Ferry County
Voluntary Stewardship Program
Approved Work Plan
November 2018

Funded by Washington State Conservation Commission

November 2018
Ferry County Voluntary Stewardship Program

Approved Work Plan

Prepared for
Ferry County VSP Work Group
Ferry County Planning and Building

Prepared by
Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, Washington 98101

Prepared with assistance from:
White Bluffs Consulting
Ferry Conservation District

Work Group Members
Brad Miller – Cattle Rancher
Dave Hendrick – Rancher, Farmer, and Timber-grower
Dennis Olsen – Cattle and Hay Rancher
Dolly Watkins – Cattle, Hay, and Horse Rancher
Julie Olsen – Cattle and Hay Rancher
Kim Charles – Farmer
Saundra Richartz – Rancher

Advisory Members
Evan Sheffels, WSFB
Johnna Exner, County Commissioner
Lloyd Odell, FCD
Mary Kalinowski, Ferry County Planning Director
Sandy Dotts, WDFW

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

ABBREVIATIONS

BOCC	Board of County Commissioners
CAO	Critical Areas Ordinance
CARA	critical aquifer recharge area
Colville Reservation	Confederated Tribes of the Colville Reservation
CPPE	Conservation Practice Physical Effect
CRP	Conservation Reserve Program
CSP	Conservation Stewardship Program
Ecology	Washington State Department of Ecology
FCD	Ferry Conservation District
FEMA	Federal Emergency Management Agency
FFA	frequently flooded area
FSA	Farm Service Agency
FWHCA	fish and wildlife habitat conservation area
GHA	geologically hazardous area
GMA	Growth Management Act
NRCS	Natural Resources Conservation Service
PHS	Priority Habitat and Species
RCW	Revised Code of Washington
TMDL	Total Maximum Daily Load
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
VSP	Voluntary Stewardship Program
WDFW	Washington Department of Fish and Wildlife
Weed Board	Ferry County Noxious Weed Board
WSCC	Washington State Conservation Commission
Work Group	Ferry County VSP Work Group
Work Plan	Ferry County VSP Work Plan
WRIA	Water Resource Inventory Area

1 Introduction

The Washington State Growth Management Act (GMA) was adopted by the Washington State Legislature in 1990. The GMA provides for citizens, communities, local governments, and the private sector to cooperate and coordinate in comprehensive land-use planning. The GMA requires county and local governments to adopt development regulations that protect critical areas.

In 2011, the Legislature amended the GMA with the intent to protect and voluntarily enhance critical areas in places where agricultural activities are conducted, while maintaining and enhancing the long-term viability of agriculture. This amendment established the Voluntary Stewardship Program (VSP), a new, non-regulatory, and incentive-based approach that balances the protection of critical areas on agricultural lands while promoting agricultural viability, as an alternative to managing agricultural activities in the County under the Critical Areas Ordinance (CAO; Ordinance No. 2016-03).

VSP is not a replacement for compliance with other local, state, or federal laws and regulations, but participation in VSP will help to show how much effort the County's agricultural producers are investing in meeting these requirements and to document the benefits of these efforts in protecting and enhancing critical area functions and values (Figure 1-1).

Critical Areas per RCW 36.70A.020(5) include:

- Wetlands
- Fish and wildlife habitat conservation areas
- Frequently flooded areas
- Critical aquifer recharge areas
- Geologically hazardous areas

Under VSP (RCW 36.70A.705), critical areas on lands where agricultural activities are conducted are managed under this voluntary program. Lands used for non-agricultural purposes are regulated under Ferry County's CAO.

Figure 1-1
Balanced Approach of Critical Areas Protection and Agricultural Viability

What are considered "agricultural activities" under VSP?

VSP applies to lands where agricultural activities are conducted, as defined in RCW 90.58.065.

Agricultural activities mean agricultural uses and practices including, but not limited to:

- Producing, breeding, or increasing agricultural products, including livestock
- Rotating and changing agricultural crops
- Allowing land used for agricultural activities to lie fallow in which it is plowed and tilled, but left unseeded
- Allowing land used for agricultural activities to lie dormant as a result of adverse agricultural market conditions
- Allowing land used for agricultural activities to lie dormant because the land is enrolled in a local, state, or federal conservation program, or the land is subject to a conservation easement
- Conducting agricultural operations
- Maintaining, repairing, and replacing agricultural equipment; maintaining, repairing, and replacing agricultural facilities, provided the replacement facility is no closer to the shoreline than the original facility
- Maintaining agricultural lands under production or cultivation

What are considered "agricultural structures" under VSP?

"Agricultural equipment" and "agricultural facilities" include, but are not limited to the following, as defined in RCW 90.58.065 (2)(c):

- The following used in agricultural operations: Equipment; machinery; constructed shelters, buildings, and ponds; fences; upland finfish rearing facilities; water diversion, withdrawal, conveyance, and use equipment and facilities including but not limited to pumps, pipes, tapes, canals, ditches, and drains
- Corridors and facilities for transporting personnel, livestock, and equipment to, from, and within agricultural lands
- Farm residences and associated equipment, lands, and facilities
- Roadside stands and on-farm markets for marketing fruit or vegetables

1.1 Work Plan Elements

The guiding document for the VSP is this Ferry County VSP Work Plan (Work Plan), the goal of which is to protect critical areas while maintaining the viability of agriculture in the County. The Work Plan was developed by the Ferry County VSP Work Group (Work Group), convened by the County and comprised of agricultural producers, local government elected officials and staff, agency representatives, and interest groups.

Opting into VSP

In 2012, the BOCC of Ferry County passed Resolution No. 2012-01 to "opt-into" the VSP as an alternative to the traditional regulatory approaches to protecting critical areas on lands where agricultural activities are conducted.

VSP presents a unique opportunity to address an important environmental topic that has been a source of controversy in recent decades—how to protect critical areas on agricultural lands while keeping agriculture economically viable (Schultz and Vancil 2016).

Core VSP Work Plan Approval Tests

The Work Plan has been developed to meet the following VSP statutory tests required for State approval:

- **Protect critical areas while maintaining and enhancing the viability of agriculture** at the end of 10 years after receipt of funding (RCW 36.70A.0725).
- **Create measurable benchmarks that are designed to protect and enhance** (through voluntary, incentive-based measures) **critical areas functions and values** (RCW 36.70A.720 (1)(e)).

1.1.1 Work Plan Goals

One of the main goals of the Work Plan is to identify stewardship strategies and practices that are implemented under existing programs or voluntarily implemented through producer-funded practices and identify goals and benchmarks for continued protection and enhancement of the County's critical area functions and values.

Stewardship Practices

Examples of practices that protect critical area functions and values and promoting agricultural viability include:

- Riparian restoration and protection
- Grazing management
- Weed management
- Irrigation water management

See the **VSP Checklist** (Appendix F) for additional examples of voluntary stewardship practices, and resources for additional information and potential incentive funding.

Producer participation is a key component of Work Plan implementation and program success. **Failure of the Work Plan in meeting protection goals will trigger a regulatory approach to protecting critical areas under the GMA,** such as applying buffers and setbacks along streams or wetlands. Additionally, the regulatory approach for protecting critical areas on agricultural lands would not have the equally important VSP goal of maintaining and enhancing agricultural viability. Neither would it necessarily encourage outreach or technical assistance for agricultural operators. Therefore, producer participation will be encouraged as a central component of the Work

Plan, through new and continued implementation of stewardship strategies and practices, to help ensure the success of VSP and protect agricultural viability.

Producer participation is a key component of Work Plan implementation and success of the program. The Work Group developed a *Ferry County VSP Overview and Checklist* (Appendix F) to provide a summary overview of VSP and the Work Plan, including frequently asked questions and a VSP Checklist, as an outreach and implementation tool to help assess how the VSP could apply to individual agricultural producer's lands. The VSP Checklist includes additional examples of stewardship strategies and practices that protect and enhance critical areas and promote agricultural viability.

1.1.2 Work Plan Organization

This Work Plan, including its appendices, includes detailed information intended to fulfill the state requirements outlined under the Revised Code of Washington (RCW) 36.70A.720(1)(a through l), which requires Work Plans to include critical area protection and enhancement goals with measurable benchmarks and an implementation, reporting, and tracking framework.

Ferry VSP Work Plan Organization

- **Section 1 – Introduction:** Background on VSP regulation and how it applies to the County
- **Section 2 – Ferry County Regional Setting:** Overview of County conditions, including description of critical areas
- **Section 3 – Baseline and Existing Conditions:** Description of County-wide critical areas presence and functions and values as of 2011
- **Section 4 – Protection and Enhancement Strategies:** Description of currently implemented stewardship practices that protect and enhance critical areas functions and values
- **Section 5 – Goals, Benchmarks, and Adaptive Management:** Description of VSP goals for critical area protection and enhancement, measurable benchmarks, and indicators and methods for adaptive management
- **Section 6 – Implementation:** Detailed plan outlining implementation of VSP actions by the VSP Lead
- **Appendix A – VSP Map Folio**
- **Appendix B – Baseline Conditions Summary**
- **Appendix C – Benchmarks – Methods and Initial Results**
- **Appendix D – Existing and Related Plans, Programs, and Regulations**
- **Appendix E – Ferry County Voluntary Stewardship Program Outreach Plan**
- **Appendix F – Ferry County Voluntary Stewardship Program Overview and Checklist**

1.2 Work Plan Development – Roles and Responsibilities

RCW 36.70A.705 identifies roles and responsibilities for state agencies, counties, and VSP work groups. Table 1-1 provides a summary of these roles and responsibilities, adapted to the Work Plan development process. Administrative, technical, and collaborative roles and responsibilities are included in the Work Plan development process spanning state, county, and local levels. Ferry County designated the Ferry Conservation District (FCD) to manage and facilitate the VSP process.

Table 1-1
VSP Roles and Responsibilities for Plan Development

State – Approval and Administration	
WSCC	Administers VSP statewide; approves/rejects locally developed work plans
VSP Technical Panel [1]	Provides technical guidance and assistance, reviews draft work plans, makes recommendations on whether to approve or reject the work plan
VSP Statewide Advisory Committee [2]	Works with the WSCC to revise rejected draft work plans
Local – Administration and Work Plan Development	
Ferry County	Administers VSP funding and grants for work plan development
Ferry County VSP Work Group	Develops and proposes a work plan for approval by WSCC
FCD	Provides technical information to support work plan development and manages and facilitates the VSP process
Other Technical Providers	Provides technical input during work plan development
Agricultural Producers – Outreach Focus	
Landowners/Operators/Others	Provide input to the draft work plan

Notes:

1. The VSP Technical Panel members include representatives from Ecology, WDFW, Washington State Department of Agriculture, and the WSCC.
2. The Committee includes two representatives each from environmental interests, agriculture, and counties; two tribal representatives are also invited to participate.

The Work Group, convened by the FCD and formally established by the Ferry County Board of County Commissioners (BOCC), developed the Work Plan through a series of 15 Work Group meetings[1], beginning on October 20, 2016 through July 17, 2018. See Appendix E: Outreach Plan for further discussion on how the Work Group was formed and outreach and public participation opportunities provided during Work Plan development. In addition to landowner outreach, the FCD invited the Bureau of Indian Affairs executive for the Confederated Tribes of the Colville Reservation (the Colville Reservation), the Executive Director of the Colville Business Council, and a member of the Tribal Business Council to participate in the Ferry County VSP Work Group. While no representatives elected to participate, the Colville Tribe was included in the Ferry VSP email distribution list. Implementation roles and responsibilities for the Work Plan are further described in Section 6.

[1] 8 meetings were facilitated by Washington State University Extension during the 2015 to 2017 biennium.

2 Ferry County Regional Setting

2.1 Ferry County Profile

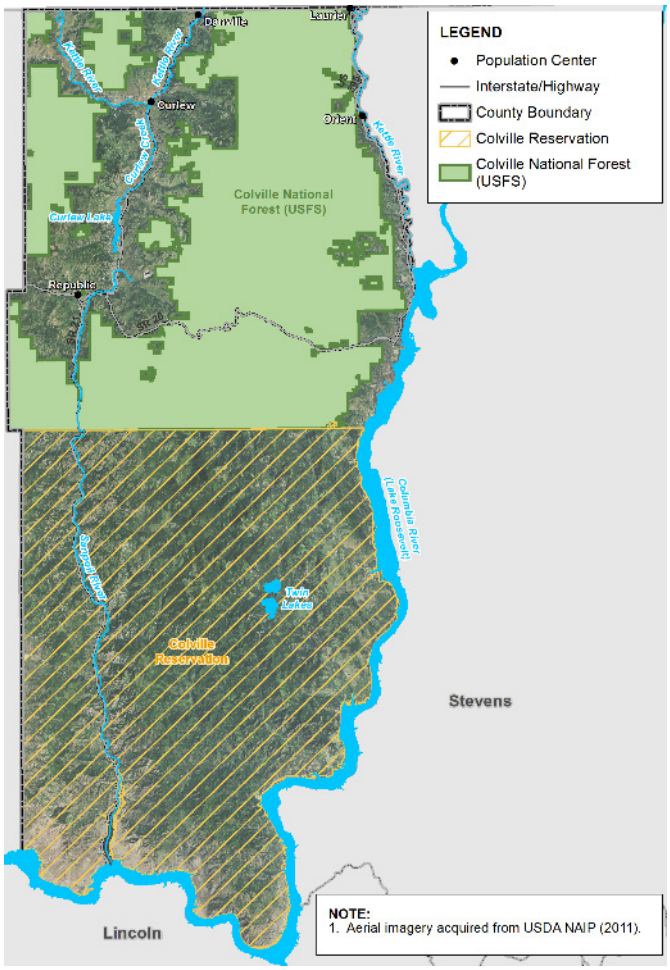
Ferry County is located in northeastern Washington and is bound by the Canadian Border to the north and the counties of Stevens, Lincoln, and Okanogan to the east, south, and west, respectively. The Columbia River bounds the County to both the east and south.

Only 18% of the land in Ferry County is privately owned, with most of the remaining 82% owned by either the Colville Reservation in the southern half of the County or by the U.S. Forest Service (USFS) as a part of the Colville National Forest in the northern half of the County (Figure 2-1).

This section provides a County profile description in further detail for the following items:

- Water resources and precipitation
- Soils and terrain
- Land ownership
- Land use and landcover

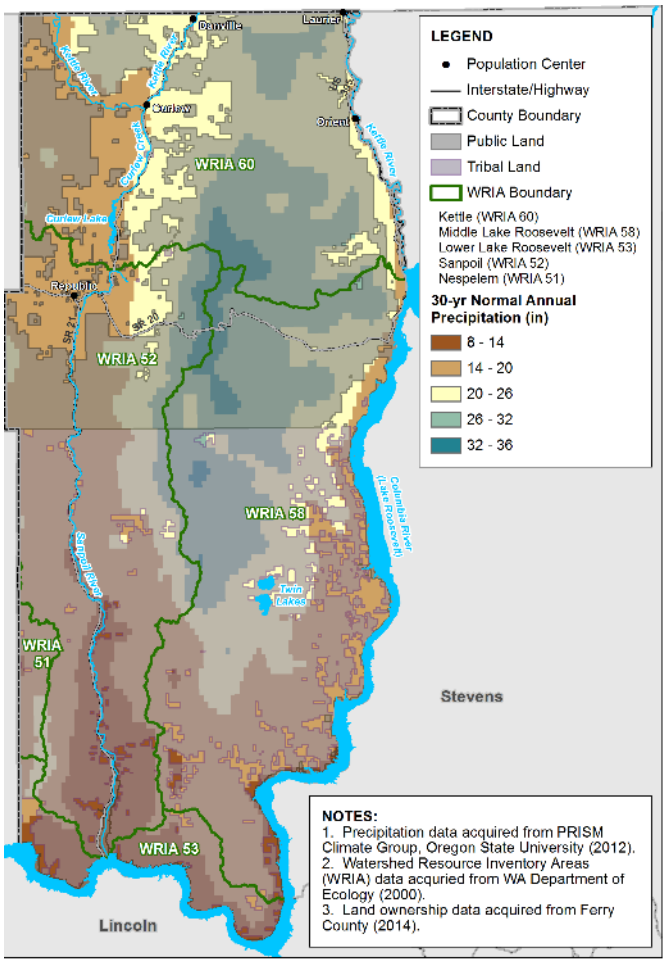
Figure 2-1
Ferry County Vicinity Map



2.1.1 *Water Resources and Precipitation*

The County contains portions of five watersheds, which are known as Water Resource Inventory Areas (WRIAs). The majority of privately owned lands are within three watersheds: Kettle (WRIA 60), Middle Lake Roosevelt (WRIA 58), and Sanpoil (WRIA 52). The other two watersheds are located on the Colville Reservation in the southern portion of the County and include Lower Lake Roosevelt (WRIA 53) and Nespelem (WRIA 51).

Figure 2-2
Water Resources and Precipitation in Ferry County



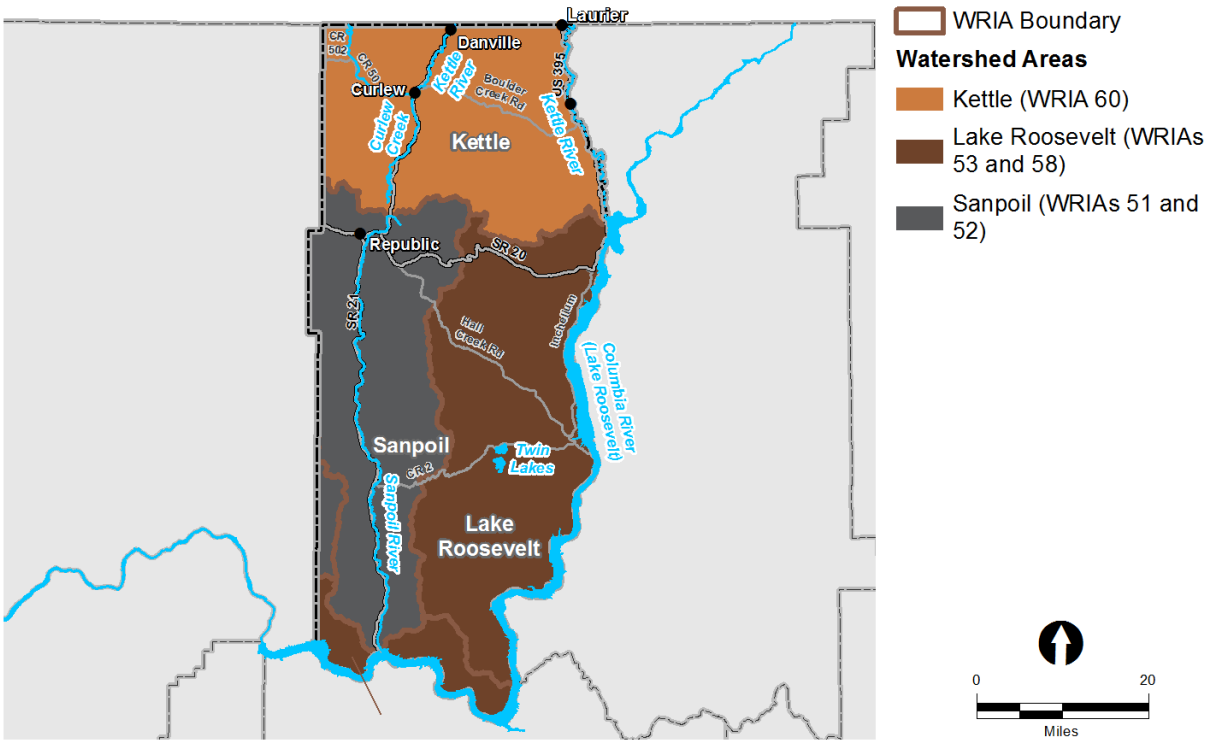
The climate is generally characterized by warm, dry summers, with heavier precipitation in the winter. Temperatures and precipitation vary widely, mostly depending on elevation. Precipitation ranges from 8 to 20 inches of annual precipitation along the Columbia River and in the interior of the County along the Sanpoil and Kettle rivers. The largest amount of precipitation is associated with the higher elevations and is as high as 36 inches per year (Figure 2-2).

For the purposes of the Work Plan, the Work Group identified the following three watershed areas to develop a more localized planning approach during implementation of the Work Plan. Although the Work Plan and the goals and benchmarks discussed in Section 5 apply County-wide, the following watershed areas (Figure 2-3) will help realize more localized watershed objectives during implementation:

- Kettle (WRIA 60)
- Lake Roosevelt (WRIAs 53 and 58)
- Sanpoil (WRIAs 51 and 52)[2]

[2] Only a small upper watershed portion of the Nespelem (WRIA 51) is within the County. There is very little private land with limited agricultural activity in this area. This area has been included in the Sanpoil watershed area for planning purposes, recognizing that there is little intersect with VSP in WRIA 51.

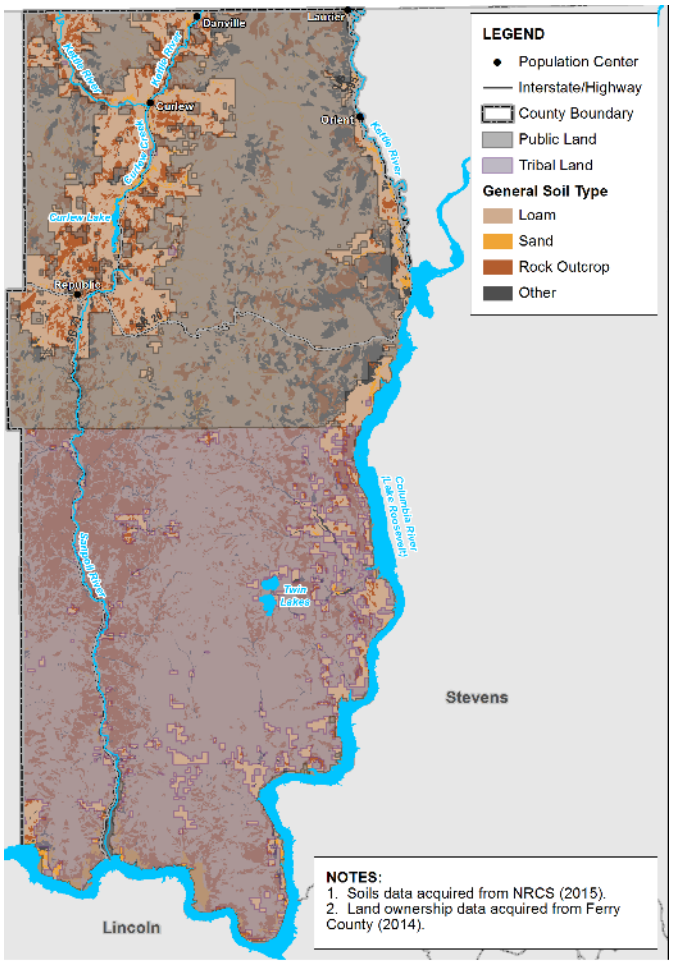
Figure 2-3
Watershed Areas



2.1.2 Terrain and Soils

Ferry County topography is mountainous with narrow river valleys. The landcover consists predominately of forested highlands, shrub-covered hills, and narrow valleys with fertile farmlands. A majority of the soils in Ferry County consist of glacial till, exposed bedrock, and deep well drained loam soils. A small portion of the County is within river valleys with alluvial deposits where most private agricultural land use occurs (Figure 2-4). The growing season ranges from over 180 days in the southwest portion of the County to as little as 80 days in the higher elevation forest lands.

