENCY COORDINATION

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C.1 INTRODUCTION

Scoping is an early and open process for developing the breadth of issues to be addressed in an Environmental Assessment (EA) and for identifying significant concerns related to an action. Per the requirements of Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, as amended by EO 12416, federal, state, and local agencies with jurisdiction that could potentially be affected by the Proposed Action or alternatives were notified during the development of this PEA.

The Intergovernmental Coordination Act and EO 12372 require federal agencies to cooperate with and consider state and local views in implementing a federal proposal. Through the coordination process, the Farm Service Agency contacted potentially interested and affected government agencies, government representatives, elected officials, and interested parties potentially affected by the Proposed Action. The agency and intergovernmental coordination letters are included in this Appendix. No scoping comments or responses were received.

C.1.1 Agency Consultations

Implementation of the Proposed Action involves coordination with several organizations and agencies. Scoping letters sent to the U.S. Fish and Wildlife Service can be found in **Section C.3**. The scoping letter sent to the State Historic Preservation Office can be found in **Section C.4**. Lastly, scoping letters sent to other agencies can be found in **Section C.5**.

C.1.2 Government-to-Government Consultation

The National Historic Preservation Act (NHPA) and its regulations in 36 CFR Part 800 direct federal agencies to consult with federally recognized Indian tribes when a proposed or alternative action has the potential to affect tribal lands or properties of religious and cultural significance to a tribe. Consistent with the NHPA, federally recognized tribes that are historically affiliated with lands in the vicinity of the Proposed Action have been invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. Government-to-government consultation is included this Appendix – the sample scoping letter for tribal consultation can be found in **Section C.6** and the tribal consultation mailing list can be found in **Section C.7**.

C.2 PUBLIC REVIEW OF PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

A Notice of Availability of the Draft PEA and was published in the *Watertown Public Opinion* and *Sioux Falls Argus Leader* inviting the public to review and comment on the Draft PEA during a 30-day review period.

The Draft PEA is available for review on the FSA website at <https://www.fsa.usda.gov/state-offices/South-Dakota/resources/index> and in person at the South Dakota State FSA Office at 200 Fourth St. SW, Room 308, Huron, SD 57350.

C.3 SCOPING LETTERS TO US FISH AND WILDLIFE SERVICE



United States
Department of
Agriculture

Farm
Production
and
Conservation

Farm
Service
Agency

SD State FSA Office
200 4th St SW Fed Bldg, Ste 308
Huron SD 57350
PH: 605/352-1160
Fax: 855-243-6003

January 27, 2022

Ms. Amity Bass, Field Supervisor
North and South Dakota Ecological Services
U.S. Fish and Wildlife Service
420 South Garfield Avenue, Suite 400
Pierre, SD 57501

Re: Big Sioux River Watershed Conservation Reserve Enhancement Program (CREP) Programmatic
Environmental Assessment (PEA)

Dear Ms. Bass:

The United States Department of Agriculture (USDA) Commodity Credit Corporation (CCC) in cooperation with the South Dakota Department of Game, Fish and Parks (SDGFP) propose to implement the Big Sioux River Watershed CREP in South Dakota. The USDA Farm Service Agency (FSA) administers the CREP program on behalf of the CCC. The PEA will be prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations implementing the National Environmental Policy Act, and 7 Code of Federal Regulations (CFR) 799, FSA Implementing Regulations for NEPA. The USDA FSA and SDGFP would administer the Big Sioux River Watershed CREP within South Dakota.

CREP is a voluntary program authorized by the Farm Security and Rural Investment Act of 2002 that provides annual rental payments as well as cost share incentives to producers who remove eligible land from agricultural production and establish conservation practices. With this letter, we request your review of the proposed program and comments on any issues that would be of concern to your organization.

The Big Sioux River Watershed CREP encompasses up to 100,000 acres of cropland that would potentially enroll in CREP and be placed in conservation practices. Eighteen counties are eligible to participate as displayed in the map in Attachment 1. The details of the Proposed Action are described below and in Attachment 2.

The purposes of the Big Sioux River Watershed CREP project are to:

- Improve and protect water quality for drinking water and recreation use.
- Improve local economies by restoring wildlife habitat and increasing pheasant, deer, and waterfowl populations that will increase hunting opportunities and bring more hunters back to the area which would generate revenue from lodging, gas, food, and recreational equipment.
- Increase availability of habitat for monarch butterflies and other pollinators.
- Improve availability of grasslands to provide forage for livestock producers to hay and or graze.
- Improve quality of life by creating a minimum of approximately 250 new places open to public hunting and fishing access in an area inhabited by a disproportionately large percentage of the state's citizens.

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January 27, 2022

Information on the listed, proposed, and candidate species or designated or proposed critical habitat in the Proposed Action areas will be obtained from the US Fish and Wildlife Service Environmental Conservation Online System, Information for Planning and Consultation. Pursuant to Section 7 of the Endangered Species Act, we request additional information or any comments that may be beneficial in the development of the EA and determination of potential impacts to listed species or critical habitat. We appreciate your review of this material and any comments on any issues that would be of concern to your office.

Please provide your comments within 21 days of receiving this letter. We intend to provide you with access to the Draft EA when the document is completed. Please inform us if someone else with your agency other than you should be notified of the availability of the Draft EA. Please send your written responses and any questions to Steven Littlefield, FSA State Environmental Coordinator at (605) 352-1183 or by email at steven.littlefield@usda.gov. Thank you in advance for your assistance in this effort.