Figure 2-4
Soil Types in Ferry County



2.1.3 Land Ownership

The small portion of Ferry County that is privately owned (18%) is mostly concentrated in the river valleys in the northern portion of the County. Public lands cover an additional 40% of the County, mainly associated with the Colville National Forest (USFS) in the northern portion of the County.

The southern portion of the County is within the Colville Reservation, which covers approximately 48% of the County. The Colville Reservation lands are largely under Indian Allotment Trust Lands with some privately held fee lands within the Colville Reservation. See Table 2-1 and Figure 2-5 for land ownership summary within the County.

Tribal Government and Public Lands

VSP does not apply to lands owned by tribal governments or agricultural activities occurring on public lands through leases or other agreements. However, for the purposes of VSP, fee-lands within the Colville Reservation are subject to the County's CAO and are therefore included in this Work Plan under the "private lands" category where agricultural activities area occurring.

Table 2-1
Land Ownership

Ownership Type	Owner	Acres	Percent
Private [1]	Private Lands	261,563	18%
Public	USFS – Colville National Forest and other Federal and State Lands	558,216	39%
Tribe	Indian Allotment Trust Lands	620,911	43%
	Total	**1,440,689**	**100%**

Notes:

1. Includes fee lands within the Colville Reservation which are subject to County codes.

2.1.4 Agricultural Land Use and Landcover

Agriculture is the major land use on the County's privately-owned lands. The Work Plan's goals and measurable benchmarks for voluntary landowner participation apply to agricultural producers on privately-owned land in unincorporated areas of the County. While privately-owned lands only comprise 18% of the County's land, 97% of those private lands are in agricultural use.

Rangelands are the main type of agricultural activity in the County covering approximately 98% of the County's private agricultural lands, including private timber lands that are also used for rangelands. A small portion of the County also produces irrigated and dryland crops, less than 1% of the County combined (Table 2-2, Figure 2-6).

Table 2-2
Agricultural Landcover Summary

Landcover	Acres	Percent of County
Total Area in County	**1,400,689**	**NA**
Private Lands	**261,563**	**18.2%**
Agricultural Landcover[1]	**255,216**	**17.7%**
Irrigated	1,837	0.1%
Dryland	3,714	0.3%
Rangelands[2]	249,752	17.3%

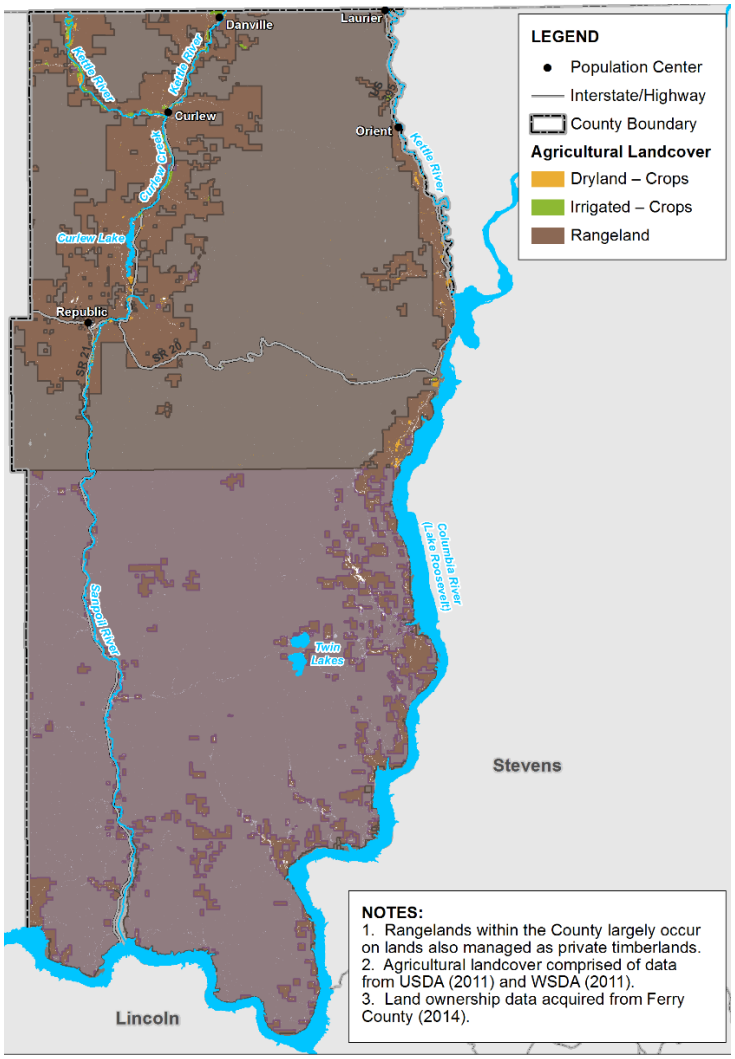
Notes:

1. Privately-owned agricultural lands. Includes fee-lands within Colville Reservation that are subject to Ferry County codes.
2. Includes ranged lands also managed for timber under the County's timber tax classification. Approximately 132,000 acres of private land are under the County's timber tax classification (FCD 2018).

Rangeland in Ferry County

Rangelands are areas that are primarily kept in a natural or semi-natural state to facilitate grazing of livestock. These areas are essential for production of livestock, but also provide value to many wildlife species by preventing conversion to more intensive land uses. The limited growing season in Ferry County is maximized for ranching by using higher elevation range as summer pasture and river valleys for hay production to feed cattle through the winter. Maintaining access to publicly-owned, forested rangeland is key to agricultural viability in the County.

Figure 2-6
Agricultural Landcover in Ferry County



Range Activity on Private Timber and Forest Lands

In Ferry County, the main type of rangeland is forested rangeland. Forested rangeland occurs mostly in the mountainous areas of the County, on public and private timber and forest lands. Livestock graze on understory vegetation in the forest. Grazing in these areas often has the additional benefit of reducing fuels that contribute to hotter and more devastating forest fires. Stewardship strategies and practices on these rangelands aim to support vegetation growth, maintain healthy soils, and reduce fuels for wildfires. There are approximately 132,000 acres of private lands in the County under the timber tax classification.

While VSP does not apply to forest practices regulated under the state Forest Practices Act, range activities occurring on private timber and forest lands to improve grazing conditions can fall under the definition of "agricultural activity" per RCW 90.58.065 and stewardship practices implemented on these lands to support agricultural viability and critical areas protections are included in this Work Plan.

2.2 Agricultural Activities

Agriculture is the major land use in the County with most of the agricultural activity in livestock production, the County's top commercial commodity. According to the U.S. Department of Agriculture's (USDA) Census of Agriculture (2012), Ferry County produces approximately $5.3 million in market value from agricultural products (includes land in farms within the Colville Reservation[3]). County-wide, livestock sales account for approximately 46% of the market value of products sold in the County, with crop sales accounting for approximately 54% (USDA 2012). See Table 2-3 for summary of agricultural landcover and major agricultural products within the County.

There are approximately 255 farms in the County that vary in size ranging from relatively small, with agricultural product sales of less than $1,000, to large, with agricultural product sales of greater than $250,000. According to the USDA Census, the majority of County farms (71%) in 2012 had agricultural product sales of less than $10,000 (Table 2-4).

Table 2-3
Agricultural Activity on Private Lands and Products

Agricultural Type	% of Agriculture in County	Primary Crops/Livestock
Irrigated	1%	• Hay • Seed crops
Dryland	1%	• Wheat
Rangeland	98%	• Cattle • Sheep
Total	**100%***	

*Agricultural lands cover approximately 17.7% of the County
Sources:
WSDA Agricultural Landcover Data 2011; USDA 2012

Table 2-4
Size of Farms in Ferry County Based on Agricultural Product Sales

Farm Agricultural Product Sales (Dollars)	Number of Farms
Less than $1,000	96
$1,000 to $10,000	87
$10,000 to $100,000	53
$100,000 to $250,000	15
Greater than $250,000	4
Total	**255**

[3] USDA 2012 Census of Agriculture data includes land in farms on the Colville Reservation, which, with the exception of fee lands, are not included in the Work Plan goals and benchmarks.

2.3 Critical Areas

2.3.1 Critical Areas Definitions

The five critical areas that are specifically defined under the GMA (RCW 36.70A.030) include: 1) wetlands; 2) fish and wildlife habitat conservation areas (FWHCAs); 3) frequently flooded areas (FFAs); 4) critical aquifer recharge areas (CARAs); and 5) geologically hazardous areas (GHAs). Critical areas perform key environmental functions (e.g., water quality and fish and wildlife habitat) and provide protections from hazards (e.g., flood, erosion, or landslide hazards).

GHAs for Landslide or Seismic Hazards

Structures in agricultural lands will continue to be permitted and regulated through the County's CAO for seismic hazard areas. Geologically hazardous areas for erosion and landslide hazards have primary applicability in the VSP context, and agricultural activities related to these hazards will be managed under VSP.

The County has identified five critical areas that will be managed under the Work Plan: wetlands, FWHCAs, FFAs, CARAs, and GHAs for erosion hazards. Critical areas that will continue to be reviewed under the County's CAO, include GHAs for seismic hazards, and any structures that are proposed within agricultural lands for any of the five critical areas, whether they support agricultural activities or not.

The County's CAO (No. 2016-03) includes identification and designation criteria for these five critical areas, which are summarized below and further defined in Appendix B-3.

Major Resource Concern: Streambank Erosion and Landslides

Erosion and landslide events often occur within the County in areas experiencing summer wildfires. These events can have major effects to critical area functions and agricultural viability by increasing sedimentation, reduce streamside vegetation, reduce stream complexity, and threaten adjacent agricultural land and infrastructure.

Landslide on Lake Roosevelt

Wetlands

Wetlands are areas inundated or saturated by surface water or groundwater for at least part of the growing season and support vegetation adapted for life in saturated soil conditions.

Functions: Water quality, hydrology, and habitat

Fish and Wildlife Habitat Conservation Areas

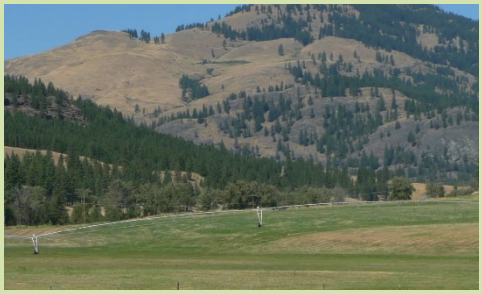
FWHCAs are lands and waters that provide habitat to support fish and wildlife species throughout their life stages. These include ranges and habitat elements where endangered, threatened, and sensitive species may be found, and areas that serve a critical role in sustaining needed habitats and species for the functional integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term.

Functions: Water quality, hydrology, soil, and habitat

Frequently Flooded Areas

FFAs include 100-year floodplains and floodways, and often include the low-lying areas adjacent to rivers and lakes that are prone to inundation during heavy rains and snowmelt.

Functions: Water quality, hydrology, soil, and habitat



Critical Aquifer Recharge Areas

CARAs are areas that have a critical recharging effect on aquifers used for drinking water or that could reduce supply by reducing recharge rates and water availability, and areas susceptible to groundwater pollution.

Functions: Water quality and hydrology

Geologically Hazardous Areas

GHAs are areas susceptible to erosion, sliding, and other geological events. Designated GHAs related to agricultural activities are primarily associated with erosion hazard and landslide hazard areas. Loss of access to rangeland from washouts and landslides can be a threat to agricultural viability.

Functions: Water quality, hydrology, soil, and habitat

2.3.2 *Critical Areas Functions and Values*

VSP legislation requires that work plans develop goals and benchmarks to protect and enhance critical area **functions and values** (RCW 36.70A.720(1)(e)). The key functions and values provided by the five critical areas in the County can be summarized into four major functions, which include: 1) water quality, 2) hydrology, 3) soil, and 4) fish and wildlife habitat. Each critical area provides one or more of these key functions and values (Table 2-5). This section provides an overview of the functions and values and Section 3 will further describe the relationship between critical areas and their functions and values.

Table 2-5
Critical Areas Functions

Critical Areas	Key Functions			
	Water Quality 	**Hydrology** 	**Soil Function** 	**Fish and Wildlife Habitat** 
Wetlands	•	•		•
Fish and Wildlife Habitat Conservation Areas	•	•	•	•
Frequently Flooded Areas	•	•	•	•
Critical Aquifer Recharge Areas	•	•		
Geologically Hazardous Areas (Erosion)	•	•	•	•

Water Quality

Critical areas, such as stream channels, riparian areas, and wetlands, are part of the aquatic ecosystem that filters and retains excess fine sediments and cycles out excessive nutrients (such as phosphorus and nitrogen) and other pollutants. These functions provide the clean water that is essential for supporting habitat for fish and other aquatic species. Critical areas also help moderate water temperatures by providing vegetative shade and cooler water from recharged groundwater, which helps maintain cooler in-water temperatures and dissolved oxygen levels needed to support aquatic species.

Hydrology

Hydrology is the process of water delivery, movement, and storage. In an ecosystem, hydrology is affected by landform, geology, soil characteristics and moisture content, and climate (including precipitation). Water is delivered to streams primarily from surface and shallow subsurface runoff and, in some cases, from groundwater. Stream channels, riparian areas, and wetlands are also a part of the aquatic ecosystem that stores and transports water and sediment, maintains base flows, and can support vegetation and microorganism communities.

Soil Function

Soil provides an underground living ecosystem, which is essential for preserving plants, animals, and human life. Soil conservation is essential in the County to support healthy soils that have the following characteristics:

- Reduce susceptibility to erosion
- Hold and slowly release water
- Filter pollutants and, in many cases, detoxify them
- Store, transform, and cycle nutrients
- Physically support plants

Fish and Wildlife Habitat

Habitats are the natural environment in which a particular species or population can live. The habitat requirements are unique for different species and can be unique for different life stages of a species. Habitat loss is the primary threat to the survival of many native species.

3 Baseline and Existing Conditions

Establishing baseline conditions is an important step to understanding the critical areas functions and values that need to be protected under VSP. The effective date of the VSP legislation, July 22, 2011, serves as the baseline date for accomplishing the following items (RCW 36.70A.700):

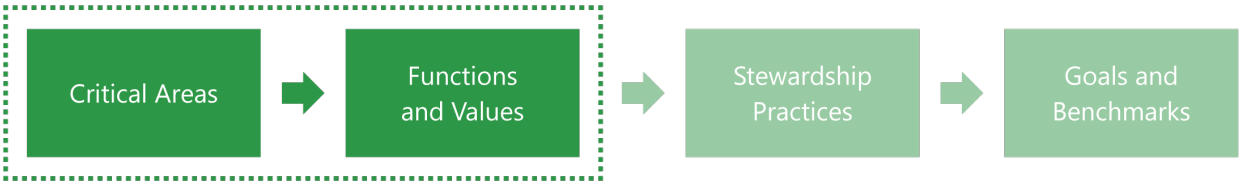
- Protecting critical area functions and values
- Providing incentive-based voluntary enhancements to critical area functions and values
- Maintaining and enhancing the viability of agriculture in the County

To be successful, this Work Plan must protect critical area functions and values as they existed on July 22, 2011, as described in this section. The 2011 baseline sets the conditions from which the County will measure progress in implementing the Work Plan and meeting measurable benchmarks (see Section 5). Any improvement of critical area functions and values through stewardship strategies and practices will be considered enhancement under VSP regulations.

It's important to note that changes to baseline conditions outside of VSP are likely to occur due to effects from climate change, natural events (e.g., wild fires), or other changes outside of the scope of VSP. These changes would be documented through the reporting and adaptive management process discussed in Sections 5 and 6.

Stewardship strategies and practices have been implemented since 2011 to improve agricultural productivity, reduce erosion, and improve water and soil quality and are discussed in Section 4. Both protection of baseline conditions, as described in this section, and improvements of critical area functions and values, as described in Section 4, dictate the setting of goals and benchmarks, described in Section 5 (Figure 3-1).

Figure 3-1
VSP Crosswalk – Critical Areas Connection with Functions and Values



3.1 Baseline (2011) and Existing Conditions

The overlap between agricultural land use and critical areas generally accounts for only a small percentage of the total agricultural land in the County. Although agricultural lands that physically intersect with critical areas is a relatively small fraction of the County's agricultural land base (Table 3-1), these lands include many areas of high-functioning habitats, which provide important ecological functions. Additionally, critical areas provide benefit to the four functions and values beyond their physical locations. These functions and values are water quality, hydrology, soil function, and fish and wildlife habitat. Areas that have the potential to affect critical area functions and values are more widespread and will be targeted in the goals and benchmarks.

Use of Maps and Data
The data sources and maps that were used to assess the potential presence of critical areas within the County and intersection with agricultural lands were used for planning-level purposes only. Actual critical areas presence is determined on a case-by-case basis through farm stewardship or similar planning. For more information on data used to establish baseline conditions see Appendix B.

Table 3-1
Critical Areas Within Ferry County Agricultural Lands

Critical Area Type		Acres Within Agricultural Lands[1]	% of Total Agricultural Lands[1]
Wetlands (all types)		4,049	2%
Fish and Wildlife Habitat Conservation Areas[2] *(Also includes about 1,679 stream miles)*		29,595	12%
Frequently Flooded Areas		3,694	1%
Critical Aquifer Recharge Areas	Wellhead Protection	3,954	2%
	Groundwater Pollution Susceptibility	63,051	25%
Geologically Hazardous Areas	Water Erosion	192,231	75%
	Wind Erosion	146,257	57%

Notes:
1. Agricultural areas included in this summary are limited to privately-owned lands, including fee lands within the Colville Reservation which are subject to County codes. Other tribal government or publicly-owned land are not managed under VSP.
2. Areas include sensitive, candidate, and threatened species and habitats mapped in WDFW's PHS data and maps (2018). This excludes an additional 73,346 acres of game species habitat including mule deer, white-tailed deer, moose, bighorn sheep, and dusky grouse. PHS data are in the process of being updated to more accurately reflect mapping of deer habitat within Ferry County and can be used to update baseline conditions in future reporting efforts.

Although protection of physical critical areas is important, protection of critical area functions and values means even producers without a defined critical area on their property can participate in VSP to help the County reach its goals. Both critical area locations within the County and their connection to critical area functions and values are described in this section.

Game Species in Priority Habitat and Species

PHS data and mapping are maintained by WDFW in part to provide a reference to the potential existence of FWHCAs. Game species habitat are mapped in PHS within approximately 75,000 acres of the County's private agricultural lands, comprising primarily of mule deer, white-tailed deer, and dusky grouse habitat. These habitats almost entirely overlap existing rangelands. Agriculture is expected to continue providing a suitable habitat for these game species.

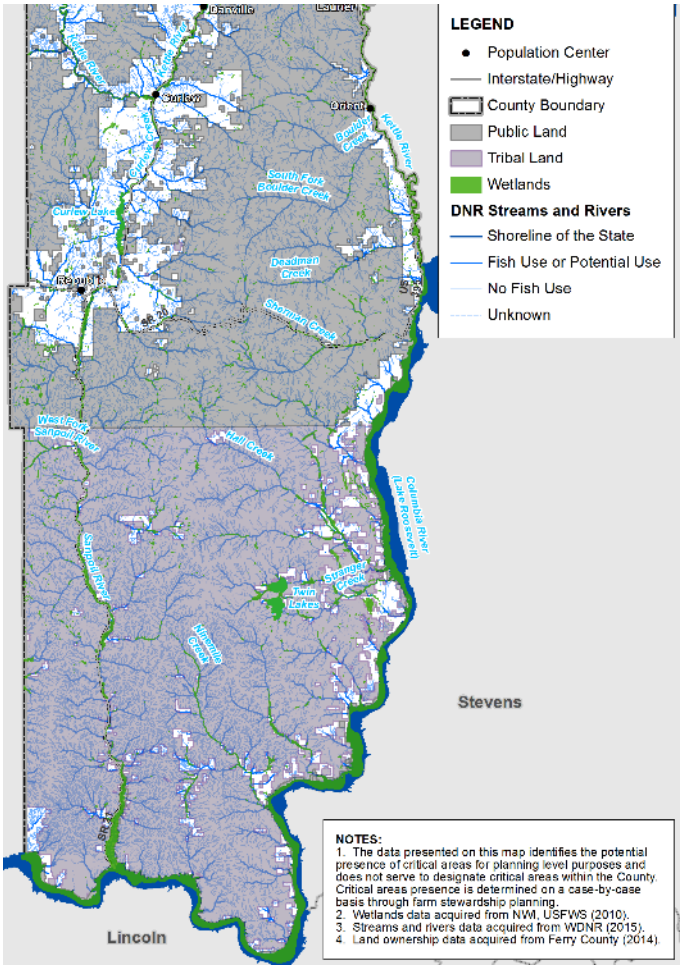
- **Protection goals:** Protection efforts under VSP are focused on the rare and undisturbed natural habitats that exist in the County, such as wetlands, cliffs and bluffs, riparian areas, and forests. Game species areas that overlap with existing agricultural lands are not the primary protection focus of this Work Plan, except where there is overlap with other habitat types. The protection goals included in the Work Plan (Section 5.1) for these habitats are also expected to benefit game species.
- **Enhancement goals:** Enhancement efforts under this Work Plan include conservation efforts that focus on improving habitat conditions for game (along with other species) on existing agricultural lands (e.g., CRP, habitat restoration). These enhancement efforts will be accounted towards meeting the Work Plan's enhancements goals and benchmarks.

See Figure 3-3 for additional details on PHS species, including recreation and gaming species.

3.1.1 Wetlands

Characteristics and functions overview:
Wetlands in Ferry County provide a range of functions for water quality, hydrology, and fish and wildlife habitat. Wetlands are characterized as areas that are inundated with water and are surrounded by vegetation adapted to saturated soil conditions. Wetlands act to reduce siltation and erosion by catching particles in vegetation or allowing sediment to settle on the bottom. Filtration of water also occurs as water is filtered through wetland vegetation. Wetland vegetation also provides shade, which acts to moderate water temperature. Additionally, wetlands act as water storage which moderates flooding and contributes to base flow. Wetlands also provide aquatic and woody vegetated habitat for fish and wildlife.

Figure 3-2
Wetlands and Streams



Intersections on agricultural lands:
In Ferry County wetlands are found on 2% of the County's agricultural lands (Figure 3-2). These wetlands are concentrated in river valleys such as those associated with the Kettle River and Curlew Creek. Wetlands also can be found around much of Curlew Lake, and smaller wetland areas can be found along many of the County's tributaries.

Wetlands on Agricultural Lands in Ferry County	
General locations/distribution	• Concentrated in river valleys and along streams with many along the Kettle River and Curlew Creek
Characteristics	• Palustrine and riverine wetlands are largely found in the County characterized by freshwater emergent and forested shrub vegetation

3.1.2 Fish and Wildlife Habitat Conservation Areas

Characteristics and functions overview: FWHCAs include streams, riparian vegetation, and upland habitats that provide water quality, hydrology, soil, and fish and wildlife habitat functions. FWHCAs provide migration corridors; breeding and reproduction areas; forage, cover, and refugia space; and wintering habitat for wildlife species. Streams provide a key habitat, and streamside vegetation functions as a source of organic material, habitat structures and cover, streambank stabilization, filtering of excess nutrients and pollutants, and shade to help regulate water temperatures.

Large FWHCAs provide for species that require large spaces or range for migration, forage, and cover. Habitats of local importance may support sensitive species throughout their lifecycle, or are areas that are of limited availability, or high vulnerability to alteration. FWHCAs (riparian areas and wetlands) also help improve water quality, affect hydrology, contribute to soil health, and provide a variety of habitats.

Habitats and Species in Ferry County

In the County, habitats include wetlands, rivers, and streams that support aquatic and terrestrial species.

Common fish and wildlife species in Ferry County include:

- Bald eagle
- Golden eagle
- White-tailed deer
- Mule deer
- Waterfowl concentrations

Common fish and wildlife habitats in Ferry County include:

- Aspen stands
- Cliffs
- Eastside steppe
- Snag and logs

Bull and rainbow trout habitat is also present in the County.

Agriculture practices can impact natural habitats by replacing them with a managed landscape, displacing native wildlife species, and compacting soils from grazing. Although agriculture lands can provide vast tracts of semi-natural habitat, species biodiversity is typically higher in the remnant natural areas in the County. It has been shown that farmers who provide greater landscape variability can provide meaningful benefit to many different species (Weibull et al. 2002). Farming practices provide a variety of habitat functions, including providing cover. Crops provide a food source for herbivores such as deer, and birds help control insect and rodent populations.

Streams and Riparian Areas

Intersections on agricultural lands: In Ferry County, there are three large river systems, the Kettle River, Columbia River, and Sanpoil River (Figure 3-2). Curlew Creek and Curlew Lake are also important water features in the County. In total, there are 1,745 miles of streams on privately-owned agricultural land in the County, of which 96% are located on or adjacent to agricultural lands (1,679 miles). Of the streams on or adjacent to agricultural lands, 17% are either shorelines of the state or contain fish habitat. Fish are not known to use 57% of the streams on agricultural lands. The remaining 24% of streams are classified as unknown, meaning that they may or may not have the characteristics of fish and wildlife habitat. See Section 5 for additional indicators that will be reviewed through the Work Plan's monitoring and reporting process, such as USGS' National Hydrography Dataset and WDFW's Priority Species and Habitat (PHS) data.

Streams and Riparian on Agricultural Lands in Ferry County	
General locations/ distribution	• **Streams:** Concentrated in rangeland areas. See Section 2.1 for additional discussion of water resources within the County • **Riparian vegetation:** Located along water resources and form a "ribbon of green" from ordinary high water
Characteristics	**Streams:** • The hydropower management at the Grand Coulee Dam results in significant fluctuations in water levels of the Lake Roosevelt pool, which can impact the quality of the riparian vegetation along the shoreline. • No anadromous fish species are present in the County due to blockage by the Grand Coulee Dam. However, many resident fish species are found in the Columbia and Kettle rivers. – The Kettle River supports a variety of fish species including rainbow trout, mountain whitefish, and native redband trout (Anchor QEA 2015). – The Columbia River supports nearly 50 fish species within Lake Roosevelt. • Woody debris and large pool structures are limited in the upper reaches of Kettle River (Anchor QEA 2015), which is characterized by a flat river grade with a broad channel and little meandering running through agricultural and residential areas. The lower reaches of the Kettle are characterized by steeper grades and a narrower riverbed flowing through mostly forested terrain. • In the Sanpoil River, native resident fish, including the redband trout, bull trout, and mountain whitefish have either disappeared or are only remnant populations, due to habitat degradation, high temperatures, and lack of riparian communities (Anchor QEA 2015). **Riparian Vegetation:** • Forest riparian areas provide specialized habitat such as snag for woodpeckers and cavity nesting animals • Upper reaches of the Kettle River are primarily associated with riparian wetlands, while ponderosa pines are found in the lower reaches. • Lake Roosevelt is primarily associated with shrub-steppe plant communities and forested ponderosa pine riparian areas. • Sanpoil River is generally dominated by pine savannas, grasses, shrubs, and ponderosa pines

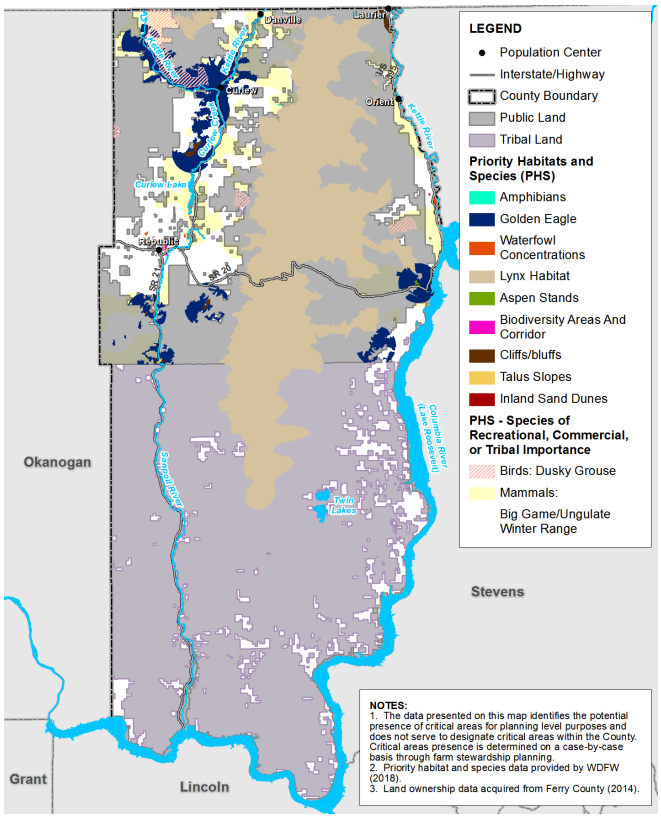
Riparian Vegetation

Riparian vegetation includes the vegetated areas along water sources (wetlands and streams) characterized by plants accustomed to moist soil and high-water table conditions than adjacent areas. In Ferry County's agricultural areas, riparian vegetation is typically riparian wetlands, forested with ponderosa pines, and shrub-steppe. Riparian vegetation provides habitat for fish and wildlife, reduces siltation by trapping sediments, filters excess nutrients and pollutants, and helps moderate in-water temperatures by providing vegetative shade.

Priority Habitats and Species

Intersections on agricultural lands: Areas mapped as Priority Habitats and Species (PHS) are extensive in the County (Figure 3-3). However, many of these areas are associated with game species such as mule deer, Northwest white-tailed deer, and dusky grouse. When these species are included. they cover 40% of the agricultural lands in the County; when excluded, PHS covers approximately 1% of the agricultural lands. Of the non-game species, lynx is the most prevalent PHS species in the County followed by waterfowl concentrations. While suitable lynx habitat is mapped in large areas in the County above the 4,000-foot elevation range, occurrences are quite rare.

Figure 3-3
Priority Habitats and Species



Priority Habitats and Species on Agricultural Lands in Ferry County	
General locations/ distribution	• Lynx habitat can be found throughout much of the County, particularly on the abundant private timberlands which are also grazed. • Agricultural fields, pastures, and riparian areas provide important winter range habitat for white-tailed deer throughout Ferry County. Shrub, grass-forb, Ponderosa pine, and Douglas-fir cover types on southwestern- and southeastern- facing slopes provide critical winter range habitat for mule deer, especially in the northern and southern areas of the County. • Large areas of bird habitat, primarily golden eagle and some waterfowl habitat, are located mostly in river valleys and near Curlew Lake. • Isolated instances of talus and cliff habitat can be found on private and public land. • Biodiversity area and corridor is located near the Town of Republic.
Characteristics	• The County contains a small area of important biodiversity corridors in rangeland areas (approximately 100 acres mapped on privately owned lands).

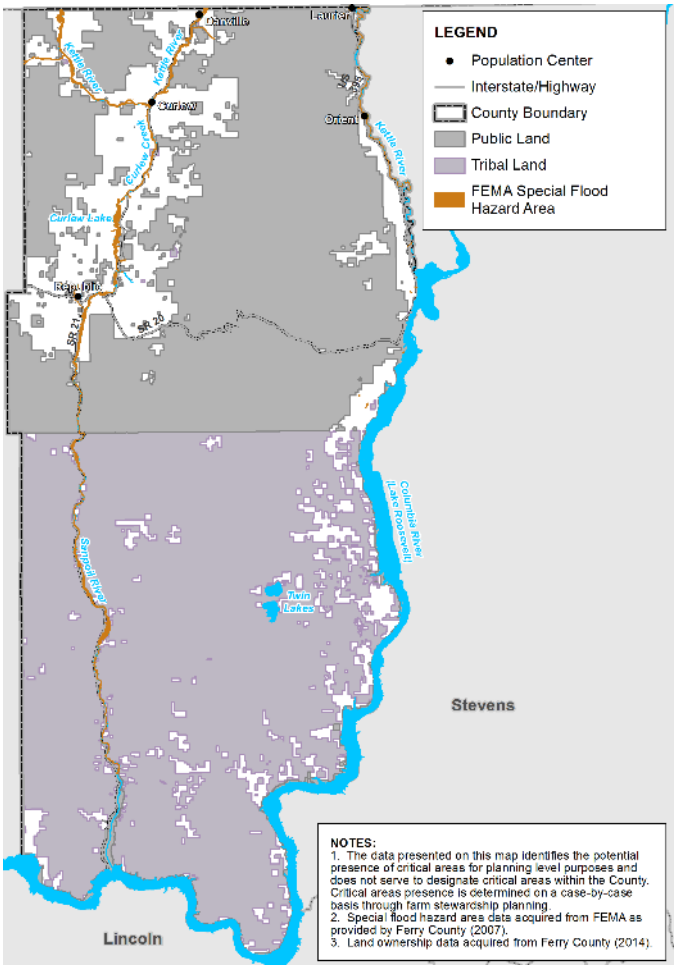
3.1.3 Frequently Flooded Areas

Characteristics and functions

overview: FFAs protect public health and safety by providing temporary flood water storage and conveyance. They also provide riparian habitat and other wildlife benefits, and can improve water quality and recharge groundwater. FFAs can affect surface and groundwater quality and hydrology (timing and magnitude of flows and alluvial aquifer recharge), improve or degrade soil health based on vegetative conditions, and contribute to riparian habitat diversity.

Intersections on agricultural lands: FFAs are found within 1% of the County's total agricultural lands (Figure 3-4). FFAs typically overlap or are adjacent to wetlands and some FWHCAs. The Federal Emergency Management Agency (FEMA) occasionally works with the County to update floodplain mapping. No updates to the mapping are currently underway; any changes to the FEMA maps in the future would be reflected in this Work Plan through the adaptive management process.

Figure 3-4
Frequently Flooded Areas



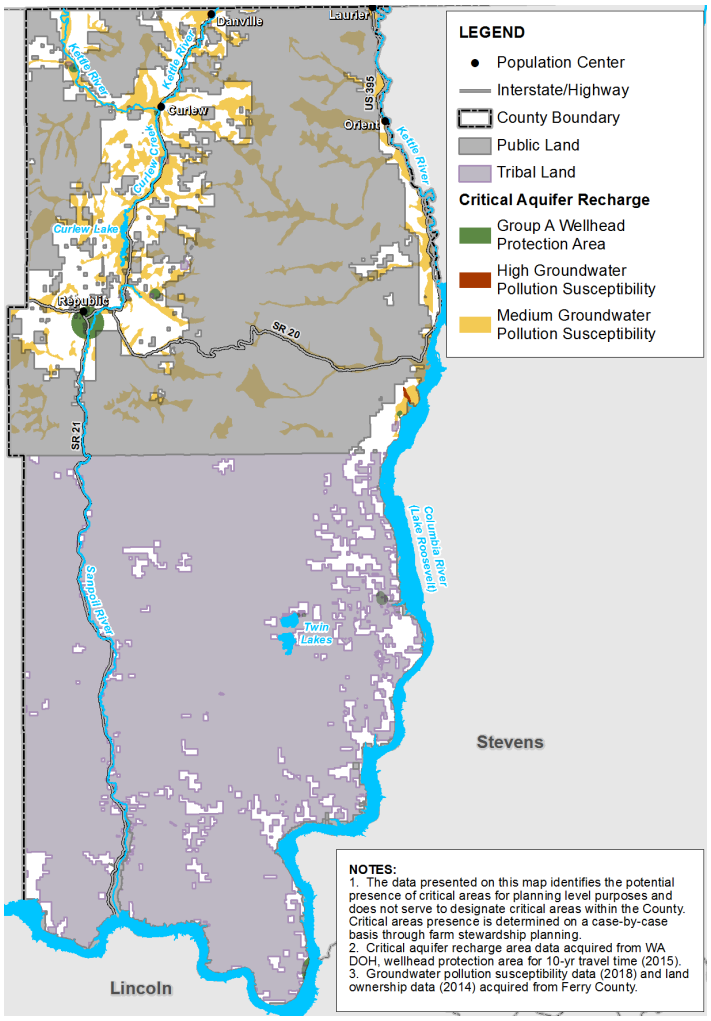
Frequently Flooded Areas on Agricultural Lands in Ferry County	
General locations/distribution	• Large portions of irrigated and dryland areas are within FFAs, only a small portion of FFAs occur on rangelands. • FFAs occur mainly along the Kettle River, Curlew Creek, Curlew Lake, and Sanpoil River.
Characteristics	• Rain-on-snow events are a major cause of flooding in the County.

3.1.4 Critical Aquifer Recharge Areas

Characteristics and functions overview: CARAs provide clean and safe public drinking water supplies by protecting areas near public water supplies and aquifers from contamination from groundwater infiltration.

Intersections on agricultural lands: In Ferry County, there are only a few wellhead protection areas. The largest area is associated with the Town of Republic (Figure 3-5). Overall, wellhead protection areas occur on 2% of agricultural lands in the County. The County also has designated medium and high groundwater pollution susceptibly areas as CARAs, which intersects with approximately 25% of the agricultural lands in the County.

Figure 3-5
Critical Aquifer Recharge Areas



Critical Aquifer Recharge Areas on Agricultural Lands in Ferry County	
General locations/distribution	• Most wellhead protection areas are within rangelands close to municipal water supplies; these are concentrated around the Town of Republic. • Most groundwater pollution susceptibility areas are located along streams and valleys and predominantly identified as medium susceptibility areas.
Characteristics	• Where recharge areas are present, there is a potential for contaminants on the land surface, such as fuel, pesticide, or fertilizer, to infiltrate into public or private drinking water supplies or aquifers.

3.1.5 Geologically Hazardous Areas

Characteristics and functions overview: This Work Plan addresses only a narrow focus for geologic hazards related to instability of steep slopes and potential for water and wind erosion. These are included mainly for maintaining agricultural viability by keeping productive soils in fields used to produce crops, improving water quality, and maintaining habitat. This is different from protecting inherent functions and values of other types of critical areas. Water erosion and wind erosion hazards, are considered in this Work Plan for soil conservation and to reduce the risk of erosion effects on other functions such as surface water quality, water infiltration into soil to improve groundwater conditions, and soil health. Steep slopes are included and mainly associated with maintaining soil health in steep rangeland areas. In developed areas (outside of VSP), the County's CAO can determine where constructing structures may not be suitable due to landslide, earthquake, or other geologic risks.

Intersections on agricultural lands: In Ferry County, GHA designated erosion hazards are associated only with development; however, water and wind erosion hazards will be discussed as part of the Work Plan although there is little potential for impact on agricultural viability outside the risks for landslides. Water erosion potential areas are mapped on a large portion of agricultural lands in Ferry County (75%; Figure 3-6). These areas cover all agricultural types, but are most prevalent in rangelands. Wind erosion susceptibility areas are mapped on 57% of the County's agricultural lands (Figure 3-7); however, wind erosion has little intersection with agricultural activities in the County. The steep terrain of Ferry County, combined with potential for rain on snow events, presents a potential for landslides. This is particularly common after wildfire. Landslides can destroy roads and bridges that provide ranchers access to rangelands or even to their ranches. Stewardship that mitigates some of this risk can reduce the chance of landslides or other mass wasting events.

Geologically Hazardous Areas on Agricultural Lands in Ferry County	
General locations/ distribution	• Water erosion potential areas are concentrated in rangeland areas. • Wind erosion susceptibility areas are concentrated in rangeland areas, but are more prevalent in irrigated and dryland areas than water erosion areas.
Characteristics	• In rangeland areas, water erosion and landslide hazards can be exacerbated by the loss of vegetation from wildfires or overgrazing along streams. • Wind erosion has little intersection with agricultural activities in the County.

Natural Resources Conservation Service Erosion Potential

- **Water erosion potential** is identified based on long-term climate data (precipitation), inherent soils types, on-site characteristics (slopes and length of slopes), and cropping and management practices.
- **Wind erodibility soils groups** are based on qualities such as soil texture, organic matter, moisture, and wind velocity.

Figure 3-6
Water Erosion Potential

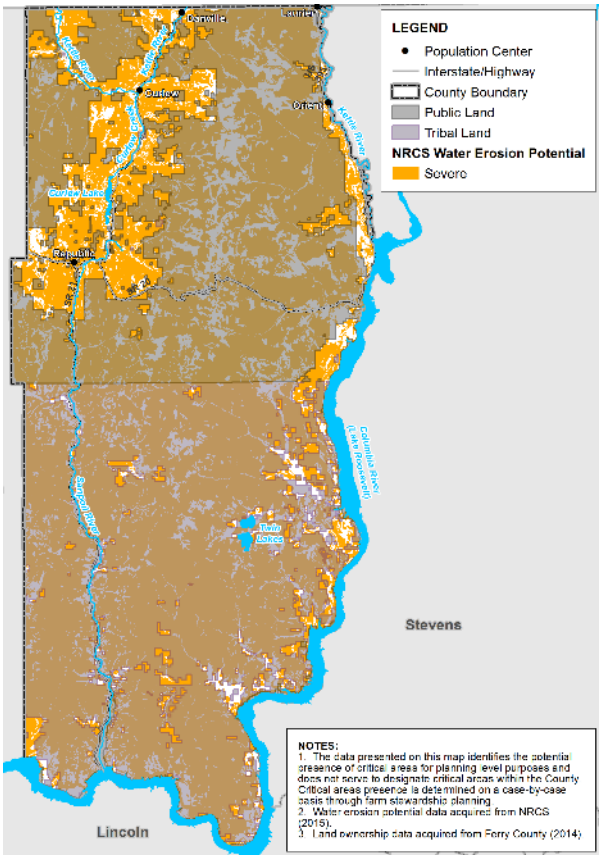
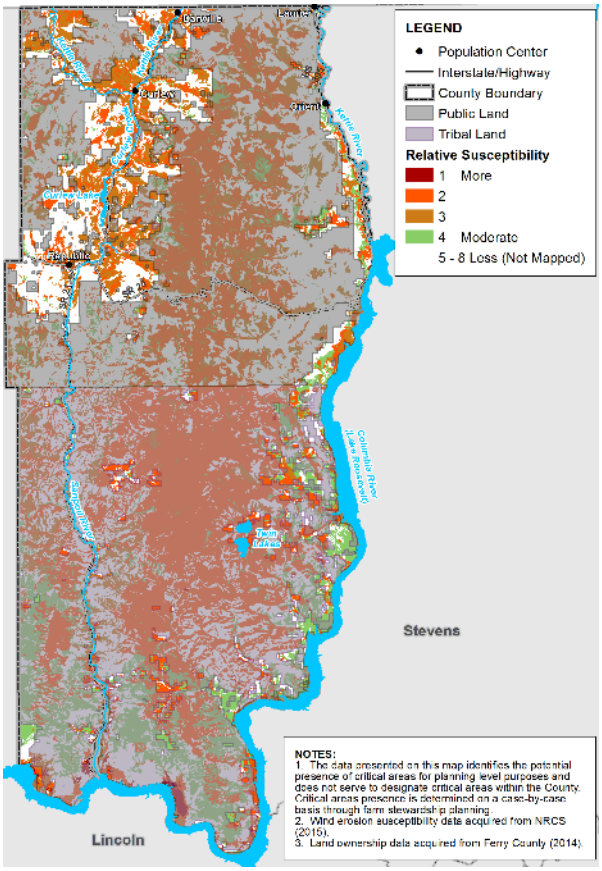


Figure 3-7
Wind Erosion Susceptibility



3.2 Agricultural Viability Baseline Conditions

Agriculture is widely recognized as a pillar of Washington State's and Ferry County's economies. The VSP law is explicit that critical areas are to be protected while, "maintaining and improving the long-term viability of agriculture" (RCW 36.70A.700). Both objectives, critical areas protection and maintaining agricultural viability, must be addressed in this Work Plan.

Agricultural viability in the County includes regional and individual farm elements. These are defined, respectively, as the region's ability to sustain agricultural production over time and an individual

farm's ability to meet financial obligations and make a profit. Tables 3-2 and 3-3 identify agricultural viability concepts for the regional and individual farm perspectives within the County.

At the regional level, agricultural viability is the support system that helps individual farms succeed. This system also helps to mitigate potential threats and supports local producers in their operations and ability to take advantage of business opportunities.

In Ferry County, the primary agricultural product is livestock, which is entirely dependent on public rangelands for grazing. The 1934 Taylor Grazing Act, the 1976 Federal Land Policy and Management Act, and the 1978 Public Rangeland Improvement Act provides leased grazing, which stabilizes the livestock industry dependent upon the public range, prevents economic disruption, saves open space and western wildlife, and has been the mainstay of the rural western economy.