Sincerely,

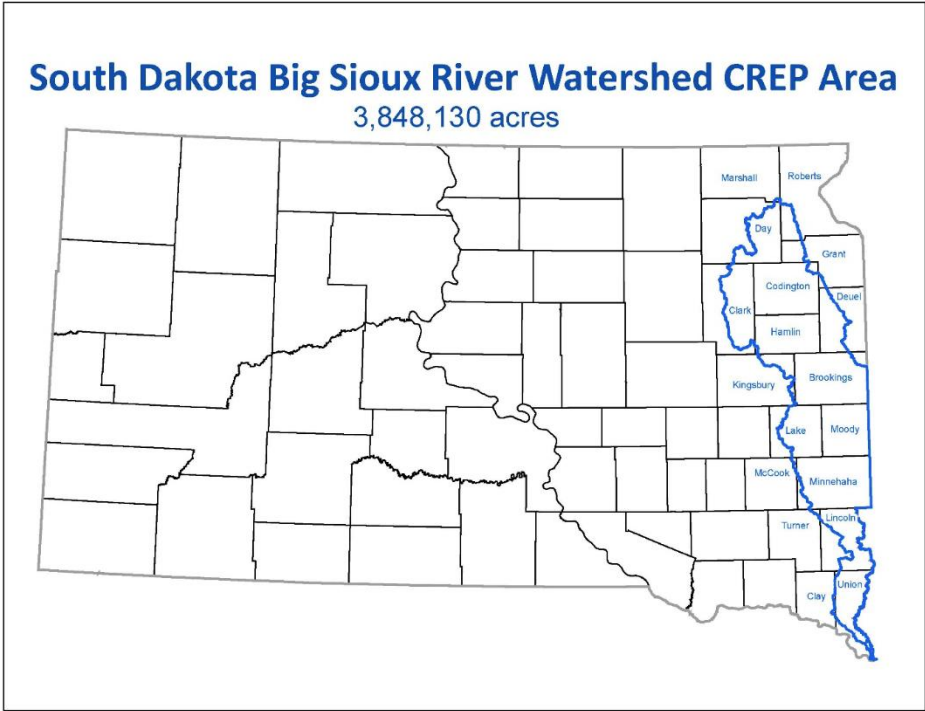


**Joseph L. Schultz
USDA Farm Service Agency
Acting State Executive Director**

2 Attachments:

1. Location Map for the Big Sioux River Watershed CREP Agreement
2. Components of the Big Sioux River Watershed CREP Agreement

Attachment 1. Location Map for the Big Sioux River Watershed CREP Agreement



Attachment 2. Components of the Big Sioux River Watershed CREP Agreement

<i>Acreage</i>	• Up to 100,000 acres
<i>CREP Duration</i>	• 15 years
<i>Funding</i>	• Federal and state funding for incentives and rental payments up to \$108.8 million (excluding non-federal in-kind services)
<i>Geographic Area</i>	• Big Sioux River Watershed Basin
<i>Counties</i>	• 18
<i>Conservation Practices</i> (Minimum estimated acreages)	• CP4D, Permanent Wildlife Habitat (2,000 acres) • CP21, Filter Strips (500 acres) • CP23, Wetland Restoration (10,000 acres) • CP23A, Wetland Restoration, Non-Floodplain (2,500 acres) • CP25 Rare and Declining Habitat (5,000 acres) • CP29, Marginal Pastureland Wildlife Habitat Buffer (500 acres) • CP30, Marginal Pastureland Wetland Buffer (500 acres) • CP37, Duck Nesting Habitat (3,000 acres) • CP43, Prairie Strips (1,000 acres)
<i>Contract Duration</i>	• 10 to 15 years
<i>Cost Share</i>	• Average USDA cost-share per acre of \$180 per acre which includes 50% cost-share and 50% practice incentive payment for establishing grassland habitat on cropland.



United States
Department of
Agriculture

Farm
Production
and
Conservation

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SD State FSA Office
200 4th St SW Fed Bldg, Ste 308
Huron SD 57350
PH: 605/352-1160
Fax: 855-243-6003

January 27, 2022

Kurt Forman
U.S. Fish and Wildlife Service
PO Box 247
Brookings, SD 57006

Re: Big Sioux River Watershed Conservation Reserve Enhancement Program (CREP) Programmatic
Environmental Assessment (PEA)

Dear Mr. Forman:

The United States Department of Agriculture (USDA) Commodity Credit Corporation (CCC) in cooperation with the South Dakota Department of Game, Fish and Parks (SDGFP) propose to implement the Big Sioux River Watershed CREP in South Dakota. The USDA Farm Service Agency (FSA) administers the CREP program on behalf of the CCC. The PEA will be prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations implementing the National Environmental Policy Act, and 7 Code of Federal Regulations (CFR) 799, FSA Implementing Regulations for NEPA. The USDA FSA and SDGFP would administer the Big Sioux River Watershed CREP within South Dakota.

CREP is a voluntary program authorized by the Farm Security and Rural Investment Act of 2002 that provides annual rental payments as well as cost share incentives to producers who remove eligible land from agricultural production and establish conservation practices. With this letter, we request your review of the proposed program and comments on any issues that would be of concern to your organization.

The Big Sioux River Watershed CREP encompasses up to 100,000 acres of cropland that would potentially enroll in CREP and be placed in conservation practices. Eighteen counties are eligible to participate as displayed in the map in Attachment 1. The details of the Proposed Action are described below and in Attachment 2.

The purposes of the Big Sioux River Watershed CREP project are to:

- Improve and protect water quality for drinking water and recreation use.
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● Page 2

January 27, 2022

We appreciate your review of this material and any comments on any issues that would be of concern to your office. Please provide your comments within 21 days of receiving this letter to Steven Littlefield, FSA State Environmental Coordinator at (605) 352-1183 or by email at steven.littlefield@usda.gov. We intend to provide you with access to the Draft EA when the document is completed. Please inform us if someone else with your agency other than you should be notified of the availability of the Draft EA. Thank you in advance for your assistance in this effort.