Table 3-2
Agricultural Viability – Regional Elements

Regional Elements	
Concept	**Detail**
Stable and secure agricultural land base	Public lands leases
	Stable water rights
Infrastructure and services	Utilities/irrigation
	Market access/transportation
Support for best farm management practices	Economically viable solutions
	Balanced approach
Education, training, and succession planning	Apprenticeships/training
	Interconnectivity with end users
Welcoming business environment	Stable regulatory environment
	Partnership-based environmental protection
Market trends/viability	Changing livestock and commodity prices can affect the number of producers that support economy
	Value added measures to make products more marketable

At the farm level, agricultural viability rests mostly on the productivity of the land and the ability of the operator to balance input costs with sales and market pressures (Table 3-3). In this Work Plan, emphasis is placed on implementing stewardship strategies and practices through a systematic approach that maximizes the dual benefits of protecting and enhancing critical areas while enhancing agricultural viability. These systems are a suite of farming practices, applied by agricultural type, that target multiple agricultural viability concerns, including water quality, soil health, and nutrient and pest management. In combination, practices that maximize benefits and synergies through a systematic approach are expected to have the most benefit for critical areas and agricultural viability.

Another important aspect of agricultural viability is the importance of operating and maintaining existing stewardship practices/systems to achieve long-term benefits and minimize the number of practices that are discontinued over time, but not replaced by other stewardship practices. The continued operation of existing stewardship practices and systems will be a key component of VSP implementation. New technology or practices is another area that can be explored by agricultural producers to improve the operation of existing stewardship practices and systems or establish new ones. As described in this Work Plan, stewardship practices have the potential to benefit multiple resources, including agricultural practices and critical areas.

Table 3-3
Agricultural Viability – Farm Elements

Farm Elements	
Concept	**Detail**
Reduce inputs	Energy (power, fuels)
	Chemicals/fertilizers
	Labor
Maintain/enhance land production capacity	Weed management
	Irrigation water systems management
	Flood management
	New technologies
Flexibility to respond to market conditions	Changing land in production
	Individual schedule for implementing farming practices
	Cropping choices
Incentives	Payment for measures
	Tax breaks
Managed farmland conversion	Urban development (limited in Ferry County)
	Maintaining private resource lands and public lands leases
"No surprises" regulatory environment	Clean Water Act, Clean Air Act, Endangered Species Act, and others
	County permitting (drainage and other requirements)
Protect private property rights	Recognizing and respecting rights
Environmental variation	Rainfall, temperature, and other environmental factors can affect agricultural production and activities

To obtain a firsthand agricultural viability perspective, producers in the Work Group provided insight on agricultural viability including strengths, weaknesses, opportunities, and threats (Table 3-4).

Table 3-4
Agricultural Viability Strengths, Weaknesses, Opportunities, and Threats

Strengths	Weaknesses
• Excellent product (grass fed beef) • Strength of family farms • Strong demand for products	• Reliance on public lands leases to support ranching • Fluctuating price of hay and fertilizers • Cost of electricity
Opportunities	**Threats**
• Regional market for grass fed beef • New technologies and crops • Increased irrigation efficiency • Agricultural tourism	• Loss of land base to development • Predation of livestock by wolves • Costs of weed management • Wildfires and landslides • New regulations

Overall, the Work Plan has been designed to support and promote the regional and individual farm agricultural viability elements listed above. The program places emphasis on systems, practices, flexibility, incentives, and other opportunities mutually beneficial to agricultural viability and critical areas protections, supporting continued agricultural viability in the County. Agricultural viability is a component of stewardship activities described in Section 4 and in each of the goals provided in Section 5. Protecting and enhancing agricultural viability will continue to be a key performance measure that must be met during plan implementation.

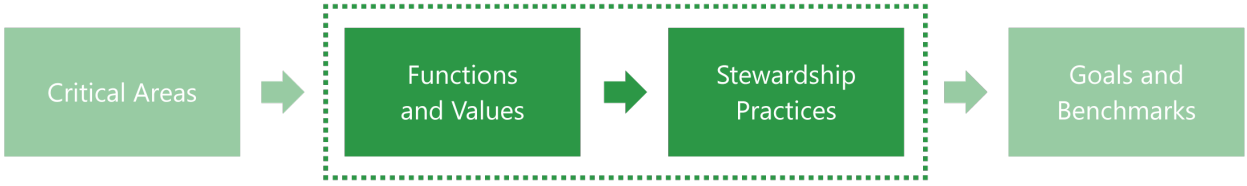
Irrigated hay field, north Ferry County
photo credit: Anna Lael

4 Protection and Enhancement Strategies

Agricultural producers play a major role in the stewardship and management of private lands and resources within Washington State and Ferry County. Agricultural producers are continually improving agricultural practices, applying new science and technology, and implementing stewardship practices that reduce agricultural impacts on critical areas, as well as maintain or increase the viability of the agricultural economy. In Ferry County, agricultural producers have adopted a variety of practices to address many of the major resource concerns within the County, including practices to improve habitat, reduce soil erosion, and improve soil quality.

This section introduces the connection between stewardship strategies and practices and critical area functions and values (Figure 4-1). Additionally, this section discusses the stewardship strategies and practices that have been implemented since 2011, highlighting the protections to critical areas and associated functions and values these practices are already providing.

Figure 4-1
Critical Areas Functions and Values Connection with Stewardship Practices



4.1 Examples of Stewardship Activities that Protect Critical Areas

As discussed in Section 3, key critical areas functions include water quality, hydrology, soil, and habitat. Many stewardship practices have been adopted within the County that provide a suite of benefits to these critical areas functions, in addition to maintaining the viability of agriculture.

Table 4-1 summarizes examples of stewardship strategies and practices that have been applied by agricultural producers in the County under Natural Resources Conservation Services (NRCS) programs and FCD-led projects. This table helps illustrate the types of practices that have been or can be implemented to protect critical areas functions. As noted in the table, these examples also address the promotion of agricultural viability.

It is important to consider implementing a suite of farming practices in order develop an effective conservation system on a ranch or farm. For example, prescribed grazing would realize the most benefit for critical areas protections and agricultural viability when implemented in conjunction with weed management, fencing, and shoreline stabilization practices. Often producers are implementing certain stewardship practices and their efforts can be enhanced with the addition of one or more complementary practices. The FCD is available to provide technical guidance in identifying stewardship strategies and practices that promote agricultural viability and further the goals of this Work Plan to protect critical area functions.

The VSP Checklist (Appendix F) has been developed for agricultural producers and the FCD to determine how the VSP could apply to their operations. Appendix C provides a more comprehensive "toolbox" of example practices that have been or could be implemented by agricultural producers within the County.

VSP Checklist

The VSP Checklist (Appendix F) is a helpful tool to help document existing stewardship practices and assess how the VSP could further support individual agricultural producers. It includes additional examples of stewardship strategies and practices that protect and enhance critical areas and promote agricultural viability.

Participation in Funded Programs

Federal, state, and local government, and private-sector programs and opportunities are available to support producers in addressing agricultural and resource concerns. See Section 6 for additional resources and technical assistance available to agricultural producers on a voluntary basis. **Participation in a government-funded program is not required to be a VSP participant.**

Participation Confidentiality and Privacy

VSP Checklists can assist producers in developing an "individual stewardship plan" in coordination with the CD. "Individual stewardship plans" that a conservation district helps a producer develop are confidential and exempt from disclosure, similar to farm plans developed by conservation districts per RCW 42.56.270(17)(a) and (b) (WSCC 2017). Conservation practices information shared by producers with the FCD will be reported for VSP at the watershed and County scales.

Table 4-1
Examples of Functional Effects of Stewardship Strategies and Practices in Ferry County

Example Practice	Applicability	Description	Critical Area Functions		Agricultural Viability
Prescribed Grazing	Rangeland Irrigated	Managing grazing and vegetation harvest to improve plant communities and manage weeds	Water Quality	• Reduces runoff and erosion • Reduces transport of nutrients and sediment	• Soil quality and conservation • Weed management • Yield and fertility
			Hydrology	• Increases infiltration and water availability	
			Soil	• Decreases water and wind erosion by increasing vegetation cover • Reduces stream erosion through enhanced riparian vegetation	
			Habitat	• Improves and maintains health and vigor of desired plant species • Restores desired habitats, such as shrub-steppe	
Forest Understory Management	Rangeland	Managing forest understory by selectively cutting or removing trees and forest understory for range management	Water Quality	• Reduces transport of sediment by reducing wildfire hazard	• Soil quality and conservation • Weed/pest management • Yield and fertility
			Hydrology	• Increases infiltration and water availability	
			Soil	• Reduces runoff and erosion risks by reducing wildfire hazard • Improves soil composition and organic matter retention	
			Habitat	• Improves access to forage for grazing and browsing animals • Reduces risk of harmful insects and pests • Reduces wildfire hazard	
Pest Management	Rangeland Irrigated Dryland	Managing pesticide use to reduce runoff	Water Quality	• Decreases residual pesticides in surface and groundwater	• Soil quality • Weed management • Pollinator and beneficial organisms
			Soil	• Decreases wind and water erosion through pest management	
			Habitat	• Reduces negative effects of pests on food quality and quantity	
Livestock Watering Facility	Rangeland	Providing drinking water to livestock and wildlife, often to provide a water source away from streams or other areas of concern	Water Quality	• Reduces erosion and transport of nutrients by reducing loss of vegetation cover near streams	• Soil quality and conservation • Weed management • Yield and fertility
			Soil	• Decreases soil erosion by increasing vegetation cover	
			Habitat	• Improves the quantity of vegetation and health of plant communities by protecting streams and riparian areas	

Note:
Functions are defined by the NCRS CPPE matrix for each practice. See Section 5.2 and Table 5-6 for additional discussion and details on how practices provide benefits to these critical area functions, based on the NRCS CPPE scores.

4.2 Changes Since 2011 Baseline

Since 2011, agricultural producers have implemented stewardship strategies and practices that provide protections and enhancements to critical areas and promote agricultural viability through private projects, and projects funded by federal, state, and local governments. One of the key purposes of the VSP and this Work Plan is to leverage existing resources by relying on existing local planning efforts, existing private-sector activities, and government programs to achieve Work Plan goals (RCW 36.70A.700(2)(d)). The following subsections summarize documented stewardship practices, implemented since 2011, that have likely protected or enhanced critical areas and improved agricultural viability over baseline conditions. These documented practices likely represent only a subset of all the stewardship practices that have been implemented since 2011, because many agricultural producers in the County implement practices independent of government programs. Accounting for these improvements would require extensive self-reporting and documentation processes that are not yet in place. Additionally, it should be acknowledged that, during this same time, there are likely some practices that have been discontinued. The re-establishment of agriculture in lands managed in conservation can result in habitat and other functions being affected. Changes to ecological functions unrelated to agricultural activities will be considered as a change in the baseline for the purposes of VSP. These include publicly funded ecological restoration projects without any nexus to agriculture.

Forest Understory Management to Maintain Grazing Conditions

As discussed in Section 2.1.4, the main type of rangeland in the County is forested rangeland, characterized by livestock that graze on understory vegetation in the forest. Forest understory management is a key practice included in this Work Plan for maintaining grazing access and conditions within forested rangelands. These practices also provide important protections to critical area functions by reducing wildfire hazards and the resulting erosion risks, improving soil composition and organic matter, and providing habitat and forage access to wildlife. Forest understory management to maintain or improve grazing conditions is different from forest practices associated with timber management for harvest. The practices conducted under the Forest Practices Act (RCW Chapter 76.09) are outside of the scope of VSP and are not considered a part of this Work Plan.

It is expected that most implemented stewardship practices, such as irrigation management system improvements, stock watering facilities, and fencing, will see very little to no relapse back to old practices. Less than 3% per year of these types of practices are anticipated to be removed or discontinued each year. There are other stewardship or management practices (such as pest and nutrient management, residue management, and prescribed grazing) where a higher rate of

discontinuation (6%) or more variability could be seen year to year in implementation. See Table 4-2 for assumptions related to varying estimated discontinuation rates.

Table 4-2
Calculating Discontinuation for Stewardship Practices

Assumed Range of Discontinuation	Stewardship Practice Category	Example Practices
None	**Easements and Infrastructure** • Permanent Stewardship Practices	• Permanent Easements • Major Infrastructure
Lower 0-3%	**Conservation Investments** • High Barriers to Entry/Exit – Conservation Investments – Maintenance Cost – Effectiveness • Increases Land Productivity • Lowers Cost	• Forest Understory Management • Streambank/Shoreline Protection • Habitat Restoration • Irrigation Management • Nutrient and Pest Management
Higher 3-7%	**Conservation Actions** • Low Barriers to Entry/Exit – Easily Removed • Reduced Land in Production • Rotational Use – Market Driven Rotation • Reliance on Unstable Conservation Funding or Incentives (e.g., CRP)	• Prescribed Grazing • Cover Crop • Range/Forest Understory Vegetation Management

4.2.1 NRCS Conservation Practices

Conservation projects have been implemented on approximately 34,000 acres since 2011 through the NRCS-funded programs on agricultural lands. The top practices that have been implemented include:

- Prescribed grazing to improve vegetation composition, manage weeds, reduce erosion, and improve soil functions
- Forest understory management practices to reduce wildfire hazard, maintain grazing conditions, and improve vegetation composition to support grazing
- Fencing to protect riparian and other habitats from grazing and trampling

As summarized previously in Table 4-1, these practices also promote agricultural viability. VSP definitions help in

Fencing
A range of fencing could be installed to benefit critical areas and wildlife on agricultural lands, such as fencing for riparian buffers and fencing for rotational grazing. Fencing types also vary and include; permanent fencing, temporary fencing including electrical, and wildlife-friendly fencing. All of these are examples of fencing practices that could provide protection to or enhancement of critical areas (Paige 2012).

categorizing whether a stewardship strategy, practice, or project qualifies as a protection or an enhancement measure under the VSP. Under the VSP definitions "enhance…means to improve the processes, structure, and functions existing, as of July 22, 2011…" and "protect…means to prevent the degradation of functions and values existing as of July 22, 2011" (RCW 36.70A.703). Because most conservation practices or projects installed since 2011 were designed to improve functions they should generally be counted as enhancement. See Section 5.2 for additional discussion on measurable benchmarks for protection and enhancement.

Table 4-3 provides a summary of top NRCS practices implemented under the Environmental Quality Improvement Program (EQIP) and Wildlife Habitat Improvement Program (WHIP) for acreages and number of projects. As previously noted, these practices and programs only represent a portion of all the practices being implemented, but that are currently unaccounted for in the County.

Table 4-3
Top NRCS Stewardship Practices Implemented from 2011 to 2017

Practice	Amount	Projects Implemented
Prescribed Grazing	26,559 acres	8
Fencing	5 miles	21
Pipelines	4.4 miles	49
Nutrient Management	844 acres	19
Forest Slash Treatment	476 acres	40
Irrigation Water Management[1]	405 acres	17
Restoration and Management of Rare and Declining Habitats	365 acres	32
Upland Wildlife Habitat Management	266 acres	17
Forest Stand Improvement	205 acres	23

Notes:
Source: Data provided by USDA NRCS
1. Includes irrigation water management (10 projects), sprinkler systems (6 projects), and a micro-irrigation system (1 project).

Additionally, enhancement projects have been implemented under NRCS's Conservation Stewardship Program (CSP), which provides additional incentives for producers to enhance existing practices by providing funding to actively manage, maintain, and expand existing conservation practices. Project acres implemented under CSP projects are thus considered enhancements under VSP. Any reductions in CSP acres are considered reduction in enhancement acres and would not be accounted against baseline conditions. Stewardship enhancements under CSP can be reviewed during implementation to assess the level of enhancements that could be counted toward the Work Plan's goals and benchmarks.

4.2.2 Ferry Conservation District Led Practices

Numerous other projects have also been implemented through the FCD and are often funded directly by the FCD or through programs administered by other agencies. A majority of the projects implemented by the FCD are fencing for livestock and streambank and shoreline protection projects. See Table 4-4 a summary of FCD-led projects implemented by agricultural producers since 2011.

Table 4-4
Ferry Conservation District Lead Stewardship Projects Implemented from 2011 to 2017

Practice	Amount	Projects Implemented
Fencing	15.7 miles	25
Streambank and Shoreline Protection	3.2 miles	10
Tree/Shrub Establishment	0.5 miles	3
	7 acres	1
Access Control	200 feet	1
Reseeding Mixed-Use Pasture Land	98 acres	4
Woody Residue Treatment	95 acres	6
Forest Stand Improvement	45 acres	2
Restoration and Management of Rare and Declining Habitats	17 acres	3

4.2.3 Conservation Reserve Program

The Conservation Reserve Program (CRP) is a federally funded program, managed by the Farm Service Agency (FSA), that pays a yearly rental payment in exchange for farmers removing environmentally sensitive land from agricultural production and planting species that will improve environmental quality. Acres enrolled in CRP vary year to year, depending on the availability of federal funding, which has decreased in recent years. However, these lands are not designated as critical areas. Habitat benefits from CRP lands are considered enhancements under VSP and, if put back into production, are accounted for under baseline conditions.

4.2.4 Other Programs

Additional programs, entities, and agencies that support farmers in implementing stewardship strategies and practices are further described in Section 6.4. Technical assistance and stewardship programs and incentives are also provided through the Ferry County Noxious Weed Control Board, USDA NRCS, Washington State Department of Ecology (Ecology), Washington Department of Fish and Wildlife (WDFW), and Washington State Conservation Commission (WSCC) through private lands programs and assistance, such as the Farmed Smart Partnership and Aquatic Land Enhancement Account.

Ferry County Noxious Weed Board

Noxious weed management efforts are conducted with Ferry County Noxious Weed Board (Weed Board) funds that are available throughout County. The Weed Board works with landowners to help identify noxious weeds and provides assistance with developing weed management plans. Cost assistance on herbicides is provided when funding is available as well as equipment loans. The Weed Board is also working in coordination with the FCD for re-seeding efforts on agricultural lands to help reduce the spread of noxious weeds.

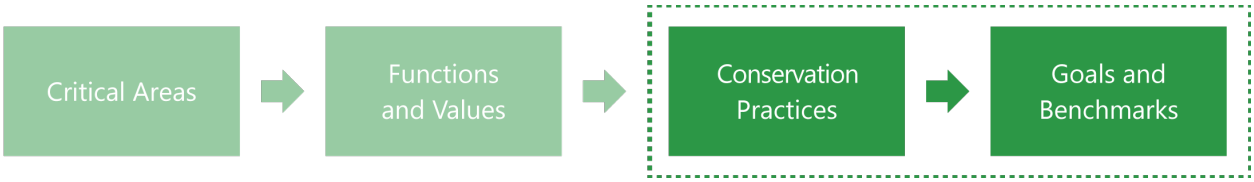
5 Goals, Benchmarks, and Adaptive Management

RCW 36.70A.720(1) requires this Work Plan include goals and benchmarks for the protection and enhancement of critical areas while maintaining agricultural viability. The benchmarks must be measurable and designed to result in the protection of critical area functions and values existing on July 22, 2011. Benchmarks for enhancement of critical areas functions and values are designed to be accomplished through voluntary, incentive-based measures.

This section of the Work Plan identifies:

- **Goals** for protecting and enhancing the County's critical areas and the four associated major critical areas functions and values: 1) water quality; 2) hydrology; 3) soil; and 4) habitat. See Section 2.3 for additional discussion on these four major functions and their relationship to the five types of critical areas.
- **Measurable benchmarks** for protection and enhancement of critical areas based on participation in key stewardship strategies and practices. See Section 4 for additional discussion on the connection between stewardship strategies and practices and critical areas functions. Section 5.2 further discusses the methods used to identify functional effects of stewardship strategies and practices.
- **Indicators** for measurable metrics that can be analyzed over time to help assess whether anticipated protection and enhancement of critical area functions are occurring and focus technical assistance efforts where needed.
- **Monitoring and adaptive management plan** to adjust the Work Plan's benchmarks and activities based on performance results and review of indicators analyzed through monitoring efforts.

Figure 5-1
VSP Crosswalk – Stewardship Practices Connection with Goals and Benchmarks



5.1 Goals

The VSP law requires VSP work plans include measurable benchmarks for the protection and enhancement of critical area functions and values, along with goals for participation by agricultural operators (RCW 36.70A.720 (1)(c)) to meet these benchmarks. Additionally, work plans are required to incorporate applicable data and plans into development of work plan goals and benchmarks (RCW 36.70A.720 (1)(a)). This section identifies the following elements in support of RCW 36.70A.720 (1)(a) and (c) and Section 5.2 includes measurable benchmarks:

- **Goals:** Participation goals are defined for the protection and enhancement of the County's critical areas and key functions.
- **Agricultural viability:** The ancillary benefits to agricultural production, profitability, and sustainability are also noted for each goal, as well as when financial assistance may be necessary to offset costs associated with implementing stewardship strategies and practices, including the purchase of associated equipment or other costs.
- **Objectives:** Objectives are identified for each goal to help define specific applications that further each goal. To accomplish these objectives, agricultural producers can implement the stewardship practices that are applicable to their land, agriculturally viable, and protect or enhance the critical area functions.
- **Key stewardship strategies and practices:** Example stewardship strategies and practices are tied to each objective; however, it is acknowledged other practices, including those administered outside of established government programs, can also help meet the objectives. Additionally, it is understood that new practices may emerge and existing practices may be phased out during implementation of this Work Plan. Selection of example stewardship practices for each objective are based upon Conservation Practice Physical Effect (CPPE) scores for each practice (Appendix C).
- **Existing plans:** Existing plans were reviewed and incorporated where applicable to VSP and are also referenced in Tables 5-1 through 5-5 where applicable to identified goals. The following plans identify goals, objectives, and strategies that are included in the Work Plan, as described below. See Appendix D for additional discussion on review of applicable data and plans as a part of the process for establishing measurable benchmarks and associated indicators.

- **Ferry Conservation District Five-Year Plan (2015 to 2020).** The District's 5-year operation plan reflects its commitment to the principles that form the backbone of VSP. The plan identifies education, outreach, and stewardship opportunities for the conservation of soil, water, and natural resources. The plan also identifies priority needs such as addressing water quality in Curlew Lake and Curlew Creek, protecting riparian vegetation and streambanks, including strategies such as fencing and livestock watering facilities, and managing land to protect Endangered Species Act species.
- **Shrub-steppe and Grassland Restoration Manual for the Columbia River Basin (Benson et al. 2011).** This manual provides guidance for meeting unique habitat requirements of grassland and shrub-steppe areas by maintaining vegetative cover. The manual gives general site preparation principles including weed reduction control, along with guidance on appropriate seed mixes to meet wildlife-specific management goals. Maintaining quality vegetative cover is a benefit to each of the critical areas and incorporated as stewardship practices throughout the Work Plan.
- **Riparian Ecosystems, Volume 1: Science Synthesis and Management Implications (Quinn et al. 2018) and Riparian Ecosystems, Volume 2: Management Recommendations (Windrope et al. 2018).** These plans are an update to the 1997 Management Recommendations for Washington's Priority Habitats: Riparian (Knutson and Naef 1997), which include recommendations to protect riparian habitat areas and the associated functions to hold and filter sediment, nutrients, and other crop protection tools and provide cover and foraging habitat. Recommendations related to agricultural activities to protect these functions include techniques that minimize soil erosion and protect riparian vegetation through managed grazing in order to maintain vegetation and woody cover. Riparian buffers are key in intercepting contaminants and reducing sedimentation going into rivers and streams. Riparian health is a driving force for the habitat functions of every critical area.
- **Selkirk Elk Herd Management Plan (WDFW 2014).** This plan provides objectives and strategies for managing the Selkirk elk populations and habitat that are present in parts of Ferry County. Habitat management objectives in the plan include encouraging landowner participation in conservation practices that improve and/or maintain elk habitat, identifying and mapping elk range, and managing timberlands and forest understory to provide access to high quality foraging habitat.
- **Ferry County Community Wildfire Protection Plan (Ferry County 2014**). This plan includes goals and recommendations to promote wildfire mitigation actions within Ferry County to protect residents, property, and the economy while maintaining natural resource management policies. Recommendations include invasive weed management and forest understory management through thinning and targeted livestock grazing in forestlands to reduce the amount of available fuel in areas where there is wildfire risk.