Sincerely,

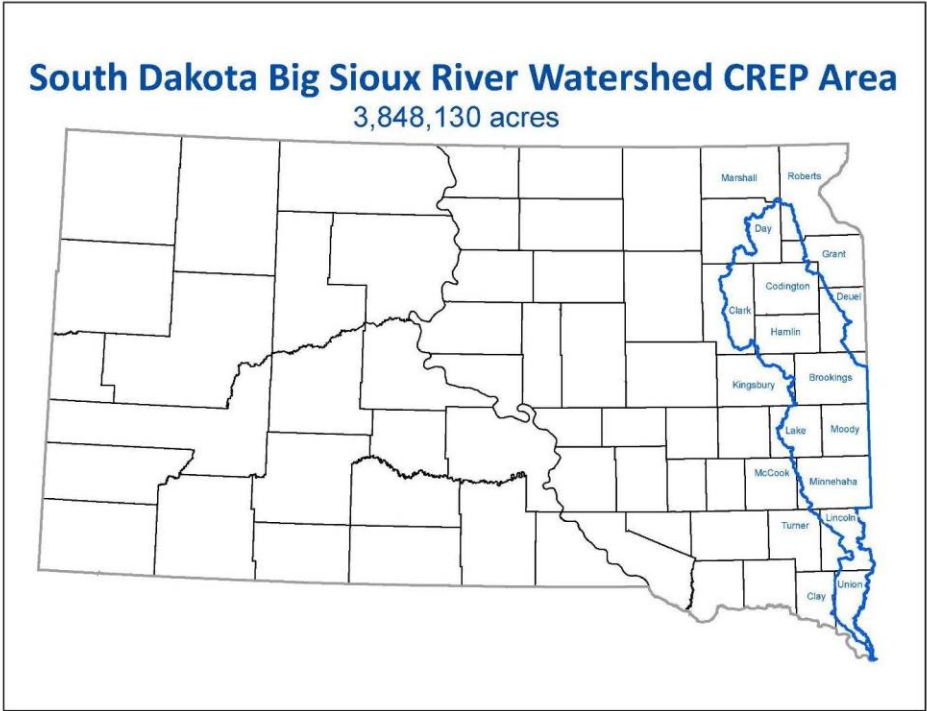


Joseph L. Schultz
USDA Farm Service Agency
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<i>CREP Duration</i>	• 15 years
<i>Funding</i>	• Federal and state funding for incentives and rental payments up to \$108.8 million (excluding non-federal in-kind services)
<i>Geographic Area</i>	• Big Sioux River Watershed Basin
<i>Counties</i>	• 18
<i>Conservation Practices</i> (Minimum estimated acreages)	• CP4D, Permanent Wildlife Habitat (2,000 acres) • CP21, Filter Strips (500 acres) • CP23, Wetland Restoration (10,000 acres) • CP23A, Wetland Restoration, Non-Floodplain (2,500 acres) • CP25 Rare and Declining Habitat (5,000 acres) • CP29, Marginal Pastureland Wildlife Habitat Buffer (500 acres) • CP30, Marginal Pastureland Wetland Buffer (500 acres) • CP37, Duck Nesting Habitat (3,000 acres) • CP43, Prairie Strips (1,000 acres)
<i>Contract Duration</i>	• 10 to 15 years
<i>Cost Share</i>	• Average USDA cost-share per acre of \$180 per acre which includes 50% cost-share and 50% practice incentive payment for establishing grassland habitat on cropland.

C.4 SCOPING LETTER TO STATE HISTORIC PRESERVATION OFFICE



United States
Department of
Agriculture

Farm
Production
and
Conservation

Farm
Service
Agency

SD State FSA Office
200 4th St SW Fed Bldg, Ste 308
Huron SD 57350
PH: 605/352-1160
Fax: 855-243-6003

January 27, 2022

Mr. Ted Spencer
Historic Preservation Review Officer
South Dakota State Historic Preservation Office
900 Governors Dr.
Pierre, SD 57501

Re: Big Sioux River Watershed Conservation Reserve Enhancement Program (CREP) Programmatic
Environmental Assessment (PEA)

Dear State Historic Preservation Officer Spencer:

The United States Department of Agriculture (USDA) Commodity Credit Corporation (CCC) in cooperation with the South Dakota Department of Game, Fish and Parks (SDGFP) propose to implement the Big Sioux River Watershed CREP in South Dakota. The USDA Farm Service Agency (FSA) administers the CREP program on behalf of the CCC. The PEA will be prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations implementing the National Environmental Policy Act, and 7 Code of Federal Regulations (CFR) 799, FSA Implementing Regulations for NEPA. The USDA FSA and SDGFP would administer the Big Sioux River Watershed CREP within South Dakota.

CREP is a voluntary program authorized by the Farm Security and Rural Investment Act of 2002 that provides annual rental payments as well as cost share incentives to producers who remove eligible land from agricultural production and establish conservation practices. With this letter, we request your review of the proposed program and comments on any issues that would be of concern to your organization.

The Big Sioux River Watershed CREP encompasses up to 100,000 acres of cropland that would potentially enroll in CREP and be placed in conservation practices. Eighteen counties are eligible to participate as displayed in the map in Attachment 1. The details of the Proposed Action are described below and in Attachment 2.

The purposes of the Big Sioux River Watershed CREP project are to:

- Improve and protect water quality for drinking water and recreation use.
- Improve local economies by restoring wildlife habitat and increasing pheasant, deer, and waterfowl populations that will increase hunting opportunities and bring more hunters back to the area which would generate revenue from lodging, gas, food, and recreational equipment.
- Increase availability of habitat for monarch butterflies and other pollinators.
- Improve availability of grasslands to provide forage for livestock producers to hay and or graze.
- Improve quality of life by creating a minimum of approximately 250 new places open to public hunting and fishing access in an area inhabited by a disproportionately large percentage of the state's citizens.

USDA is an equal opportunity provider, employer, and lender.

● Page 2

January 27, 2022

We appreciate your review of this material and any comments on any issues that would be of concern to your office. We intend to provide you with access to the Draft EA when the document is completed. Please inform us if someone else with your agency other than you should be notified of the availability of the Draft EA. Please send your responses and any questions to Steven Littlefield, FSA State Environmental Coordinator at (605) 352-1183 or by email at steven.littlefield@usda.gov within 21 days of receiving this letter. Thank you in advance for your assistance in this effort.

Sincerely,

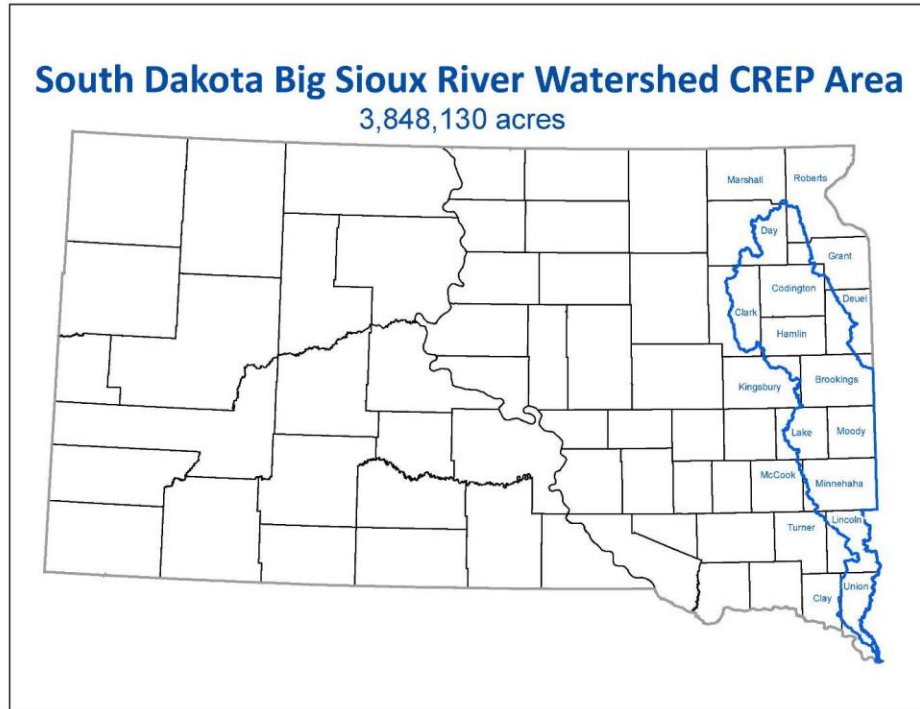


Joseph L. Schultz
USDA Farm Service Agency
Acting State Executive Director

2 Attachments:

1. Location Map for the Big Sioux River Watershed CREP Agreement
2. Components of the Big Sioux River Watershed CREP Agreement

Attachment 1. Location Map for the Big Sioux River Watershed CREP Agreement



Attachment 2. Components of the Big Sioux River Watershed CREP Agreement

<i>Acreage</i>	Up to 100,000 acres
<i>CREP Duration</i>	15 years
<i>Funding</i>	Federal and state funding for incentives and rental payments up to \$108.8 million (excluding non-federal in-kind services)
<i>Geographic Area</i>	Big Sioux River Watershed Basin
<i>Counties</i>	18
<i>Conservation Practices</i> (Minimum estimated acreages)	- CP4D, Permanent Wildlife Habitat (2,000 acres) - CP21, Filter Strips (500 acres) - CP23, Wetland Restoration (10,000 acres) - CP23A, Wetland Restoration, Non-Floodplain (2,500 acres) - CP25 Rare and Declining Habitat (5,000 acres) - CP29, Marginal Pastureland Wildlife Habitat Buffer (500 acres) - CP30, Marginal Pastureland Wetland Buffer (500 acres) - CP37, Duck Nesting Habitat (3,000 acres) - CP43, Prairie Strips (1,000 acres)
<i>Contract Duration</i>	10 to 15 years
<i>Cost Share</i>	Average USDA cost-share per acre of \$180 per acre which includes 50% cost-share and 50% practice incentive payment for establishing grassland habitat on cropland.

C.5 SCOPING LETTERS TO OTHER AGENCIES



United States
Department of
Agriculture

Farm
Production
and
Conservation

Farm
Service
Agency

SD State FSA Office
200 4th St SW Fed Bldg, Ste 308
Huron SD 57350
PH: 605/352-1160
Fax: 855-243-6003

January 27, 2022

Bill Smith
South Dakota Department of Agriculture and Natural Resources
523 E Capitol Ave.
Pierre, SD 57501

Re: Big Sioux River Watershed Conservation Reserve Enhancement Program (CREP) Programmatic
Environmental Assessment (PEA)

Dear Mr. Smith:

The United States Department of Agriculture (USDA) Commodity Credit Corporation (CCC) in cooperation with the South Dakota Department of Game, Fish and Parks (SDGFP) propose to implement the Big Sioux River Watershed CREP in South Dakota. The USDA Farm Service Agency (FSA) administers the CREP program on behalf of the CCC. The PEA will be prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations implementing the National Environmental Policy Act, and 7 Code of Federal Regulations (CFR) 799, FSA Implementing Regulations for NEPA. The USDA FSA and SDGFP would administer the Big Sioux River Watershed CREP within South Dakota.

CREP is a voluntary program authorized by the Farm Security and Rural Investment Act of 2002 that provides annual rental payments as well as cost share incentives to producers who remove eligible land from agricultural production and establish conservation practices. With this letter, we request your review of the proposed program and comments on any issues that would be of concern to your organization.

The Big Sioux River Watershed CREP encompasses up to 100,000 acres of cropland that would potentially enroll in CREP and be placed in conservation practices. Eighteen counties are eligible to participate as displayed in the map in Attachment 1. The details of the Proposed Action are described below and in Attachment 2.

The purposes of the Big Sioux River Watershed CREP project are to:

- Improve and protect water quality for drinking water and recreation use.
- Improve local economies by restoring wildlife habitat and increasing pheasant, deer, and waterfowl populations that will increase hunting opportunities and bring more hunters back to the area which would generate revenue from lodging, gas, food, and recreational equipment.
- Increase availability of habitat for monarch butterflies and other pollinators.
- Improve availability of grasslands to provide forage for livestock producers to hay and or graze.
- Improve quality of life by creating a minimum of approximately 250 new places open to public hunting and fishing access in an area inhabited by a disproportionately large percentage of the state's citizens.

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● Page 2

January 27, 2022

We appreciate your review of this material and any comments on any issues that would be of concern to your office. Please provide your comments within 21 days of receiving this letter to Steven Littlefield, FSA State Environmental Coordinator at (605) 352-1183 or by email at steven.littlefield@usda.gov. We intend to provide you with access to the Draft EA when the document is completed. Please inform us if someone else with your agency other than you should be notified of the availability of the Draft EA. Thank you in advance for your assistance in this effort.

Sincerely,

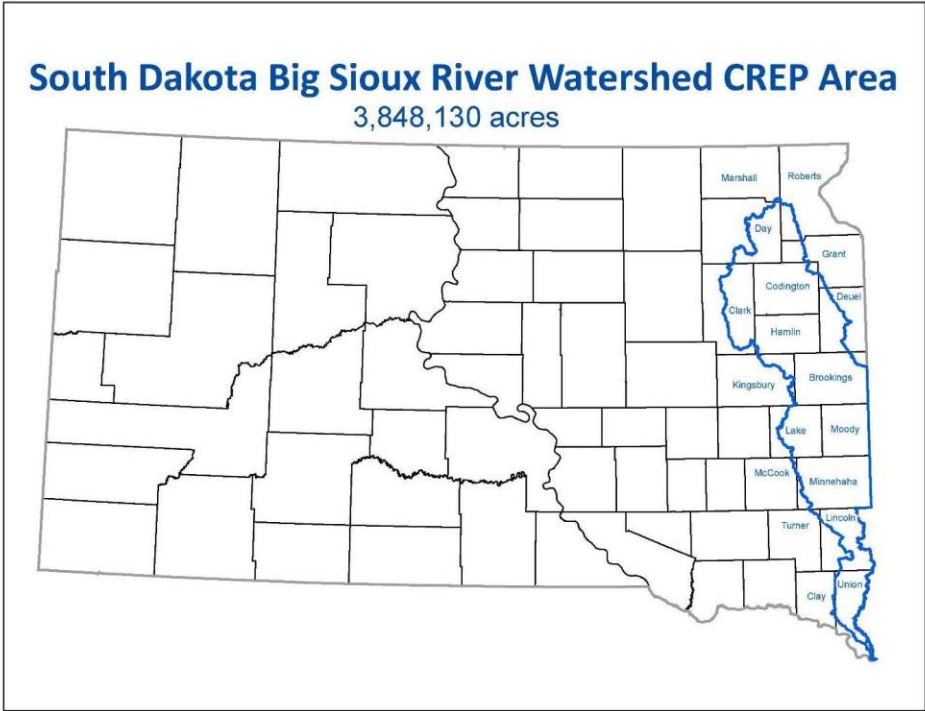


Joseph L. Schultz
USDA Farm Service Agency
Acting State Executive Director

2 Attachments:

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2. Components of the Big Sioux River Watershed CREP Agreement