Decreasing the amount of destructive wildfire events further protects critical area functions by reducing erosion, landslide events, flooding loss of critical habitat.

- **Curlew Lake Sub Area Plan (Lake Curlew Planning District 1994).** This sub area plan includes a strategy for protecting and maintaining water quality in the Curlew Lakes basin. Goals and policies related to agriculture land use include groundwater monitoring and conservation water resources, preventing chemical runoff into waterways to protect water quality, and excluding livestock grazing within wetlands, waterways, and riparian areas to protect riparian vegetation to help prevent runoff into streams and Lake Curlew, reduce erosion and siltation, and provide wildlife habitat.
- **Natural Resources Policy Plan (FCD 1997).** This plan is designed to protect private property rights while encouraging natural resource conservation. Incentive programs like increasing grazing capacity to permittees who participate in range betterment are part of the plan to encourage landowner stewardship on important forestlands. Forest understory management and prescribed grazing are stewardship strategies that protect key critical area functions by reducing soil erosion, enhancing forage growth and access to forage lands, and reducing fuel for wildfire.
- **Washington State Deer Management Plan: White-Tailed Deer (WDFW 2010) & Washington State Mule Deer Management Plan (WDFW 2016).** These plans provide direction for the management of white-tailed deer and mule deer. Recommendations for white-tailed deer habitat enhancement include weed control, mechanical thinning, and access control. These strategies help meet objectives for FWHCA to improve habitat by limiting vegetation disturbance. This plan promotes enrolling in CRP and working with farmland preservation groups to preserve open space for agriculture that also provides benefits to big game. The state-wide mule deer management plan notes that WDFW will provide assistance to private landowners who wish to improve mule deer habitat on their land.
- **Wolf Conservation and Management Plan (WDFW 2011).** The Wolf Conservation and Management Plan guides recovery and management of gray wolves in the state. An agricultural viability concern identified in the Work Plan includes livestock predation, and management recommendations included in the Wolf Conservation and Management Plan support agricultural viability goals by recommending compensation, modified husbandry, and non-lethal deterrents.
- **Sherman Creek Wildlife Area Management Plan (WDFW 2006).** This plan provides wildlife management objectives for the Sherman Creek Wildlife Area in east Ferry County. Habitat concerns specific to this location are invasive plants and disturbance to critical areas like wetlands and riparian fish and wildlife habitat. Goals identified in the plan include protecting riparian areas along Sherman Creek, controlling weeds, and

protecting vegetative buffers along the critical areas. These strategies aim to improve water quality and habitat functions in wetlands and FWHCA.

- **Washington Department of Fish and Wildlife 2015-2021 Game Management Plan (WDFW 2014).** This plan outlines strategies to address game management in the State. Management objectives for bighorn sheep, a Ferry County species of local importance, are discussed in this plan. WDFW offers to work with landowners to minimize the likelihood of contact between domestic sheep or goats and Bighorn sheep through physical barriers and public education in order to protect Bighorn sheep from diseases carried by domestic sheep and goats.
- **Management Recommendations for Washington's Priority Species, Volumes I and III-V (WDFW).** These volumes include recommendations for some of Ferry County's species of local importance, including:
    - The blue (dusky) grouse plan, which documents strategies like access control for exclusion from riparian areas and prescribed grazing to protect FWHCA habitat functions.
    - The Columbia spotted frog plan, which focuses heavily on managing runoff and minimizing pesticide, herbicide, and fertilizer use in areas where they could be diverted into wetlands or waters used by the species. Nutrient control is an objective to meet the goal of maintaining or improving water quality in FWHCAs and improves habitat functions of these areas for amphibians and fish.
    - The Townsend's big-eared bat management recommendations include minimizing insecticide use, as this eliminates prey abundance for foraging. Maintaining healthy riparian systems provide bats viable foraging areas, and riparian areas maintain water quality, soil, and habitat functions in critical areas through reducing siltation and erosion and providing support to sensitive species lifecycles.
    - The California floater is a species of freshwater clam with management recommendations that include minimizing erosion that will create turbidity in waters, and minimizing pesticide, herbicide, and fertilizer use in areas that will runoff into waters where this clam is found. Erosion control and water quality improvements are key functions that support FWHCAs and GHAs.
- **Management Recommendations for Washington's Priority Habitats: Managing Shrub-Steppe in Developing Landscapes (WDFW 2011).** This plan has recommendations for minimizing impacts to shrub-steppe habitat. A strategy of focus is to minimize disturbance to large areas of shrub-steppe habitat and avoid placing irrigation systems through these areas so as not to fracture available habitat for shrub-steppe-dependent species. This strategy benefits habitat functions for wildlife in FWHCAs.

- **Washington Department of Fish and Wildlife Management Recommendations for Priority Habitats and Species (WDFW 1991).** Creating habitat structures like snags or increasing the amount of large woody debris available near wetlands benefit cavity nesting ducks. These habitat structures provide key functions of FWHCAs. Maintaining vegetative cover and protecting riparian areas are recommended for elk, Lewis' woodpeckers, golden eagles, and yellow-billed cuckoos. Prescribed grazing and forest understory management also benefits these PHS as it minimizes disturbance to vegetation and soil in critical areas or other foraging habitat.
- **FY-2012 Transition Watershed Restoration Action Plan: Colville National Forest (USFS 2012).** This watershed report documents conditions in the Ninemile Creek subbasin. Access roads, grazing, and recreational use have had impacts on the habitat and water quality of the creek. Restoration goals identified in the plan include removal of access roads, floodplain restoration, weed control, erosion control through bank stabilization, and livestock grazing improvements to prevent livestock needing to use streambanks and riparian areas.
- **Draft San Poil River Sub Basin Summary (San Poil River Team 2000).** The goals of this subbasin plan are to maintain fish and wildlife species and their associated habitat. Some strategies include management that will reduce water temperatures and increase instream flows for fish in the San Poil River, creating a riparian buffer, and monitoring livestock for impacts to wildlife.
- **Upper Columbia and Sanpoil Habitat Restoration Plan (Cramer Fish Sciences 2017).** This plan used data collected through different habitat studies to provide an assessment of reaches throughout the Upper Columbia and Sanpoil subbasins and identify restoration actions to enhance fish habitat. Some identified actions include increasing habitat diversity, livestock exclusion, creation of floodplain habitat, and bank stabilization.

Table 5-1
Wetland Protection and Enhancement Goals

Goal #1: Protect and/or enhance wetland functions

Protection and enhancement: Special emphasis on key functions provided by wetlands

Key Functions	Wetland Functions
Water Quality	• Reduces siltation by capturing sediment • Retains water to reduce erosion • Provides water filtration • Moderates water temperature
Hydrology	• Stores water to reduce flooding and contributes to base flows
Habitat	• Provides aquatic and woody vegetated habitat for fish and wildlife

Agricultural viability: This goal will be achieved while sustaining agriculture viability through:

- Ancillary benefits from implemented stewardship practices (improved soil function/soil preservation, weed management, increased pollinators/beneficial organisms, and increased fertility)
- Reduced regulation surprises associated with priority habitat degradation and species decline
- Reduced costs associated with lost ecosystem services (e.g., flood control and water filtration)
- Reduced input costs associated with nutrient, pest, and water management
- Financial incentives to offset start-up costs for new practices and infrastructure

Objectives	Key Stewardship Practices	Consistency with Existing Plans
Protect and voluntarily enhance acres managed using strategies that provide direct protections to wetlands and wetland buffers	• Tree/Shrub Establishment • Restoration and Management of Rare and Declining Habitats • Access Control • Cover Crop	• Riparian Ecosystems Volume 1 and 2 • Washington Department of Natural Resources Natural Heritage Program (rare plants and ecosystems) • Sherman Creek Wildlife Area Management Plan • Management Recommendations for Washington's Priority Habitats and Species • Management Recommendations for Washington's Priority Habitats: Managing Shrub-steppe in Developing Landscapes

Goal #1: Protect and/or enhance wetland functions		
Protect and/or enhance acres managed using strategies that promote water quality and hydrology functions by reducing erosion and improving water storage and filtration	• Prescribed Grazing • Reseeding Mixed-use Pastures • Watering Facilities • Deep Tillage • Conservation Crop Rotation • Cover Crop • Tree/Shrub Establishment	• Curlew Lake Sub Area Plan • Washington Department of Fish and Wildlife Management Recommendations for Priority Habitats and Species • Management Recommendations for Washington's Priority Species, Volumes I and III-V • Sherman Creek Wildlife Area Management • FY-2012 Transition Watershed Restoration Action Plan: Colville National Forest
Protect and/or enhance acres managed using strategies that promote water quality and aquatic habitat functions by reducing inputs from runoff	• Reseeding Mixed-use Pastures • Deep Tillage • Conservation Crop Rotation • Cover Crop • Irrigation Water Management • Nutrient Management • Pest Management	• Washington Department of Fish and Wildlife Management Recommendations for Priority Habitats and Species • Management Recommendations for Washington's Priority Species, Volumes I and III-V

Table 5-2
FWHCA Protection and Enhancement Goals

Goal #2: Protect and/or enhance FWHCA functions

Protection and enhancement: Special emphasis on key functions provided by FWHCAs

Key Functions	FWHCA Functions
Water Quality	• Reduces siltation by stabilizing streambanks with riparian vegetation • Provides water filtration • Moderates water temperature by providing shade
Hydrology	• Stores and retains water to reduce flooding and support base flows in streams
Soil	• Reduces rate of erosion by providing vegetative cover
Habitat	• Provides spawning, rearing, and migratory habitat for fish, and riparian also provides refuge, nesting, and rearing areas for wildlife • Provides aquatic habitat by supplying organic inputs (e.g., leaf fall, insects, and large wood) • Supports sensitive species lifecycles

Agricultural viability: This goal will be achieved while sustaining agriculture viability through:

- Reduced regulation surprises associated with priority habitat degradation and species decline
- Ancillary agriculture benefits from implemented practices (soil conservation, weed management, and pollinator/beneficial organisms)
- Reduced costs associated with lost ecosystem services (e.g., flood control and water filtration)
- Financial incentives to offset start-up costs for new practices and infrastructure

Objectives	Key Stewardship Practices	Consistency with Existing Plans
Protect and/or enhance acres managed using strategies that promote habitat functions by restoring or creating new habitat structures	• Streambank and Shoreline Protection • Upland Wildlife Habitat Management • Tree/shrub Establishment • Restoration and Management of Rare and Declining Habitats • Fish and Wildlife Structure • Riparian Forest Buffer	• WDFW's Management Recommendations for Washington's PHS: Shrub-Steppe • Riparian Ecosystems Volume 1 and 2 • Washington Department of Natural Resources Natural Heritage Program (rare plants and ecosystems) • Ferry County Community Wildfire Protection Plan • Washington State Deer Management Plan: White-tailed Deer & Washington State Mule Deer Management Plan
Protect and/or enhance acres managed using strategies that promote habitat functions by limiting trampling of habitat	• Prescribed Grazing • Watering Facilities • Access Control • Conservation Crop Rotation • Riparian Forest Buffer • Streambank and Shoreline Protection	

Goal #2: Protect and/or enhance FWHCA functions		
Protect and/or enhance acres managed using strategies that promote water quality, hydrology, and soil functions by reducing erosion and wildfire risk and improving water storage and filtration	• Prescribed Grazing • Reseeding Mixed-Use Pastures • Watering Facility • Deep Tillage • Conservation Crop Rotation • Cover Crop • Forest Understory Management	• Sherman Creek Wildlife Area Management Plan • Washington Department of Fish and Wildlife 2015-2021 Game Management Plan • Management Recommendations for Washington's Priority Habitats: Managing Shrub-steppe in Developing Landscapes • Washington Department of Fish and Wildlife Management Recommendations for Priority Habitats and Species • Upper Columbia and Sanpoil Habitat Restoration Plan • FY-2012 Transition Watershed Restoration Action Plan: Colville National Forest • Draft San Poil River Sub Basin Summary
Protect and/or enhance acres managed using strategies that promote water quality and aquatic habitat functions by reducing inputs from runoff (surface water quality)	• Irrigation Water Management • Nutrient Management • Pest Management	• Curlew Lake Sub Area Plan • Management Recommendations for Washington's Priority Species, Volumes I and III-V • Washington Department of Fish and Wildlife Management Recommendations for Priority Habitats and Species

Goal #2: Protect and/or enhance FWHCA functions		
Protect and/or enhance acres managed using strategies to protect fish-bearing streams and limit shoreline and watercourse degradation and enhance shoreline areas and watercourses	• Prescribed Grazing • Heavy Use Protection • Watering Facilities • Riparian Forest Buffer • Access Control • Restoration and Management of Rare and Declining Habitats • Streambank and Shoreline Protection • Fish and Wildlife Structure	• Sherman Creek Wildlife Area Management Plan • Management Recommendations for Washington's Priority Species, Volumes I and III-V • Washington Department of Fish and Wildlife Management Recommendations for Priority Habitats and Species • Upper Columbia and Sanpoil Habitat Restoration Plan • FY-2012 Transition Watershed Restoration Action Plan: Colville National Forest • Draft San Poil River Sub Basin Summary

Table 5-3
FFA Protection and Enhancement Goals

Goal #3: Protect and/or enhance FFA functions

Protection and enhancement: Special emphasis on key functions provided by FFAs for erosion hazards

Key Functions	FFA Functions
Water Quality	• Vegetation in FFAs holds underlying soil in place and provides area for new sediment depositions to settle out • Moderates water temperature by shallow groundwater infiltration and releases from unconfined aquifers of cooler groundwater back to streams and by vegetation that can provide shade
Hydrology	• Stores and retains surface water in floodplain and channel migration zone, reducing velocities and modifying discharge rates • Recharges groundwater that can later be returned to the stream to help maintain base flow
Soil	• Supports moisture content in soils, reduces rate of erosion, and supports plant growth that can increase organic inputs to soil
Habitat	• Provides aquatic and riparian habitats for wildlife, plants, and fish

Agricultural viability: This goal will be achieved while sustaining agriculture viability through:

- Ancillary agriculture benefits from implemented practices (maximized availability of surface withdrawals for irrigation, flood control benefits/soil preservation, increased soil moisture, weed management, and pollinator/beneficial organisms)
- Reduced costs associated with flood management and flood cleanup
- Financial incentives to offset start-up costs for new practices and infrastructure

Objectives	Key Stewardship Practices	Consistency with Existing Plans
Protect and/or enhance FFAs directly	• Riparian Forest Buffer • Tree/Shrub Establishment • Streambank and Shoreline Protection	• Upper Columbia and Sanpoil Habitat Restoration Plan
Protect and/or enhance acres managed using techniques that limit soil compaction or trampling of habitat	• Prescribed Grazing • Watering Facilities • Access Control • Conservation Crop Rotation • Riparian Forest Buffer • Streambank and Shoreline Protection	• FY-2012 Transition Watershed Restoration Action Plan: Colville National Forest

Goal #3: Protect and/or enhance FFA functions		
Protect and/or enhance acres managed using strategies that promote water quality, hydrology, soil, and habitat functions by reducing erosion and improving water storage and filtration	• Prescribed Grazing • Watering Facilities • Deep Tillage • Conservation Crop Rotation • Cover Crop • Irrigation Water Management • Forest Understory Management	• Curlew Lakes Sub Area Plan • Ferry County Community Wildfire Protection Plan • FY-2012 Transition Watershed Restoration Action Plan: Colville National Forest • Draft San Poil River Sub Basin Summary

Table 5-4
CARA Protection and Enhancement Goals

Goal #4: Protect and/or enhance CARA functions

Protection and enhancement: Special emphasis on key functions provided by CARAs

Key Functions	CARA Functions
Water Quality	• Infiltration through soil column and underlying geology improves groundwater quality
Hydrology	• Recharges groundwater resources

Agricultural viability: This goal will be achieved while sustaining agriculture viability through:

- Ancillary agriculture benefits from implemented practices (increased soil, increased soil moisture, weed management, pollinator/beneficial organisms, and increased fertility)
- Reduced input costs associated with chemicals
- Reduced costs associated with irrigation and livestock watering
- Financial incentives to offset start-up costs for new practices and infrastructure
- Hazardous materials spill containment and cleanup

Objectives	Key Stewardship Practices	Consistency with Existing Plans
Protect and/or enhance acres managed to protect shallow groundwater wells by managing chemical and nutrient input controls	• Irrigation Water Management • Nutrient Management • Pest Management	• Curlew Lake Sub Area Plan • Draft San Poil River Sub Basin Summary
Protect and/or enhance acres managed to promote natural groundwater filtration functions	• Prescribed Grazing • Deep Tillage • Conservation Crop Rotation • Cover Crop	
Protect and/or enhance acres managed to promote hydrology functions by improving water conservation	• Irrigation Water Management	

Table 5-5
GHA (Erosion Hazard) Protection and Enhancement Goals

Goal #5: Protect and/or enhance GHA (erosion hazard) functions

Protection and enhancement: Special emphasis on key functions provided by GHAs for erosion hazards

Key Functions	GHA Functions
Water Quality	• Rate of soil erosion and associated movement of sediment deposited in surface waterbodies
Hydrology	• Rate of groundwater infiltration and rate of surface water runoff
Soil	• Rate of erosion as it relates to depth
Habitat	• Rate of erosion as it relates to sediment inputs to stream and wetland aquatic habitat

Agricultural viability: This goal will be achieved while sustaining agriculture viability through:

- Preserving land available for agriculture
- Ancillary agriculture benefits from implemented practices (increased soil moisture, weed management, and pollinator/beneficial organisms)
- Reducing costs associated with soil replenishment and flood cleanup
- Financial incentives to offset start-up costs for new practices and infrastructure

Objectives	Key Stewardship Practices	Consistency with Existing Plans
Protect and/or enhance acres managed using strategies that promote water quality, hydrology, soil, and habitat functions by reducing erosion and wildfire risk and improving water storage and filtration	• Prescribed Grazing • Reseeding Mixed-Use Pastures • Conservation Crop Rotation • Cover Crop • Forest Understory Management • Riparian Forest Buffer	• Ferry County Community Wildfire Protection Plan • Management Recommendations for Washington's Priority Species, Volumes I and III-V • Upper Columbia and Sanpoil Habitat Restoration Plan • FY-2012 Transition Watershed Restoration Action Plan: Colville National Forest • Draft San Poil River Sub Basin Summary

5.2 Measurable Benchmarks

This section identifies the measurable benchmarks required by RCW 36.70A.720 (1)(e) for: 1) protection of critical area functions and values; and 2) enhancement critical areas functions and values through voluntary, incentive-based measures. Protection and enhancement benchmarks are based on agricultural producer participation in key stewardship strategies and practices that further the Work Plan's goals identified in Section 5.1.

Establishing Baseline Monitoring per RCW 36.70A.720 (1)(i)

This section describes measurable benchmarks for participation in stewardship strategies and practices that have been implemented since 2011 to improve agricultural productivity, manage grazed timberlands, and protect streambanks.

Due to the lack of available data to establish baseline County-wide stewardship participation as of 2011, the Ferry County Work Plan identifies average historic participation rates in stewardship strategies and practices and establishes a baseline monitoring approach to overcome estimated discontinuation of practices, as further described in this section.

5.2.1 Methods

Benchmarks are measured by tracking new and continued implementations of various stewardship strategies and practices on agricultural lands. Over time, the implementation of these stewardship activities and the results of monitoring for critical area functions and values at a county-wide scale will be used to demonstrate that VSP is meeting the protection goals and determine whether VSP is achieving the enhancement goals and benchmarks. See Appendix C for initial results based on 2011 to 2017 participation data in key stewardship strategies and practices.

The Work Plan includes two measurable benchmarks per RCW 36.70A.720 (1)(e):

- **Protection Benchmarks** (protections prevent the degradation of baseline functions existing July 22, 2011) – The protection benchmark must be met to continue the voluntary, non-regulatory approach under VSP. For each protection goal, participation benchmarks are also identified and are designed to provide quantifiable measures that will ensure protection of the County's critical area functions and values is being achieved.
- **Enhancement Benchmarks** (enhancements improve baseline critical area functions and values through voluntary and incentive-based measures) – Meeting enhancement goals is encouraged, but not required, to continue the voluntary, non-regulatory program under VSP for protecting critical areas. At each 5-year benchmark reporting period, voluntary enhancements of critical area conditions on lands used for agricultural activities are promoted and accounted for. Benchmarks for enhancement are specific to the County and indicate voluntary measures are leading to desired improvements in critical area functions and values.

Enhancement also provides a measure of certainty that the VSP protection goal will be met if some unforeseen, future loss of critical area function(s) and/or value(s) occurs.

Benchmark quantities for stewardship practice enrollment are provided in 5-year reporting increments (2021 and 2026) and are based on maintaining yearly average participation rates in key stewardship practices based on historic data (2011 to 2017). The methods used to establish protection and enhancement benchmark values for stewardship practice participation included:

- **Measuring historical enrollment data** in key stewardship practices to develop an average annual enrollment quantity for each practice (Table 5-7). Historical enrollment data include NRCS and FCD-led practices that were reported between 2011 and 2017.
- **Connecting stewardship practices with specific benchmark goals** based on the CPPE scores for each practice developed by USDA (NRCS 2017). CPPE scores range between -5 and +5, with positive scores denoting a beneficial effect and negative scores having an adverse effect. USDA CPPE scores were averaged for the four key functions, adjusted to include scoring criteria applicable to Ferry County. See Appendix C for details on how averaged CPPE scores were calculated for Ferry County (applied national criteria and scores applicable to County conditions). The CPPE scoring is an interim step in determining whether protection and/or enhancement has occurred compared to the VSP 2011 baseline. Under VSP, the relative changes in functions affected from a given stewardship strategy or practice will be tracked, e.g., a +4 increase moving to from a -2 to +2, rather than the CPPE score of +2.