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United States
Department of
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Farm
Production
and
Conservation

Farm
Service
Agency

SD State FSA Office
200 4th St SW Fed Bldg, Ste 308
Huron SD 57350
PH: 605/352-1160
Fax: 855-243-6003

January 27, 2022

Robert Lawson
South Dakota NRCS
200 Fourth Street SW, Room 203
Huron, SD 57350

Re: Big Sioux River Watershed Conservation Reserve Enhancement Program (CREP) Programmatic
Environmental Assessment (PEA)

Dear Mr. Lawson:

The United States Department of Agriculture (USDA) Commodity Credit Corporation (CCC) in cooperation with the South Dakota Department of Game, Fish and Parks (SDGFP) propose to implement the Big Sioux River Watershed CREP in South Dakota. The USDA Farm Service Agency (FSA) administers the CREP program on behalf of the CCC. The PEA will be prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations implementing the National Environmental Policy Act, and 7 Code of Federal Regulations (CFR) 799, FSA Implementing Regulations for NEPA. The USDA FSA and SDGFP would administer the Big Sioux River Watershed CREP within South Dakota.

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- Improve availability of grasslands to provide forage for livestock producers to hay and or graze.
- Improve quality of life by creating a minimum of approximately 250 new places open to public hunting and fishing access in an area inhabited by a disproportionately large percentage of the state's citizens.

USDA is an equal opportunity provider, employer, and lender.

January 27, 2022

We appreciate your review of this material and any comments on any issues that would be of concern to your office. Please provide your comments within 21 days of receiving this letter to Steven Littlefield, FSA, State Environmental Coordinator at (605) 352-1183 or by email at steven.littlefield@usda.gov. We intend to provide you with access to the Draft EA when the document is completed. Please inform us if someone else with your agency other than you should be notified of the availability of the Draft EA. Thank you in advance for your assistance in this effort.

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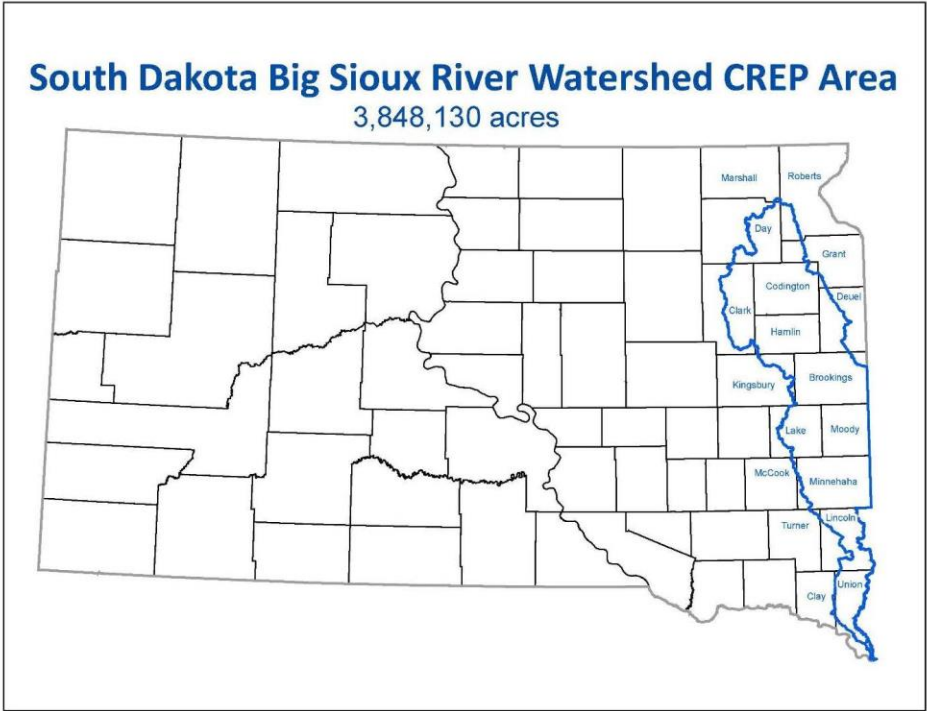


Joseph L. Schultz
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C.6 SAMPLE SCOPING LETTER FOR TRIBAL CONSULTATION



United States
Department of
Agriculture

Farm
Production
and
Conservation

Farm
Service
Agency

SD State FSA Office
200 4th St SW Fed Bldg, Ste 308
Huron SD 57350
PH: 605/352-1160
Fax: 855-243-6003

January 27, 2022

Durell Cooper
Apache Tribe of Oklahoma
PO Box 1330
Anadarko, OK 73005

Re: Big Sioux River Watershed Conservation Reserve Enhancement Program (CREP) Programmatic Environmental Assessment (PEA)

Dear Chairman Cooper:

The United States Department of Agriculture (USDA) Commodity Credit Corporation (CCC) in cooperation with the South Dakota Department of Game, Fish and Parks (SDGFP) propose to implement the Big Sioux River Watershed CREP in South Dakota. The USDA Farm Service Agency (FSA) administers the CREP program on behalf of the CCC. The PEA will be prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations implementing the National Environmental Policy Act, and 7 Code of Federal Regulations (CFR) 799, FSA Implementing Regulations for NEPA. The USDA FSA and SDGFP would administer the Big Sioux River Watershed CREP within South Dakota.

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- Improve availability of grasslands to provide forage for livestock producers to hay and or graze.
- Improve quality of life by creating a minimum of approximately 250 new places open to public hunting and fishing access in an area inhabited by a disproportionately large percentage of the state's citizens.

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● Page 2

March 8, 2022

Analysis of a Proposed Action's potential effect on Tribal lands, resources, or areas of historic significance is an important part of Federal agency decision making. In considering FSA's responsibilities pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations in 36 CFR Part 800 "Protection of Historic Properties", we are requesting your assistance in identifying historic properties, cultural resources, and sites of religious or cultural significance that might be affected by the proposed South Dakota Big Sioux Watershed CREP project. Through this notice, the FSA is contacting you to notify you of the Proposed Action and to solicit feedback.

Please contact Steven Littlefield, FSA State Environmental Coordinator at (605) 352-1183 or by email at steven.littlefield@usda.gov should you have any questions or need further information. We will provide you access to the Draft EA when the document is completed. Thank you in advance for your assistance in this effort.