What is a Conservation Practice Physical Effect?
The CPPE describes how NRCS practices affect human-economic environment (e.g., Agricultural Viability) and natural resources (e.g., Critical Functions). This planning tool provides a quantitative score detailing the magnitude of the practice's effect on the resource. Technical reports for each practice also include a qualitative statement on the impact of each practice on soil, water, air, plants, animals, energy and labor, capital, and risk. A summary of the practices with CPPE scores are provided in Appendix C. The implementation team will use discretion in determining which CPPE best represents the physical effects of stewardship practices on critical areas in the County based on local conditions and practices.

- **Setting anticipated discontinuation/disenrollment rate** of agriculture lands that may not continue to maintain the stewardship practice past the required lifespan or following the end of a contract, or for other disenrollment reasons. Disenrollment or abandonment of practices can be monitored to adjust this rate further based on actual data.
- **Setting protection benchmarks and performance objectives** (see Table 5-7) by summing the enrollment goal to maintain baseline practices for protection of critical area function by replacing all lost functions associated with disenrollment or abandonment of practices (acres calculated by anticipated disenrollment rates; see Table 4-2).

- **Calculating change from baseline conditions** is the final step in determining the effect that conservation practices have on critical areas functions and values. This is completed by converting the quantity of conservation practices (based on CPPE scores) to a functions score. This acts to normalize the data and account for the differing amount of benefit provided by different practices. Initial results based on 2011 to 2017 participation data in key stewardship practices are provided in Appendix C.

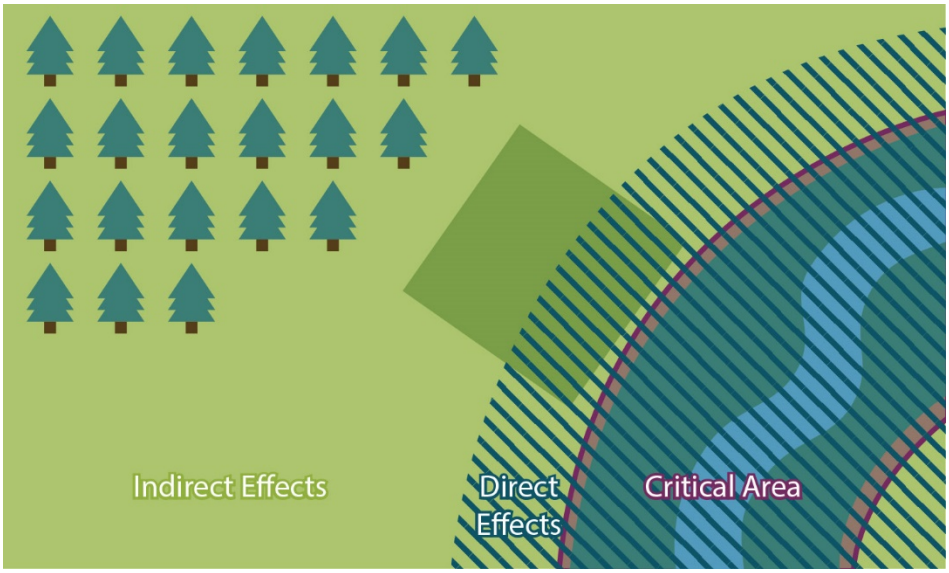
Change from 2011 Baseline Condition	=	Newly Enrolled Practices x Physical Effects Score	–	Disenrolled Practices x Physical Effect Score

- **Setting enhancement benchmarks and performance objectives** by:
  - Including project acres that have implemented between 2011 and 2017 above the protection performance objectives
  - Enhancement benchmarks and performance objectives are in addition to the protection benchmarks; therefore, estimated disenrollment acres (protection performance objectives value) have been incorporated into the enhancement performance objectives value (see Table 5-7)

Enhancement above 2011 Baseline Condition	=	Historic Enrolled Practices x Physical Effect Score *(Based on 2011 to 2017 enrollment data)*	–	Disenrolled Practices x Physical Effect Score

Stewardship strategies and practices can be implemented within or directly adjacent to a critical area (see Figure 5-2 for a conceptual representation). An example of a direct effect would include implementing wetland restoration practices within or adjacent to an existing wetland critical area. Indirect effects occur within agricultural areas that are not adjacent to or within critical areas, but still have indirect effects on resource functions.

Figure 5-2
Direct and Indirect Effects of Practices on Critical Area Functions



5.2.2 Benchmarks

Work Plan benchmarks are focused on measuring and tracking producer participation in implementing key stewardship strategies and practices identified by the Work Group as having a clear benefit to one or more critical area functions and values. Benchmarks and performance objectives were created for groups of similar practices that provide similar benefits to critical areas functions and values. This acts to simplify the reporting process by focusing on groups of practices, which allows for self-funded practices outside of NRCS specific practices to be counted towards critical areas protection and enhancement.

Table 5-6 provides a crosswalk of the key stewardship practices identified for the Work Plan benchmarks to critical areas, function protections based on the overall averaged CPPE function effects score, and agricultural viability aims. The CPPE scoring shown in Table 5-6 indicates the most beneficial effects to functions in light blue boxes (+5), no effect (0), and the most detrimental effects to functions in dark blue (-5). As previously discussed, it's important to note that the relative changes in functions affected from a given stewardship strategy or practice will be tracked in relation to baseline conditions, e.g., a +2 CPPE score for a practice will be captured as a +4 if practices are moving to from a -2 to +2. See Appendix C for additional information on methods applied for linking stewardship practices to function protections using CPPE function effects and a more comprehensive list of example stewardship strategies and practices.

Table 5-7 provides a summary of protection and enhancement measurable participation benchmarks for the 5-year reporting increments (2021 and 2026). The protection performance standard for each

stewardship strategy or practice is based on historic records. New practices will often replace an existing practice. Trends in stewardship practices and updates to the protection performance standard that reflect the move to new stewardship practices will be included in the 2- and 5-year reports. Acreages may be adjusted as needed to reflect the higher or lower physical effect of the new practice.

Current Performance Based on 2011 to 2017 Participation Data

As indicated in Table 5-7 (last column), total participation acres in key stewardship strategies since 2011 have overcome the anticipated reduction in acres (or other measure). Protection and enhancement performance objectives for 2021 and 2026 (participation acres) have been met based on reported acres in stewardship activities from 2011 to 2017. Additionally, the acres that have been reported in stewardship strategies and practices from 2011 to 2017 have overcome the estimated acres for discontinued practices through 2026.

The Work Plan will rely on adaptive management procedures (Section 5.4) to help assess whether protection and enhancement of critical area functions are occurring, which will be reported as described in Section 6.3.

Key						
Beneficial Effects			Neutral or No Effects	Adverse Effects		
High	Medium	Slight		Slight	Moderate	High

Table 5-6
Key Stewardship Practices Crosswalk to National Functions Scores, Critical Areas, and Agricultural Viability

Key Stewardship Strategies				Critical Area Functions Protection Metrics (averaged CPPE Function Effects Score)[2]				Critical Area Protections					Agricultural Viability	
Type		NRCS Code	Key Practices[1]	Soil	Hydrology	Water Quality	F&W Habitat	WET	FW HCA	CARA	GHA	FFA	Aims	CPPE Metric[2]
Indirect Intersects	Livestock/ Range Management[3]	512	Reseeding Mixed-Use Pasture Land	1.25	1.00	1.00	1.00							1.40
		528	Prescribed Grazing	2.83	1.50	1.30	2.67						• Protect against erosion risk • Protect soil function • Reduce invasive and nuisance species • Provide pollinator/beneficial organism habitat	0.60
		561	Heavy Use Protection	1.25	-1.00	1.67	0.00	•	•		•	•		-1.50
		533	Pumping Plant	1.00	2.00	0.00	0.00							0.85
		574	Spring Development	0.00	1.80	1.25	3.00							0.17
		614	Watering Facility	1.10	0.00	1.71	4.00							0.25
	Forest Understory Management	384	Woody Residue/Forest Slash Treatment	-0.25	1.00	1.00	0.00						• Protect soil function • Reduce invasive and nuisance species • Provide pollinator /beneficial organism habitat	0.30
		660	Tree/Shrub Pruning	1.00	0.00	1.00	1.00		•		•			-0.29
		666	Forest Stand Improvement	0.38	3.00	0.75	2.33							0.45
	Nutrient and Pest Management	590	Nutrient Management	0.83	0.00	3.50	0.00						• Protect soil function • Reduce invasive and nuisance species • Reduce input costs	0.30
		595	Pest Management	2.00	0.00	4.00	2.00	•	•	•	•			0.67
	Soil Management	324	Deep Tillage	0.25	1.00	0.00	0.00						• Protect against erosion risk • Protect soil function • Reduce invasive and nuisance species • Provide pollinator /beneficial organism habitat	0.89
		328	Conservation Crop Rotation	3.17	1.60	1.75	2.00	•	•	•	•			0.88
		340	Cover Crop	2.46	1.40	1.75	2.00							0.10
	Irrigation Management[4]	441	Irrigation System, Microirrigation	0.50	2.00	1.60	1.00						• Protect against erosion risk • Protect soil function • Improve water availability • Reduce input costs	0.85
		442	Irrigation System, Sprinkler	1.25	2.67	1.55	1.00	•	•	•	•			1.27
		449	Irrigation Water Management	1.75	1.50	2.00	0.00							1.00
Direct Intersects	Habitat Management	391	Riparian Forest Buffer	2.47	0.67	2.83	4.00							-1.33
		472	Access Control	2.95	1.75	1.44	2.00							-0.64
		490	Tree/Shrub Site Preparation	-1.38	2.00	-0.50	0.00							-1.00
		587	Structure for Water Control	0.00	2.00	1.00	2.00						• Protect against erosion risk • Protect soil function • Reduce invasive and nuisance species • Provide pollinator /beneficial organism habitat	-0.75
		612	Tree/Shrub Establishment	2.97	1.50	1.17	2.33	•	•			•		-0.36
		643	Restoration and Management of Rare and Declining Habitats	2.97	1.50	1.17	2.33							-0.36
		645	Upland Wildlife Habitat Management	0.50	0.00	2.00	4.00							-1.22
		734	Fish and Wildlife Structure	1.20	-0.50	2.00	5.00							-0.14
		580	Streambank and Shoreline Protection	0.00	0.00	0.00	5.00							0.00

Notes:
1. Key practices include those practices that address resource concerns and critical areas function protections and are widely implemented, anticipated for continued application, or identified as major practice trends anticipated in the future.
2. The NRCS CPPE matrix was relied upon to develop an average function effects scores for the key function and practices. See Appendix C for full suite of stewardship practices CPPE scores.
3. Livestock management stewardship focuses on key practices that address on-field resource concerns and management. Conveyance infrastructure, such as livestock pipelines, are not considered in the group of key practices.
4. Water management stewardship focuses on key practices that address on-field resource concerns and management where irrigation activities are already occurring. Conveyance infrastructure, such as irrigation pipelines, are not considered in the group of key practices.

Table 5-7
Protection and/or Enhancement Benchmarks and Objectives

Key Stewardship Strategies[1]		Historic Participation Data (2011 – 2017)		Protection Benchmarks and Performance Objectives[1, 2]			Enhancement Benchmarks and Performance Objectives[1, 2]			2011 – 2017 Reported Data
		Average Annual Participation in Key Practices	Estimated Yearly Reduction of Stewardship Practices	Protection Benchmark	2021 Performance Objectives[3]	2026 Performance Objectives[3]	Enhancement Benchmark	2021 Performance Objectives[3]	2026 Performance Objectives[3]	Total Acres in NRCS and CD-led Programs
Indirect Intersects	Livestock/ Range Management[4, 5]	• 3,808 acres • 4 watering facilities	• 267 acres (7%) • 0.1 watering facilities (3%)	No net loss of acres managed under stewardship practices No net loss of feet or units managed for protection	• 2,666 acres • 1.2 watering facilities	• 3,999 acres • 2 watering facilities	Enrolled enhancement units (e.g., acres and feet) are sufficient to offset identified agricultural degradations and maintain baseline conditions, based on: • Implemented projects from 2011 – 2017 • Excluded protection benchmarks (estimated annual reduction or discontinuation of stewardship practices since 2011 at time of reporting	• 10,663 acres • 13 watering facilities	• 22,659 acres • 27 watering facilities	• 26,658 acres • 29 watering facilities
Indirect Intersects	Forest Understory Management	139 acres	4 acres (3%)		42 acres	63 acres		445 acres	911 acres	974 acres
Indirect Intersects	Nutrient and Pest Management	827 acres	25 acres (3%)		248 acres	372 acres		2,645 acres	5,415 acres	5,787 acres
Indirect Intersects	Soil Management	4 acres	0.3 acres (7%)		3 acres	4 acres		10 acres	21 acres	25 acres
Indirect Intersects	Irrigation Management[6]	83 acres	2 acres (3%)		25 acres	37 acres		267 acres	549 acres	583 acres
Direct Intersects	Habitat Management[7]	• 149 acres • 2,715 feet • 2 structures	• 4 acres (3%) • 81 feet (3%) • 0.1 structures (3%)		• 45 acres • 814 feet • 1 structure	• 67 acres • 1,222 feet • 2 structures		• 476 acres • 8,686 feet • 5 structures	• 974 acres • 17,780 feet • 11 structures	• 1,041 acres • 19,002 feet • 12 structures

Notes:

1. See Table 5-6 for list of key conservation practices for each management strategy, which includes those practices that address resource concerns and critical areas function protections and are widely implemented, anticipated for continued application, or identified as major practice trends anticipated in the future.
2. Measurable benchmarks are based upon the reported historic NRCS and FCD participation data (2011-2017) in key practices (see Note 1). No net loss and enhancements will be measured based on estimated annual disenrollment rates from key practices from the 2011 baseline.
3. Performance objectives are anticipated to be adapted as new technologies and practices are applied by producers and unanticipated changes in environmental and market conditions which would be addressed through the adaptive management process. Protection benchmarks are based on estimated disenrollment rates. A more accurate estimate and understanding of which practices are discontinued can be used to modify these benchmarks.
4. Livestock management stewardship focuses on key practices that address on-field resource concerns and management. Conveyance infrastructure, such as livestock pipelines contracted under NRCS (approximately 6,800 feet in 2011 – 2017) are not included in measurable benchmarks.
5. Performance objectives for livestock management stewardship strategies includes practices measured in acres (e.g., prescribed grazing) and practices measured in feet (i.e., fencing).
6. Irrigation management stewardship focuses on key practices that address on-field resource concerns and management where irrigation activities are already occurring. Conveyance infrastructure, such as irrigation pipelines contracted under NRCS (approximately 16,000 feet in 2011 – 2017) are not included in measurable benchmarks.
7. Performance objectives for habitat management stewardship strategies includes practices measured in acres (e.g., upland habitat management) and practices measured in feet (i.e., shoreline protection).

5.3 Indicators

Indicators are measurable metrics associated with specific environmental variables, (e.g., nitrate concentrations in a well or stream flow at a particular location). Metrics can be analyzed over time to understand longer term trends related to specific critical area functions and values. Indicator data will be reviewed at least every 5 years to help focus technical assistance efforts and assess if the anticipated protection and/or enhancement of critical area functions is occurring.

If an indicator shows a loss or gain in the baseline condition for a critical area function, it can be compared to the performance objectives for stewardship strategies and practices implemented. If this analysis does not account for the change, a more targeted evaluation and analysis of the specific effects of agricultural activities can be made for the applicable parameter(s). This analysis would be used to inform if the VSP is meeting the protection standard for critical area functions within agricultural areas and the degree to which non-agricultural factors are influencing one or more indicators.

Indicators data for Ferry County are limited and not always directly applicable to the evaluation of program performance. Where data are insufficient (including where data sample sizes are small relative to data variability), it will be acknowledged as part of reporting, and adaptive management measures described in Section 5.4 will be applied as part of implementation to address these data shortfalls where possible within program constraints.

Indicators affected by both agricultural and non-agricultural factors will generally not be used for purposes of informing whether protection of baseline conditions is being achieved or goals and benchmarks are being met due to the cost and difficulty involved in separating agricultural effects from non-agricultural effects. Such indicators may however be used to identify resource trends and focus enhancement efforts on high priority areas.

Water Quality Impacts Outside of Ferry VSP Scope

Ferry County has experienced water quality impacts from activities occurring upstream of the County limits from Canada and from other forestry related activities within the County's USFS lands.

These changes will not be counted against agriculture for VSP assessment purposes and will be documented through the reporting and adaptive management process.

The following indicators relate to the four major critical area functions; monitoring of these indicators is summarized in Table 5-8:

- **Water quality indicators**
  - **Surface water** quality indicators will include Category 2 through 5 303(d) listings, focused on parameters that potentially have an agricultural source. Category 4 includes polluted waters that do not require a Total Maximum Daily Load (TMDL), and Category 5 waters are polluted and require a TMDL or other water quality improvement project.

Appendix B-4 provides a listing of these parameters found in the County in 2018, acknowledging these parameters may be updated in the future. 303(d) listings within the County can be monitored using Ecology's Water Quality tools found online at: https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d.

  - **Groundwater** quality indicators will include data collected by public water drinking systems (Group A) and other available well monitoring data.

- **Hydrology indicators** will include tracking flow gauges through the U.S. Geological Survey (USGS) or other agencies. USGS has 3 streamflow gauges within the County on the Kettle and Sanpoil rivers. USGS Water data is available at: https://www2.usgs.gov/water/.
- **Soil function indicators** will include USDA Natural Resources Inventory monitoring results related to erosion and soil functions and fertility. This monitoring should focus on locations within or adjacent to critical areas in relation to erosion issues, allowing for more natural erosion rates upland of critical areas. This monitoring should also help inform whether the Work Plan is achieving no increase in suitable agriculture soil loss trends overtime. Interactive data viewers at the State level are available at: https://www.nrcs.usda.gov/wps/portal/nrcs/rca/national/technical/nra/rca/ida/.
- **Habitat indicators** will include evaluation of publicly available aerial imagery available at the 5- and 10-year performance review periods, based upon adequate resources provided through the state for VSP program implementation to assess critical area resource protections (primarily FWHCAs and wetlands). Imagery evaluation will include a random sampling of areas[4] within the Work Plan's watershed analysis units. Analysis results will be summarized in the reporting at analysis unit and County scales. Individual parcels will not be identified, and producer privacy will be maintained in the evaluation process. PHS data available through WDFW will also be evaluated in addition to other related information that might or is expected to become available in the future, such as remote sensing through WDFW's High Resolution Change Detection program or other GIS approaches for habitat assessment, if this information is made available to Ferry County. Additionally, ground-truthing will be needed to ensure that change detection data made available fits the scope and jurisdiction of the VSP, and that agricultural activities were actually the cause of any identified degradations. Review of PHS updates (recognizing the limitations of these information sources and the resources to update them) and other relevant information comparisons against the 2011 baseline conditions will be done in coordination with WDFW.

While not exclusively determinative of VSP success in maintaining 2011 baseline or better conditions as affected by agricultural activities and stewardship strategies and practices, participation measures

[4] Random sample areas will include a representation of lands for VSP participants as well as other lands that may or may not have practices implemented on them, and these results will be extrapolated to the larger watershed analysis unit areas and the County, in an effort to more accurately characterize critical areas protections achieved.

and monitoring indicators (Table 5-8) provide important information for evaluating the Ferry County VSP performance and adaptive management actions described in Section 5.4. If new information that is not confidential is collected during monitoring, it will be made available to the appropriate agencies, as applicable, to assist their monitoring programs.

Table 5-8
Critical Area Functions Monitoring Indicators

Critical Area Function	Monitoring Indicators
Water Quality	• Track turbidity relative to baseline 2011 levels • Track agriculture-related toxins or nutrients relative to baseline 2011 levels • Track dissolved oxygen/temperature relative to baseline 2011 levels • Track agriculture-related contaminants relative to baseline 2011 levels • Review data as collected by public drinking water systems (Group A) or other well monitoring data
Hydrology	• Track summer low flows of key springs and tributaries – Further evaluation of agricultural activities and potential effects on flows may be needed where non-drought flows are dropping below baseline levels at USGS or other gauges • Track flood damage of existing infrastructure
Soil	• Track suitable agriculture soil loss trends overtime (using long-term [10- to 15-year] soils inventory) through USDA Natural Resources Inventory monitoring results • Track soil health measures (e.g., soil organic matter, physical, chemical, and biological parameters) beyond 2011 levels
Habitat	• Track mapped PHS areas beyond 2011 areas • Track wetlands (using long-term [10- to 15-year] wetland inventory) through USDA Natural Resources Inventory monitoring results and the National Wetland Inventory through U.S. Fish and Wildlife Service • Track habitat landcover based on publicly available aerial imagery, high resolution change detection mapping, or other GIS approaches such as USGS National Hydrography Dataset for habitat mapping that are made available to the County

Guiding Principles for Aerial Imagery Interpretation

High resolution change detection or other public available aerial imagery is described as a potential monitoring tool for habitat indicators. This Work Plan includes the following Guiding Principles to ensure imagery interpretation would be reported at a watershed scale, recognize the voluntary nature of the VSP, and the privacy concerns of volunteers and landowners:

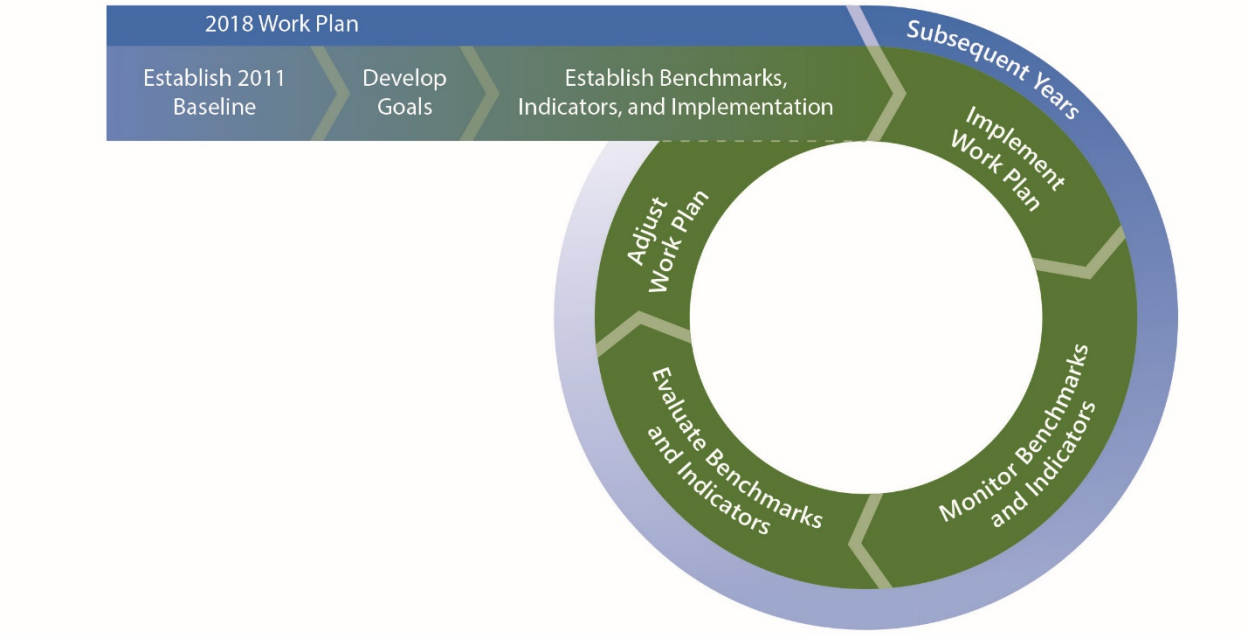
- Monitoring activities that involve imagery should focus on publicly-available imagery.
- Monitoring should be reported at the watershed scale, not the parcel scale.
- Imagery evaluation should include a random sampling of areas within the Work Plan's watershed analysis units.
- The Work Group will determine what entities are suited to interpreting the imagery, such as Washington State University or other educational or professional bodies. The entity should not have other roles in enforcement given the voluntary, watershed-scale of the Work Plan.