Sincerely,

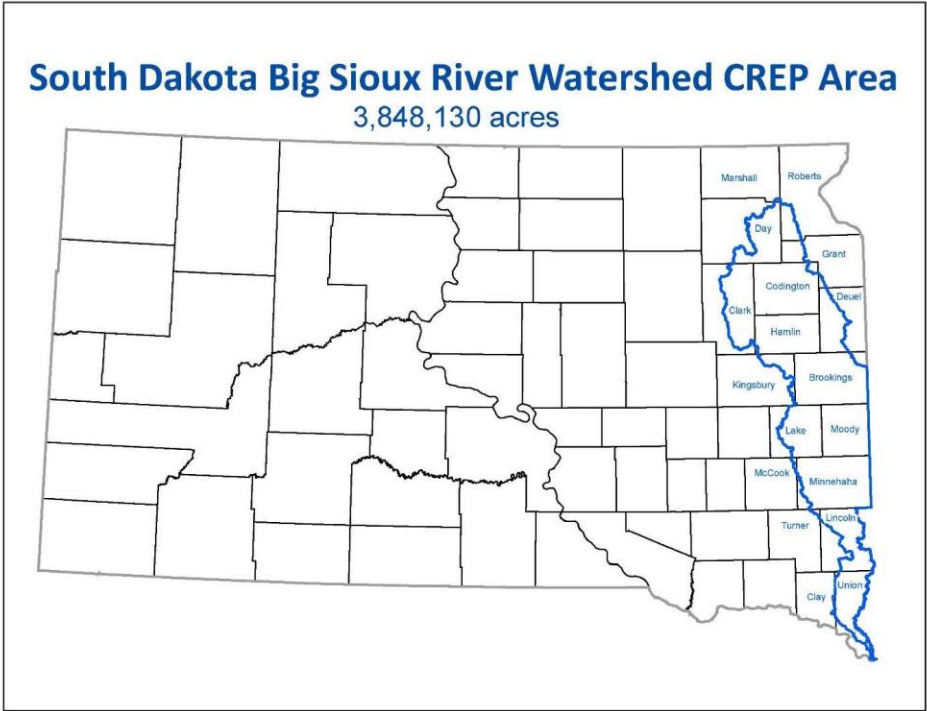


Joseph L. Schultz
USDA Farm Service Agency
Acting State Executive Director

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Attachment 2. Components of the Big Sioux River Watershed CREP Agreement

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<i>Cost Share</i>	Average USDA cost-share per acre of \$180 per acre which includes 50% cost-share and 50% practice incentive payment for establishing grassland habitat on cropland.

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C.7 TRIBAL CONSULTATION MAILING LIST

Durell Cooper
Apache Tribe of Oklahoma
PO Box 1330
Anadarko, OK 73005

Reggie Wassana
Cheyenne and Arapaho Tribes, Oklahoma
P.O. Box 38
Concho, OK 73022-0038

Max Bear
Cheyenne and Arapaho Tribes, Oklahoma
P.O. Box 38
Concho, OK 73022-0038

Steven Vance
Cheyenne River Sioux Tribe
PO Box 590
Eagle Butte, SD 57625

Harold Frazier
Cheyenne River Sioux Tribe
PO Box 590
Eagle Butte, SD 57625-0590

Merle Marks
Crow Creek Sioux Tribe
PO Box 50
Fort Thompson, SD 57339

Peter Lengkeck
Crow Creek Sioux Tribe
PO Box 50
Fort Thompson, SD 57339-0050

Garrie Kills A Hundred
Flandreau Santee Sioux Tribe
PO Box 283
Flandreau, SD 57028

Anthony Reider
Flandreau Santee Sioux Tribe
PO Box 283
Flandreau, SD 57028-0283

Michael Blackwolf
Fort Belknap Indian Community of the Fort
Belknap Reservation of Montana
656 Agency Main Street
Harlem, MT 59526

Andrew Werk Jr.
Fort Belknap Indian Community of the Fort

Belknap Reservation of Montana
656 Agency Main Street
Harlem, MT 59526-9455

Lance Foster
Iowa Tribe of Kansas and Nebraska
3345 B Thrasher Rd.
White Cloud, KS 66094

Tim Rhodd
Iowa Tribe of Kansas and Nebraska
3345 B Thrasher Rd.
White Cloud, KS 66094

Cultural Preservation Office Staff
Iowa Tribe of Oklahoma
335588 E 750 Rd
Perkins, OK 74059-3268

Edgar Kent Jr.
Iowa Tribe of Oklahoma
335588 E 750 Rd
Perkins, OK 74059-3268

Clyde Estes
Lower Brule Sioux Tribe
187 Oyate Circle
Lower Brule, SD 57548-8500

Christian Skunk
Lower Brule Sioux Tribe
187 Oyate Circle
Lower Brule, SD 57548-8500

Thomas Brings
Oglala Sioux Tribe
PO Box 2070
Pine Ridge, SD 57770

Kevin Killer
Oglala Sioux Tribe
PO Box 2070
Pine Ridge, SD 57770-2070

Everett Baxter Jr.
Omaha Tribe of Nebraska
P.O. Box 368
Macy, NE 68039

Tom Parker
Omaha Tribe of Nebraska
P.O. Box 368
Macy, NE 68039

Elsie Whitehorn
Otoe-Missouria Tribe of Indians, Oklahoma
8151 Highway 177
Red Rock, OK 74651-0348

John R. Shotton
Otoe-Missouria Tribe of Indians, Oklahoma
8151 Highway 177
Red Rock, OK 74651-0348

Stacy Laravie
Ponca Tribe of Nebraska
PO Box 288
Niobrara, NE 68760

Larry Wright Jr.
Ponca Tribe of Nebraska
PO Box 288
Niobrara, NE 68760

Ione Quigley
Rosebud Sioux Tribe
PO Box 809
Rosebud, SD 57570

Scott Herman
Rosebud Sioux Tribe
PO Box 430
Rosebud, SD 57570-0430

Tiauna Carnes
Sac & Fox Nation of Missouri in Kansas and
Nebraska
305 N. Main St.
Reserve, KS 66434

Justin Wood
Sac & Fox Nation, Oklahoma
920883 South Highway 99 Building A
Stroud, OK 74079

Johnathan L. Buffalo
Sac & Fox Tribe of the Mississippi in Iowa
349 Meskwaki Rd.
Tama, IA 52339

Vern Jefferson
Sac & Fox Tribe of the Mississippi in Iowa
349 Meskwaki Rd.
Tama, IA 52339

Roger Trudell
Santee Sioux Nation, Nebraska
108 Spirit Lake Avenue West
Niobrara, NE 68760

Misty Flowers
Santee Sioux Nation, Nebraska
52946 Hwy 12, Suite 2
Niobrara, NE 68760

Dianne Desrosiers
Sisseton-Wahpeton Oyate of the Lake Traverse
Reservation, South Dakota
PO Box 907
Agency Village, SD 57262-0907