It's important to note that changes to baseline conditions outside of VSP are likely to occur due to effects from climate change, natural events (e.g., wildfires), or other changes outside of the scope of VSP. Regarding agricultural viability, national and international trends in the market for agricultural products are beyond the control of the Work Plan.

5.4 Adaptive Management

Adaptive management typically consists of a monitoring system to identify changes in the environment coupled with a response system to adjust the activities based on performance results and review of indicators information. The adaptive management system would be applied if the performance review in Year 5 of implementation suggests the VSP program may not be protective of critical areas functions existing in 2011. The adaptive management system for the Ferry County VSP consists of the following five key sequential elements, as illustrated in Figure 5-3.

Figure 5-3
Adaptive Management System



1. **Assess** – Data on participation goals and the indicators previously described are compiled by the FCD. The compiled information is used to identify issues, refine objectives, and understand if benchmarks are effective in protecting or enhancing critical area functions and values. A minimum of 10% of total reported practices, and 100% of the first 20 reported practices, will be verified in the field annually. In monitoring and evaluating VSP participation by landowners and in addition to tracking the number of producers participating in VSP, the Work Group will consider the following:
    - Participation by watershed areas and primary agriculture type (dryland, irrigated land, and rangeland)
    - The amount of land area represented by producers participating in VSP and associated intersection with critical areas
    - The type of critical areas being protected or enhanced compared to mapped presence as described in baseline conditions
2. **Update Benchmarks** – Based on the results of the assessment stage, updates to the protections and enhancement benchmarks could occur. These updates could represent changes to the level of participation necessary to meet a specific protection or enhancement standard. These updates could also reflect a change in the goals for a specific watershed or critical area function.
3. **Implement and Monitor** – The approved work plan is put into action, concurrently with monitoring focused on documenting the protection and enhancement of critical area functions

and values. Monitoring data are collected on various indicators and used to determine if specific functions and values are being protected.

4. **Evaluate** – Participation data are evaluated relative to the protection and enhancement goals. Differences between targeted goals and results are identified and the causes for those differences are investigated, including consideration of participation measures and indicators. Goal adjustments are made as needed to maintain protection of critical area functions and values.
5. **Adjust** – Information learned in previous steps is used to adjust the participation benchmarks, stewardship strategies and practices, or level of incentive for enhancement.

Changes to Baseline Conditions – Areas Outside of VSP Scope

It's important to note changes to baseline conditions are likely to occur that are unrelated to agricultural activities. These may be due to effects from natural events such as those resulting from climate change, floods, and wild fires, or other changes outside of the scope of VSP. Additional changes to baseline may occur in the County that are the result of activities outside of the County, such as effects to watercourses that occur upstream and outside of the County limits, Growth Management Act-regulated conversions, forestry activities regulated by the Forest Practices Act, changes in eligibility for federal programs, changes in federal program funding contract conditions, technical mapping corrections, mapping errors, and other changes beyond a producer's control.

These changes will be accounted for in the reporting, but will be considered as changes to the baseline conditions. Changes to a baseline condition will likely have the effect of also changing the associated protection benchmark. These updates to the baseline will not count against agriculture for VSP assessment purposes and will be documented through the reporting and adaptive management process.

The adaptive management process is iterative and would repeat cyclically at least every 5 years, as part of the implementation of the VSP. If an adjustment is identified, the Work Group would submit a written report identifying the results of the evaluation and a strategy to make the necessary adjustments to the Work Plan to the WSCC. If an adjustment is not necessary, then the report would simply state the results of the evaluation. In either case, the process of adaptive management would be applied at least every 5 years.

Monitoring and adaptive management is based on two strategies.

1. **Direct monitoring** of producer participation (Table 5-9)
    a. **Conservation acres monitoring**. Direct monitoring of stewardship participation in key stewardship strategies and practices implemented is integral to the outreach strategy. Participation goals were developed based on agricultural activities, critical area functions, and the anticipated effects of implementing specific stewardship practices. During outreach and implementation, stewardship practices data will be frequently reviewed to determine if participation levels are adequate to meet the goals and benchmarks identified in Section 5.1 and 5.2.

b. **Sample verification.** In addition to monitoring stewardship practices implemented, FCD will also monitor a randomly selected sample of 10% of the reported projects, including those that are self-reported/funded, to verify the performance of the stewardship practices in terms of implementation/application and maintenance, relying on the CPPE framework. The relative changes in functions affected from a given stewardship practice will be tracked in relation to baseline conditions, e.g., a +2 CPPE score for a practice will be captured as a +4 if practices are moving to from a -2 to +2.

c. **Adaptive management trigger.** If at any point after the first year the annual producer participation rate drops below 120% of the annual projected level of stewardship practices implemented to meet the protection performance objectives, measures would be taken to address the situation. Participation goals and objectives with potential adaptive management actions are described in Table 5-9. Based on stewardship practices data from 2011 – 2017, the level of participation has been far exceeding those necessary to meet the protection performance objectives.

d. **Adaptive management process.** Table 5-10 includes a more detailed description of the adaptive management process for enrollment, including specific thresholds for each of the key practices.

2. **Indirect monitoring** of indicators of critical areas and their functions and values (Table 5-11)

a. **Indicators**. Indicators, identified in Section 5.3, will be used to assess whether the stewardship practices implemented under VSP is having the anticipated effect of protecting and/or enhancing critical area functions and values. If goals are met, but indicators show a negative trend in critical area functions and values, it will be important to analyze whether this is related to agriculture and respond accordingly.

b. **VSP applicability.** Some indicators (e.g., stream temperature) may be responding to climactic changes rather than changes in agricultural practices since 2011. If any link to agriculture is determined, additional stewardship practices, higher participation goals, or increased outreach may be necessary. Because detection of long-term trends in environmental indicators is difficult, this review will be taken every 5 years as part of the VSP reporting.

c. **Process.** Table 5-11 includes a description of how environmental indicators discussed in Section 5.3 will be used to refine the goals and benchmarks of the VSP over time.

As noted above, indicators data for Ferry County are limited and not always directly connected to direct evaluation of program performance. Where data are limited, adaptive management measures described in this section will be applied as part of implementation to address these data shortfalls where possible within program constraints.

Table 5-9
Producer Participation Goal and Adaptive Management for Low Participation

Participation Goal: Promote producer participation in voluntary stewardship of agricultural lands and critical areas to meet the protection and/or enhancement benchmarks and protect critical areas functions and values at a County-wide watershed level.					
Objectives/Benchmarks	**Performance Metric/Monitoring Method**	**Potential Cause**	**Adaptive Management Action**	**Who Monitors**	**When**
Sufficient active participation by commercial and non-commercial agricultural operators (farmers and ranchers) over 10 years that achieves the protection of critical area functions and values at a County-wide watershed level[1]	• Number of acres reported in key stewardship practices • Number of VSP Checklists submitted • Sufficient producer participation necessary to meet protection and enhancement benchmarks	Key practice not consistent with agricultural viability	Identify alternative practice that provides similar function and is agriculturally viable	VSP Coordinator	Monitored every year Reported during the 2-year status reports and 5-year performance reports
		Incentives associated with key stewardship practice no longer available	Identify alternative funding or alternative practices that are more likely to be self-funded		
		Inadequate reporting of voluntary participation	Increase outreach to producers		
		Change in agricultural practices that make key practices less applicable	Develop applicable practices that provide similar functions		
		Changes in agricultural economy that make self-funded stewardship practice implementation difficult	Identify alternative funding or other incentives		
Passive participation by commercial and non-commercial agricultural operators in VSP stewardship practices is maintained or increased over 10 years on agricultural land (including but not limited to those listed in Table 5-6 and Appendix C, Attachment 2)[2]	• Mapping and aerial photo evaluation and/or rapid watershed assessment of practices in place • Random sampling of farmers and ranchers in the field by technical assistance providers with willing landowners	Decline below the annual average enrollment rate identified in Table 5-10 in key stewardship practices	Increase outreach to producers		
Technical assistance and outreach is provided to agricultural producers to encourage stewardship practices and VSP participation	• Number of outreach and education events • Number of event attendees	Decline below the baseline annual average enrollment rate identified in Table 5-10 in key stewardship practices	Increase outreach to producers		

Notes:

1. Active participation includes stewardship activities reported either through publicly-funded programs or self-reported through the VSP self-assessment checklist in coordination with the VSP Coordinator or technical assistance provider.
2. Passive participation includes un-reported stewardship activities.

Table 5-10
Adaptive Management Process for Stewardship Practices Participation

Type	Adaptive Management Objective	Protection Metric[1] (Annual)	Verification	Adaptive Management Trigger (120% of Protection Metric) (Annual)	Adaptive Management Action	Who Monitors	When
Livestock/Range Management	Reseeding Mixed-Use Pasture Land	267 acres	10% verified through monitoring and visual recognition	320 acres	Outreach with producers/review approach	FCD	Every year
	Prescribed Grazing						
	Heavy Use Protection						
	Pumping Plant	1.2 projects (at 5-year reporting)		2 projects (at 5-year reporting)			
	Spring Development						
	Watering Facility						
Forest Understory Management	Woody Residue/Forest Slash Treatment	4 acres	10% verified through monitoring and visual recognition	5 acres			
	Tree/Shrub Pruning						
	Forest Stand Improvement						
Nutrient and Pest Management	Nutrient Management	25 acres	10% verified through monitoring and visual recognition	30 acres			
	Pest Management						
Soil Management	Deep Tillage	0.3 acres	10% verified through monitoring and visual recognition	0..4 acres			
	Conservation Crop Rotation						
	Cover Crop						
Irrigation Management	Irrigation System, Microirrigation	2 acres	10% verified through monitoring and visual recognition	3 acres			
	Irrigation System, Sprinkler						
	Irrigation Water Management						
Habitat Management	Riparian Forest Buffer	4 acres	10% verified through monitoring and visual recognition	5 acres			
	Access Control						
	Tree/Shrub Site Preparation						
	Structure for Water Control						
	Tree/Shrub Establishment						
	Restoration and Management of Rare and Declining Habitats						
	Upland Wildlife Habitat Management						
	Fish and Wildlife Structure	1 structures (at 5-year reporting)		2 structures (at 5-year reporting)			
	Streambank and Shoreline Protection	81 feet		97 feet			

Note:
1. Metric is calculated based on annual enrollment to meet benchmark values.

Table 5-11
Adaptive Management Process for Critical Area Functions and Values Protection and Enhancement

Adaptive Management Objective	Indicator Data Source	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for Action
Ensure stewardship strategies and practices employed with the goal of protecting or improving water quality are effective	Ecology water quality stations	Change in Category 2 through 5 303(d) listings, focused on parameters that potentially have an agricultural source	Tracking Category 4 and 5 listings through Ecology's 303(d) Water Quality tools	Significant trends indicating a decrease in baseline water quality due to agriculture	• Determine whether water quality parameters are from agriculture or non-agriculture contributors • Survey with outreach to agricultural producers and/or property owners along affected watercourse, waterbody and/or CARA to determine percentage of participation in stewardship • Identify if participation in stewardship strategies and practices is supporting goals • Identify stewardship strategies with Work Group to target for implementation to support goal	FCD	Every 5 years	FCD and participating land owners
Ensure stewardship strategies and practices employed with the goal of maintaining or improving storage capacity and groundwater recharge are effective	USGS flow gauges and public drinking water systems (Group A) or other well monitoring data	Changes in flows that are attributable to agricultural practices (as opposed to regional drought)	Tracking water level gauges through USGS flow gauges and well monitoring data	Significant trends indicating a decrease in baseline storage capacity and/or groundwater recharge due to agriculture	• Determine whether storage capacity and groundwater recharge issues are due to agriculture • Survey with outreach to agricultural producers along floodplains and within CARA to determine percentage of participation in stewardship • Identify if participation in stewardship strategies and practices is supporting goals • Identify stewardship strategies with Work Group to target for implementation to support goal			
Ensure stewardship strategies and practices employed with the goal of maintaining or improving soil functions are effective	USDA Natural Resources Inventory monitoring result	Changes in volume of soil and/or overall soil fertility relative to critical areas	Tracking soil data through USDA Natural Resources Inventory monitoring results, tracking sediment parameters within Ecology's 303(d) Water Quality tools	Significant trends indicating a decrease in baseline soil and/or soil fertility due to agriculture	• Determine whether soil issues are due to agriculture • Survey with outreach to agricultural producers to determine percentage of participation in stewardship • Identify if participation in stewardship strategies and practices is supporting goals • Identify stewardship strategies with Work Group to target for implementation to support goal			
Ensure stewardship strategies and practices employed with the goal of protecting or improving habitat are effective	WDFW PHS data or other aerial and GIS based evaluation; USDA Natural Resources Inventory monitoring results and National Wetlands Inventory data USGS National Hydrography Dataset	Changes in amount of FWHCA and wetlands	Tracking PHS data through the WDFW, and wetlands and other critical areas through other listed information sources; evaluating random sample areas of critical areas and agricultural lands (including a representation of lands with stewardship strategies and practices documented and lands where practices are not documented) using aerial imagery and associated GIS methods	Significant trends indicating a decrease in baseline terrestrial and/or aquatic habitat due to agriculture	• Determine whether habitat issues are due to agriculture • Survey with outreach to agricultural producers and/or property owners to determine percentage of participation in stewardship • Identify if participation in stewardship strategies and practices is supporting goals • Identify stewardship strategies with Work Group to target for implementation to support goal			

6 Implementation

6.1 Framework for Implementation

Work Plan implementation is expected to continue largely through established programs and organizations. As noted previously, many agricultural-based programs, activities, and efforts are already in place to protect and, in many cases, enhance critical areas and maintain agricultural viability. Significant progress has been made to these ends in recent years. This Work Plan has been designed to fit within this existing framework with supplemental efforts identified to meet state VSP requirements. These requirements include documenting 2011 critical areas baseline conditions, establishing goals and measurable benchmarks, identifying stewardship strategies and practices, and establishing monitoring and adaptive management measures to track Work Plan performance in protecting critical areas and maintaining agricultural viability. The initial tracking timeframe for this Work Plan is the first 10 years of implementation.

Per RCW 36.70A.705, the Work Group is responsible for developing the Work Plan and overseeing its implementation. Work Plan implementation responsibilities include: agricultural producer participation and outreach; technical assistance; program performance tracking and reporting; and adaptive management. The FCD and others can help in performing these responsibilities. The anticipated implementation budget for this Work Plan is summarized in Table 6-1, under the assumption that State funding for VSP is continued at a level of $220,000 each biennium for the County.

Table 6-1
Implementation Budget

Task	Activities	Who	Biennium Budgets[1]
Education, Outreach, and Technical Assistance	• Conduct outreach and develop education materials • Assist producers in developing stewardship plans • Facilitate VSP Checklist reporting • Identify cost-share to leverage other conservation project funding	FCD/ VSP Coordinator	$135,000
Monitoring, Reporting, and Adaptive Management	• Annual monitoring and tracking • Develop adaptive management as needed • Prepare 2-year status reports • Prepare 5-year progress reports	FCD/ VSP Coordinator or contract services	$70,000[2]
Work Group Coordination	• Attend quarterly meetings • Coordinate report and adaptive management review and approvals	FCD/ VSP Coordinator	$15,000
		Total State Budget	**$220,000**

Notes:

1. Assumes State funding for VSP is continued at a level of $220,000 each biennium for the County.
2. Costs will be less in non-reporting years to support annual monitoring and tracking efforts. The majority of budget item will support costs during the 2-year and 5-year reporting years: 2019, 2021, and 2026.

Ultimately, agricultural producers play the most integral role in VSP implementation. Success of the VSP relies on these producers to participate in the program and voluntarily implement stewardship strategies and practices that help meet Work Plan goals and benchmarks for critical areas protection and agricultural viability.

6.2 Agricultural Producers Participation and Technical Assistance and Outreach

Many producers are already implementing stewardship strategies and practices that are protecting critical areas and supporting agricultural viability throughout the County, as described in Section 4. Two participation objectives have been established for Ferry County VSP implementation:

1. Better identify and document the existing measures that have been put in place since 2011 through private-sector activity and outside of government programs.
2. Increase the level of participation among agricultural producers in implementing stewardship strategies and practices.

Regarding the first objective, it is expected the measures summarized in Section 4 represent only a portion of the total measures implemented during this period. Outreach to individual landowners, as well as to private industry groups, is planned in Years 0 to 2 to better document existing practices and identify future practices that might be implemented outside of government programs.

Additional outreach and coordination with the private sector, resulting from initial outreach activities, is expected to continue through the remaining 8 years of the initial 10-year performance period. Various outreach activities will be ongoing through the life of the plan.

The second participation objective is focused on increasing the number of stewardship strategies and practices implemented by agricultural producers, helping to meet protection and/or enhancement performance goals outlined in Section 5. Achieving this objective includes offering technical assistance to producers with the development of individual farm stewardship plans and making them aware of available private- and public-sector financial incentives and programs. This technical assistance would also include helping estimate the expected benefits that can be realized from implementing the measures identified in individual stewardship plans, including agriculture viability benefits at the farm level. The VSP Overview and Checklist can also be used as an outreach tool, shared through a variety of methods including mailers, electronic survey, or one-on-one site visits. See Table 6-2 for additional outreach opportunities.

Results from these efforts will be tracked and documented, along with documenting any lands converted from stewardship strategies and practices back to more conventional farming, so the overall net effect on protecting (and where applicable, enhancing) critical areas is characterized.

VSP success depends on producer participation, and producer participation depends on effective protection of producers' confidential business information from disclosure. According to guidance from the WSCC (WSCC 2017), statutory provisions on the confidentiality and disclosure of a farm plan also apply to a VSP "individual stewardship plan" that a conservation district helps a producer develop (unless the producer expressly permits disclosure). VSP technical assistance providers can provide more detail on applicable confidentiality and disclosure provisions for particular types of agricultural operations and conservation programs.

6.2.1 Organization Leads, Technical Assistance, and Outreach

The FCD will lead the public-sector program participation efforts within its respective boundaries, supported by other agencies, such as Washington State Department of Agriculture, WDFW, Ecology, NRCS, FSA, and others, with their respective programs and support from the private sector.

Technical assistance occurs in a variety of ways, including developing individual farm stewardship plans, providing advice on use of specific practices, and sharing information at forums, meetings, and other venues where stewardship strategies and practices are highlighted for environmental and economic benefits. FCD will prepare biennial work plans that incorporate public-sector activities to be implemented to achieve VSP outreach and technical assistance objectives and identify plans for working with the private sector to capture information about practices put in place and presence of critical areas through its efforts. The FCD will commit to reaching out annually to 15-20% of the

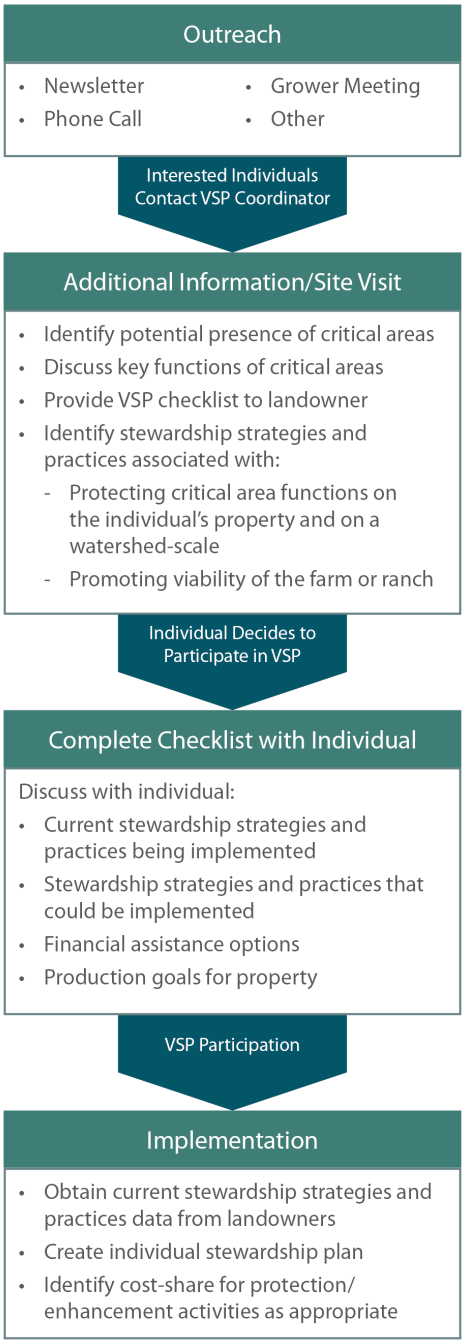
producers that operate within the County using methods described in the Outreach Plan (see Appendix F). As part of the adaptive management process, this percentage may change based on available funding and resources and/or how the County is progressing toward the goals and benchmarks described in the Work Plan during implementation.

Table 6-2 identifies potential VSP outreach strategies, opportunities, and forums. Figure 6-1 provides a protocol on how the VSP Checklist (Appendix F) will be used and illustrates the process from outreach to implementation. Table 6-3 includes a list of technical assistance providers and public-sector conservation programs that are currently available. Private-sector programs are available through existing agri-businesses and associations serving the County. Appendix D contains more detail for each program and links to the programs' webpages.

Table 6-2
VSP Outreach Opportunities

Venue	Description
Meetings	• Private-sector agricultural industry meetings • Agricultural associations • Local government (city and county)
Media	• FCD and private-sector agricultural industry websites, newsletters, and social media sites • Ferry County website • WSCC news and announcement webpage • FSA newsletter • Washington State University newsletter • Articles, announcements, and advertisements with local newspapers • E-mail distribution lists
Others	• Informational booths and displays at fairs and agricultural conventions • Individual outreach, consistent with FCD policies • VSP Checklist

Figure 6-1
VSP Checklist Use Protocol



Notes:

1. The VSP Checklist is not a self-certification process (i.e., it is not considered an individual stewareship plan by itself).
2. Based on flowchart developed by the Franklin Conservation District for the Franklin County VSP Work Plan.