Delbert Hopkins Jr.
Sisseton-Wahpeton Oyate of the Lake Traverse
Reservation, South Dakota
PO Box 509
Agency Village, SD 57262-0509

Kenneth "KJ" Graywater Jr.
Spirit Lake Tribe, North Dakota
PO Box 198
Fort Totten, ND 58335

Douglas Yankton Sr.
Spirit Lake Tribe, North Dakota
PO Box 359
Fort Totten, ND 58335-0359

Samantha Odegaard
Upper Sioux Community, Minnesota
PO Box 147
Granite Falls, MN 56241-0147

Kelli Huapapi
Yankton Sioux Tribe
PO Box 1153
Wagner, SD 57380

Robert Flying Hawk
Yankton Sioux Tribe
PO Box 1153
Wagner, SD 57380-1153

APPENDIX D
REASONABLY FORESEEABLE FUTURE ACTIONS

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**Table D-1.
Reasonably Foreseeable Future Actions**

Scheduled Project	Project Summary	Implementation Date	Relevance to Proposed Action	Interaction with Resources
US Highway 212	Urban (Watertown) reconstruction project including grading, storm sewer, curb & gutter, sidewalk, signing, pavement marking, traffic signals, a new water main and sanitary sewer.	Ongoing – estimated completion date October 2022	Potential construction timing overlap with Proposed CREP implementation.	Earth Resources, Biological Resources
Excel Energy Dakota Range I and II Proposed Wind Farm	302.4-megawatt wind farm proposed development in Codington County	Unknown, under construction	Potential construction timing overlap with the Proposed CREP implementation.	Earth Resources, Biological Resources
ENGIE North American Dakota Range III Proposed Wind Farm	151.2-megawatt wind farm proposed development in Roberts County	Unknown	Potential construction timing overlap with the Proposed CREP implementation.	Earth Resources, Biological Resources
Sioux Valley Energy Volga South to Oldham Reconstruction Project	Constructing 13 miles of new three-phase overhead line to replace old two-phase overhead line.	Summer 2022	Within the Proposed CREP area with potential timing overlap with CREP implementation	Earth Resources, Biological Resources
Sioux Valley Energy Volga West to Oldham Reconstruction Project	Constructing 8.5 miles of new three-phase overhead line to replace old three-phase overhead line.	Summer 2022	Within the Proposed CREP area with potential timing overlap with CREP implementation	Earth Resources, Biological Resources

**Table D-1.
Reasonably Foreseeable Future Actions**

Scheduled Project	Project Summary	Implementation Date	Relevance to Proposed Action	Interaction with Resources
Sioux Valley Energy Medary to Rutland Project	Constructing 7 miles of new three-phase overhead line to replace old three-phase overhead line.	Summer 2022	Within the Proposed CREP area with potential overlap with CREP implementation	Earth Resources, Biological Resources

References

Excel, 2020. *Dakota Range Wind Project Presentation*. August 5, 2020.

Sioux Valley Energy, 2022. New Projects. <www.Siouxvalleyenergy.com>. Accessed 28 February 2022.

South Dakota Department of Transportation, 2022. New Projects. <www.dot.sd.gov/projects-studies>. Accessed 28 February 2022.

APPENDIX E
FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES AND CRITICAL HABITAT

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Table E-1. List of Threatened or Endangered Species and Critical Habitat in the Big Sioux River Watershed Area by County

Species	Federal Status	Counties within the BSRW known to or believed to occur	Critical Habitat in BSRW?
Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	Threatened	Brookings, Clark, Codington, Day, Deuel, Grant, Hamlin, Kingsbury, Lake, Lincoln, Moody, Minnehaha, Roberts, Union	No
Piping Plover (<i>Charadrius melodus</i>)	Threatened	Day, Kingsbury, and Union	No
Red Knot (<i>Calidris canutus rufa</i>)	Threatened	Brookings, Clark, Codington, Day, Deuel, Grant, Hamlin, Kingsbury, Lake, Lincoln, Minnehaha, Moody, Roberts, Union	No
Whooping Crane (<i>Grus americana</i>)	Endangered	Clark	No
Pallid Sturgeon (<i>Scaphirhynchus albus</i>)	Endangered	Union	No
Topeka Shiner (<i>Notropis topeka</i>)	Endangered	Brookings, Clark, Codington, Deuel, Hamlin, Kingsbury, Lincoln, Minnehaha, Moody, and Union	No
Higgins Eye (pearlymussel) (<i>Lampsilis higginsii</i>)	Endangered	Clay and Turner	No
Scaleshell Mussel (<i>Leptodea leptodon</i>)	Endangered	Union	No
Dakota Skipper (<i>Hesperia dacotae</i>)	Threatened	Brookings, Clark, Codington, Day, Deuel, Grant, Hamlin, Kingsbury, Lake, Minnehaha, Moody, and Roberts	Yes, in Brookings, Day, Deuel, Grant, and Roberts counties
Monarch Butterfly (<i>Danaus plexippus</i>)	Candidate	Brookings, Clark, Codington, Day, Deuel, Grant, Hamlin, Kingsbury, Lake, Lincoln, Moody, Minnehaha, Roberts, Union	No
Poweshiek Skipperling (<i>Oarisma poweshiek</i>)	Endangered	Brookings, Clark, Codington, Day, Deuel, Grant, Hamlin, and Roberts	Yes, in Brookings, Day, Deuel, Grant, Moody, and Roberts counties
Western Prairie Fringed Orchid (<i>Platanthera praeclara</i>)	Threatened	Brookings, Lake, Lincoln, Minnehaha, Moody, Roberts, Union	No

Source: USFWS. 2022a. *IPaC Resource List*. South Dakota Ecological Services Field Office.
<<https://ipac.ecosphere.fws.gov/location/VCOZASFDYJF7NMFNXF7AVAQZPQ/resources>>. Accessed February 17, 2022.

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APPENDIX F
PROGRAMMATIC BIOLOGICAL ASSESSMENT FOR THE SOUTH DAKOTA NRCS CONSERVATION
PRACTICE STANDARDS AND SPECIFICATIONS

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F.1 INTRODUCTION

In 2016, the US Fish and Wildlife Service concurred with the determinations of “No Effect” and “May Affect but Not Likely to Adversely Affect” in a Programmatic Biological Assessment (BA) for implementing Natural Resources Conservation Service (NRCS) Conservation Practices throughout South Dakota prepared by the US Department of Agriculture. The Programmatic BA can be accessed at the following link: https://efotg.sc.egov.usda.gov/references/public/SD/Programmatic_Biological_Assessment.pdf.

The next section below includes an excerpt of the Programmatic BA that applies to federally listed and candidate species compliance for NRCS actions associated with the Conservation Reserve Program (CRP).

F.2 CONSERVATION RESERVE PROGRAM STEPS EXCERPT

CONSERVATION RESERVE PROGRAM (CRP) STEPS:

The Farm Service Agency (FSA) issued SD Amendment 1 (dated November 19, 2010), to the CRP Manual (2-CRP Revision 5). Specifically, Part 11 Paragraph 367 F provides the guidance the FSA will use when implementing conservation plans and NEPA documentation provided by the NRCS. Future versions of the 2-CRP Manual and future amendments are anticipated to follow this guidance.

“FSA will not implement a practice that deviates from existing NRCS Conditions for Implementing Conservation Practices (CICPs) which have been previously coordinated with USFWS. The conservation plan developed by NRCS to implement the conservation practice [or action] will include the appropriate CICPs.”

Based on the language agreed to above by both agencies, the SD NRCS will FOLLOW THE PREVIOUS STEPS (1-6) OF THESE INSTRUCTIONS WITH THE FOLLOWING **EXCEPTIONS STATED IN BOLD TYPE:**

STEPS 1 & 2:

Identify your planning area, your area of potential effect, and your county.
***NO EXCEPTIONS TO THE STANDARD PROCEDURES ARE ALLOWED.**
Identify all candidate and federally listed species in your county.

STEP 3:

***USE OF THE NRCS-CPA-52 ENDANGERED AND THREATENED SPECIES HELP SHEET IS REQUIRED.**

***WHOOPIING CRANE and RUFA RED KNOT NOTE:** The following language will be placed in the Federal Species Notes block on the Endangered and Threatened Help Sheet –

“For ALL conservation practices or actions, occasional and/or transient endangered species may visit the project site or site vicinity. If any endangered species visits the site or vicinity of the site then the client (program participant) or anyone conducting work for the client (program participant) must stop work immediately and contact the local NRCS office. The local NRCS office will determine when the work may continue based on the species present, the species location, and coordination with an NRCS biologist as appropriate.”

STEP 4:

Utilize the “Procedures” matrices to identify the likely affect **FOR ALL APPLICABLE SPECIES.**

- 1. Record the effect determinations in Help Sheet.**
- 2. Check the “Needs further Action” box in the Endangered and Threatened Species portion of Section J of the NRCS-CPA-52.**

STEP 5:

Record the Conditions for Implementing the Conservation Practice/Action (CICP).

- 1. Record the CICP effect determination on the Help Sheet. Print the applicable CICPs, review them with client, and if the client agrees to the CICPs, then provide a copy to the client and the FSA. Instruct the client to work with the FSA to complete a landowner/client agreement to the CICPs prior to conservation planning being completed.**
- 2. If the landowner does not wish to comply with the listed CICPs OR if the landowner refuses to select a different alternative then cease planning.**

STEP 6:

Finalize Section J of the NRCS-CPA-52.

Due to the Whooping Crane and Rufa Red Knot potentially occurring in all counties, the NRCS will, in all cases, check the “Needs Further Action” box. Provide a photocopy of the NRCS-CPA-52 to the FSA. Follow-up with the FSA once resolution is achieved. Properly document the resolution on the NRCS-CPA-52 in the case file.

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APPENDIX G
DETAILED REGIONAL PRODUCTION EXPENSES, AGRICULTURAL SALES, AND OTHER FARM
RELATED INCOME

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Table G-1. 2017 Detailed Regional Production Expenses, Agricultural Sales, and Other Farm Related Income

County	Production Acres	Farm Production Expenses				Total Agricultural Sales				Farm Related Income			
		Number of Farms	Average Production Expenses Per Farm	Total Expenses	Expenses/Acre	Number of Farms	Average Agricultural Sales Per Farm	Total Sales	Sales/Acre	Number of Farms	Average Farm Related Income Per Farm	Total Farm Related Income	Farm Related Income/Acre
Brookings	439,352	886	314,635	278,767,000	634.50	886	357,033	316,332,000	720.00	566	38,942	22,041,000	50.17
Clark	563,478	553	412,416	228,066,000	404.75	553	483,871	267,581,000	474.87	434	38,266	16,608,000	29.47
Clay	233,719	472	182,651	86,211,000	368.87	472	239,604	113,093,000	483.88	304	26,174	7,957,000	34.05
Codington	359,807	601	203,181	122,112,000	339.38	601	259,365	155,878,000	433.23	362	24,096	8,723,000	24.24
Day	566,160	581	260,869	151,565,000	267.71	581	316,661	183,980,000	324.96	415	29,723	12,335,000	21.79
Deuel	320,049	634	248,565	157,590,000	492.39	634	291,654	184,909,000	577.75	475	36,127	17,160,000	53.62
Grant	410,942	554	358,539	198,630,000	483.35	554	424,986	235,442,000	572.93	382	23,369	8,927,000	21.72
Hamlin	291,384	476	319,093	151,888,000	521.26	476	377,664	179,768,000	616.95	330	31,298	10,328,000	35.44
Kingsbury	513,826	518	379,654	196,661,000	382.74	518	497,789	257,855,000	501.83	381	19,085	7,271,000	14.15
Lake	258,933	463	285,303	132,095,000	510.15	463	349,624	161,876,000	625.17	318	20,197	6,423,000	24.81
Lincoln	286,853	756	229,314	173,361,000	604.35	756	270,887	204,790,000	713.92	469	23,344	10,948,000	38.17
Marshall	499,739	503	454,471	228,599,000	457.44	503	538,148	270,689,000	541.66	359	32,636	11,717,000	23.45
McCook	354,320	512	297,235	152,184,000	429.51	512	382,695	195,940,000	553.00	384	19,464	7,474,000	21.09
Minnehaha	356,697	1,023	221,826	226,928,000	636.19	1,023	248,073	253,779,000	711.47	575	21,667	12,459,000	34.93
Moody	255,185	490	364,567	178,638,000	700.03	490	440,977	216,079,000	846.75	354	26,579	9,409,000	36.87
Roberts	555,134	782	230,374	180,152,000	324.52	782	261,366	204,389,000	368.18	570	33,091	18,862,000	33.98
Turner	382,531	757	281,464	213,068,000	557.00	757	351,003	265,710,000	694.61	491	20,826	10,226,000	26.73
Union	282,501	557	268,548	149,581,000	529.49	557	335,773	187,025,000	662.03	347	26,226	9,100,000	32.21
Total/Average	6,930,610	11,118	295,150	3,206,096,000	480.20	11,118	357,065	3,855,115,000	579.07	7,516	27,284	207,968,000	30.94

Source: National Agricultural Statistics Service (NASS). 2017. 2017 Census of Agriculture. South Dakota State and County Data. <https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_State_Level/South_Dakota/sdv1.pdf> Accessed February 28, 2020.