Table 6-3
Public Sector Conservation Programs Summary

Lead	Description	Technical Assistance	Financial Assistance	Partnership Agreement	Contractor Easement
NRCS	Provides technical and financial assistance to help agricultural producers make and maintain conservation improvements on their land. Conservation easement programs and partnerships to leverage existing conservation efforts on farm lands are also offered.	●	●	●	●
FSA	Oversees several voluntary, conservation-related programs that work to address several agriculture-related conservation measures, including programs such as CRP and Conservation Reserve Enhancement Program.		●		●
WSCC	Works with conservation districts to provide voluntary, incentive-based programs for implementation of conservation practices and support through financial and technical assistance; administrative and operational oversight; program coordination; and promotion of conservation districts' activities and services.		●	●	
WDFW	Provides financial assistance for habitat projects that restore and/or preserve fish and wildlife habitat through funding opportunities such as the Aquatic Lands Enhancement Account Volunteer Cooperative Grant Program. WDFW private lands biologists may also provide technical assistance on habitat improvement projects.	●	●	●	●
Washington State Recreation and Conservation Office	Provides funding to protect aquatic lands and for projects aimed at achieving overall salmon recovery, including habitat projects and other activities that result in sustainable and measurable benefits for salmon and other fish species. Funding is provided through programs such as Aquatic Lands Enhancement Account and Salmon Recovery Funding Board Grant Program.		●		
Ecology	Provides funding for water-quality improvement and protection projects, including programs such as the Water Quality Combined Funding program and voluntary partnership programs such as the Farmed Smart Partnership.		●	●	
FCD	Work through voluntary, incentive-based programs to assist landowners and agricultural operators with the conservation of natural resources throughout the conservation districts, including cost-share and watershed-based partnership programs such as the Regional Conservation Partnership Program.	●	●	●	

6.3 Monitoring, Reporting, and Adaptive Management

Monitoring performance, reporting progress, and implementing adaptive management measures are part of this Work Plan. Tracking program performance and reporting includes the following tasks:

- **Two-year status reports.** Conducting a program evaluation and providing a written report on the status of the Work Plan, including accomplishments, to the County and to the WSCC within 60 days (by the end of September) after the end of each biennium. Two-year reports are shortly after the end of the biennium in September 2019, 2021, 2023, 2025, and 2027.
- **Five-year performance reports.** Developing and providing to Washington State 5-year progress reports on Work Plan performance in meeting goals and benchmarks. Based on a March 2016 start date, 5-year progress reports would be due in 2021 and 2026 and beyond.

The timeline for this implementation process is shown in Table 6-4.

Table 6-4
Timeline for Implementation Process

Category	Schedule	Roles and Responsibilities
Periodic Evaluations (2-Year Status Reports)	Finalize Work Plan in Fall 2018 (Deadline for Work Plan approval is December 15, 2018 per WSCC[1])	Work Group
	2019, 2021, et seq.	Work Group
Report on Goals and Benchmarks (5-Year Performance Reports)	Funding receipt date in 2016	Work Group oversees; FCD prepares report
	2021 and 2026 and beyond	
Adaptive Management or Additional Voluntary Actions	Ongoing after 2021	Work Group oversees Work Plan adjustment recommendations to WSCC

Notes:

1. This is assuming Work Plan approval through the Technical Panel review process (December 15, 2018; 2 year and 9 months). The deadline for approval via the State Advisory Committee process is March 14, 2019 (3 years).

The 2-year status and 5-year performance reports would be developed by FCD under the direction of the Work Group. Draft reports would be prepared and presented to the Work Group for review and comment. The Work Group is committed to satisfying any other reporting requirements of the program, including associated updates in reporting to address plan adaptations and any other reporting requirements for VSP per RCW 36.70A.720, as funding allows.[5] Comments would be addressed, and edits made to the reports, which would then be approved by the Work Group, after they are satisfied that the reports are accurate and complete. Reports would be distributed to the

[5] The WSCC determines whether funds accepted by the County are adequate for continued implementation of the VSP program and the Ferry County VSP Work Plan.

County, WSCC, and others by FCD on behalf of the Work Group. The general timing for reporting will be as follows:

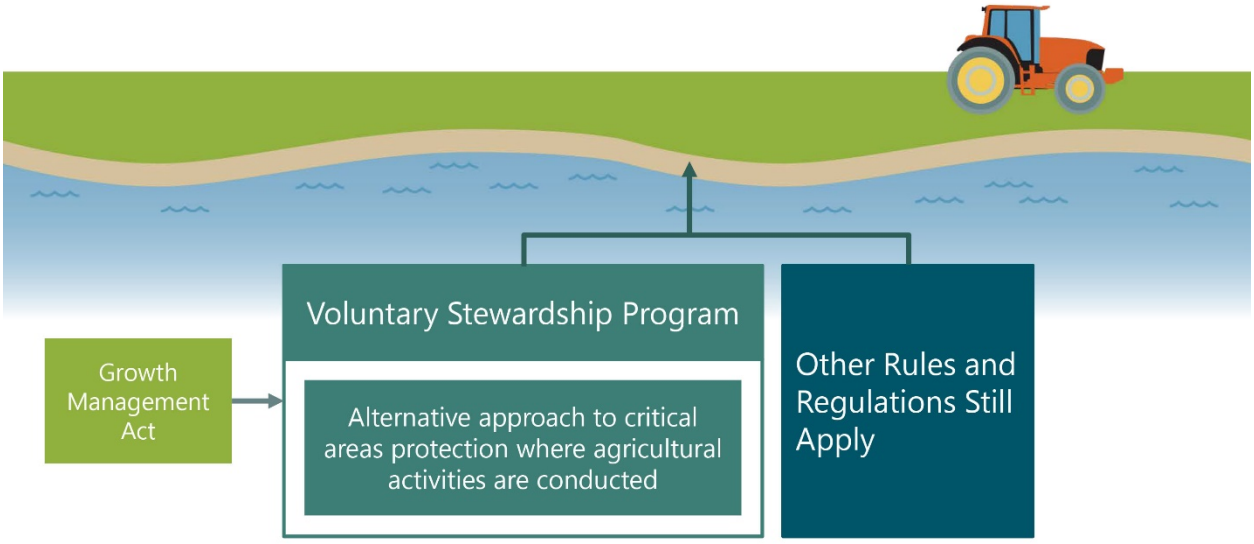
- Monitoring will focus on the measurable benchmarks and indicators described in Section 5 and will include informal evaluations at least every 2 years, in support of the 5-year performance review, and to determine if any adaptive management measures are needed prior to the 5-year review.
- The Work Group must report no later than 5 years after receipt of funding on whether the protection and/or enhancement goals are being met or identify an adaptive management plan to meet VSP goals and benchmarks.
- The Work Group must report no later than 10 years after receipt of funding, and every 5 years thereafter, whether it has met the protection and enhancement goals and benchmarks of the Work Plan.

Work plans often need to adapt to changing conditions and observations of results that are not consistent with established goals. Adaptive management is the process for "continually improving management policies and practices by learning from the outcomes of the operational programs" (Nyberg 1999). If the Work Group determines goals have not been met, they must propose and submit an Adaptive Management Plan for achieving the goals and benchmarks. While adaptive management actions will be included with the 2-year status reports and 5-year progress reports, the monitoring and adaptive management process outlined in Section 5 will be applied on an ongoing basis as needed. Monitoring indicators will inform the long-term viability of the Adaptive Management Plan, based on goals for protecting critical area functions. Monitoring will focus on the measurable benchmarks and goals also described in Section 5.

6.4 Regulatory Backstop

The VSP is provided as an alternative to protecting critical areas used for agricultural activities through development regulations under the Growth Management Act. Despite its voluntary nature, it is still the intent of the VSP to improve, and not limit, "compliance with other laws designed to protect water quality and fish habitat," per RCW 36.70A.700 and 36.70A.702. Existing federal rules and regulations will still apply to agricultural activities that have the potential to affect the environment, including the federal Clean Air Act, Clean Water Act, and Endangered Species Act. State and local environmental regulations may also apply to agricultural activities with the potential to affect the environment (see Appendix D). Figure 6-2 is intended to show how the VSP relates to other rules and regulations that apply separately from critical areas protection under the Growth Management Act.

Figure 6-2
Voluntary Stewardship Program Regulatory Underpinning



7 References

Anchor QEA, 2015. *Shoreline Inventory, Analysis, and Characterization Report*. Prepared for: Ferry County and the City of Republic. January 2015.

Azerrad, J. M., K. A. Divens, M. F. Livingston, M. S. Teske, H. L. Ferguson, and J. L. Davis. 2011. *Management Recommendations for Washington's Priority Habitats: Managing Shrub-Steppe in Developing Landscapes*. Washington Department of Fish and Wildlife Report 01333.

Benson, J. E., R. T. Tveten, M. G. Asher, and P. W. Dunwiddie, 2011. *Shrub-Steppe and Grassland Restoration Manual for the Columbia River Basin*. Washington Department of Fish and Wildlife. October 18, 2011.

Cramer Fish Sciences, 2017. *Upper Columbia and Sanpoil Habitat Restoration Plan*. Prepared for: Confederate Tribes of the Colville Reservation. Draft Report August 30, 2017.

FCD (Ferry Conservation District), 1997. *Ferry County Natural Resources Policy Plan: Ferry County Resolution No. 97-19*. June 16, 1997. Available at: http://www.ferry-county.com/Planning/PDF_Files/Ordinances/Natural_Resources_Policy.pdf.

FCD, 2015. *Ferry County District 5-Year Plan (2015 to 2020)*. July 2015.

FCD, 2018. Email communication from Lloyd Odell, FCD Manager to Vivian Erickson on January 10, 2018.

Ferry County, 2014. *Community Wildfire Protection Plan*. Available at: http://www.ferry-county.com/PDF_Files/Commissioners/2014%20Ferry%20County%20CWPP%20Update.pdf.

Knutson, K. L., and V. L. Naef, 1997. *Management Recommendations for Washington's Priority Habitats: Riparian*. Washington Department of Fish and Wildlife, Olympia. 181pp.

Lake Curlew Planning District, 1994. *Curlew Lake Sub Area Plan: Ferry County, Washington*. June 7, 1994. Available at: http://www.ferry-county.com/Planning/PDF_Files/Curlew_Lake_Sub_Area_Plan_with_map.pdf.

Larsen, E.M., E. Rodrick, and R. Milner, eds., 1995. *Management Recommendations for Washington's Priority Species, Volume I: Invertebrates*. Washington Department of Fish and Wildlife Report 00024.

Nordstrom, N., and R. Milner, 1997. "Columbia Spotted Frog." Pages 4-1 to 4-12 in E. M. Larsen, ed. *Management Recommendations for Washington's Priority Species, Volume III: Amphibians and Reptiles*. Washington Department of Fish and Wildlife.

Nyberg, J.B., 1999. *An Introductory Guide to Adaptive Management for Project Leaders and Participants*. British Columbia Forest Service, Victoria, Canada. January 1999.

Paige, C., 2012. A Landowner's Guide to Wildlife Friendly Fences. Second Edition. Private Land Technical Assistance Program, Montana Fish, Wildlife & Parks.

Quinn, T., G. Wilhere, and K. Krueger, 2018. Riparian Ecosystems, Volume 1: Science synthesis and management implications. A Priority Habitat and Species Document of the Washington Department of Fish and Wildlife.

Rodrick, E., and R. Milner, eds. 1991. *Management Recommendations for Washington's Priority Habitats and Species*. Washington Department of Wildlife Report 00032.

San Poil River Team, 2000. *Draft San Poil River Sub Basin Summary*. Prepared for Northwest Power Planning Council. November 15, 2000.

Schultz, R., and R. Vancil, 2016. "Voluntary Stewardship Program – An Alternative Approach for Protecting Critical Areas on Agricultural Lands While Maintaining the Viability of Agriculture." *Environmental Land Use Law* 42(1):9-15.

USDA (United States Department of Agriculture), 2012. *Census of Agriculture: County Profile – Ferry County, Washington*. Available at: https://www.agcensus.usda.gov/Publications/2012/Online_Resources/County_Profiles/Washington/.

USFS (United States Forest Service), 2012. *FY-2012 Transition Watershed Restoration Action Plan: Colville National Forest*. Republic Ranger District. September 11, 2012.

Ware, D., 1998. "Blue Grouse." Pages 15-1 to 15-4 in E. M. Larsen, ed. *Management Recommendations for Washington's Priority Species, Volume IV: Birds*. Washington Department of Fish and Wildlife.

WDFW (Washington Department of Fish and Wildlife), 2006. *Sherman Creek Wildlife Area Management Plan*. Washington Department of Fish and Wildlife, Wildlife Management Program Report 00535.

WDFW, 2010. *Washington State Deer Management Plan: White-Tailed Deer*. Washington Department of Fish and Wildlife, Wildlife Program Report 00497.

WDFW, 2011. *Wolf Conservation and Management Plan for Washington*. Washington Department of Fish and Wildlife Report 00001.

WDFW, 2014. *Washington Department of Fish & Wildlife 2015-2021 Game Management Plan*. Washington Department of Fish and Wildlife, Wildlife Management Program Report 01676.

WDFW, 2014. *Selkirk Elk Herd Plan*. Wildlife Program, Washington Department of Fish and Wildlife, Olympia. 59pp.

WDFW, 2016. *Washington State Mule Deer Management Plan*. Wildlife Program, Washington Department of Fish and Wildlife, Wildlife Program Report 01755.

WDFW, 2018. "Priority Habitat and Species Database." Accessed February 12, 2018. Available at: https://wdfw.wa.gov/mapping/phs/.

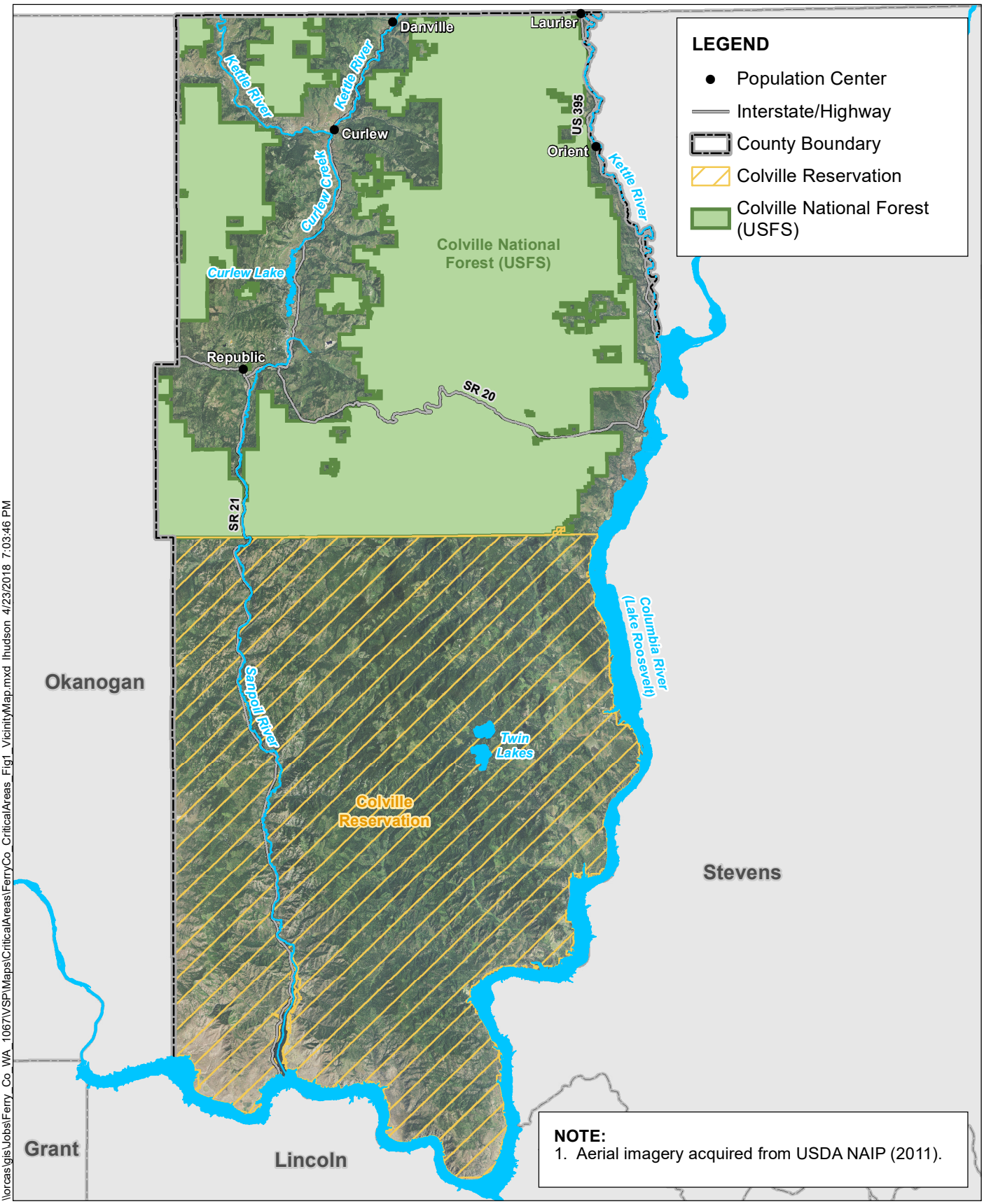
Weibull, A., Ö. Östman, and Å. Granqvist, 2003. "Species Richness in Agroecosystems: The Effect of Landscape, Habitat and Farm Management." *Biodiversity and Conservation* 12(7):1335-1355.

Windrope, A., T. Quinn, K. Folkerts, and T. Rentz, 2018. Riparian Ecosystems, Volume 2: Management Recommendations. A Priority Habitat and Species Document of the Washington Department of Fish and Wildlife.

Woodruff, K., and R. Ferguson, 2005. "Townsend's Big-Eared Bat." Pages 24-36 in E. M. Larsen, ed. *Management recommendations for Washington's Priority Species, Volume V: Mammals*. Washington Department of Fish and Wildlife.

WSCC (Washington State Conservation Commission), 2017. *VSP Statewide Advisory Committee and Conservation Commission Policy Advisory #01-17: The Confidentiality of Individual Stewardship Plans Under VSP Work Plans and Landowner Assessment Tools*. August 2017. Available from: http://scc.wa.gov/wp-content/uploads/2017/08/VSP-SAC-Policy-Advisory-01-17.Aug-2017.pdf

Appendix A
VSP Map Folio

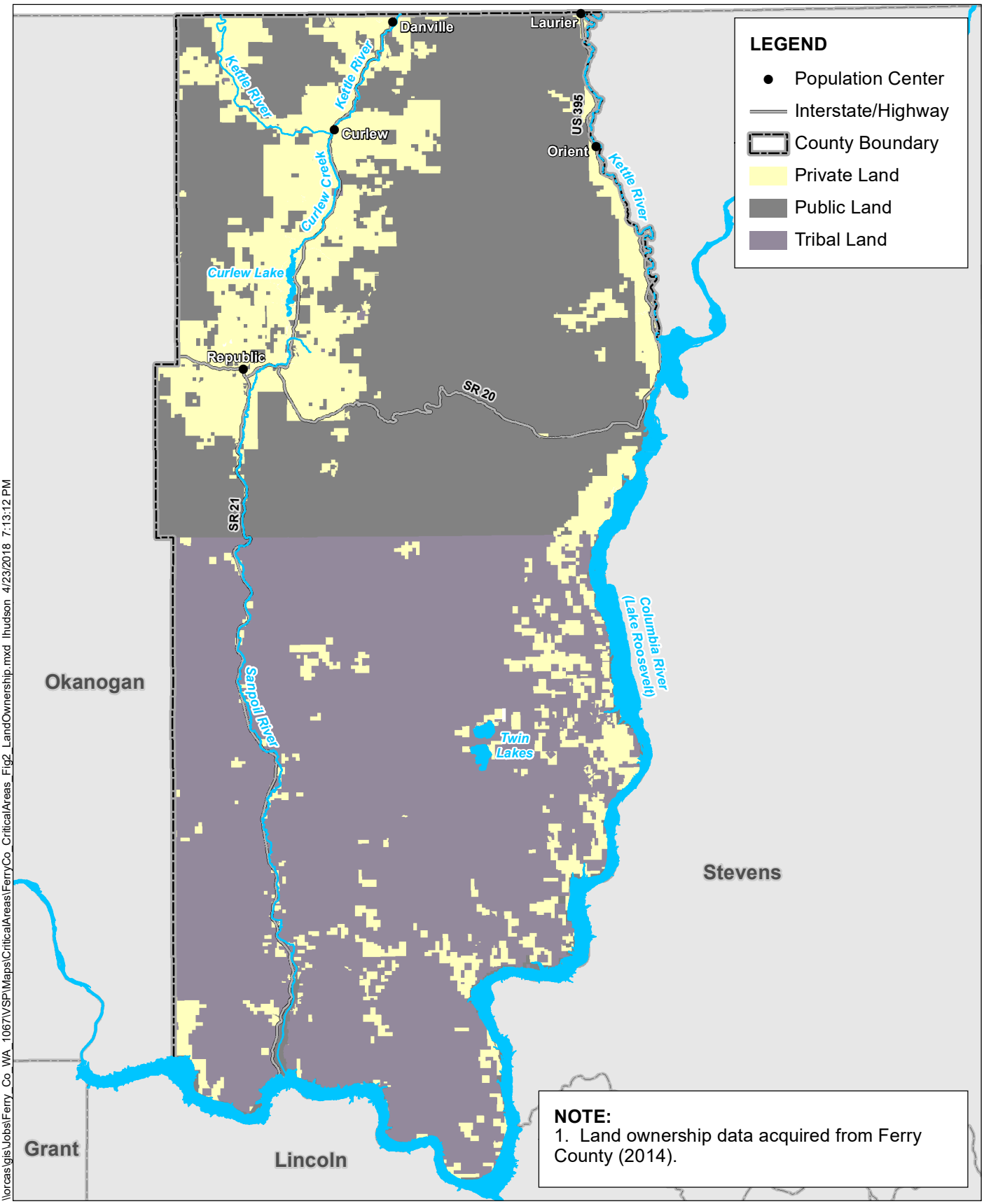


\\orcas\gis\Jobs\Ferry_Co_WA_1067\VSP\Maps\CriticalAreas\FerryCo_CriticalAreas_Fig1_VicinityMap.mxd lhudson 4/23/2018 7:03:46 PM

ANCHOR QEA

Miles
0 5 10

Figure 1
Vicinity Map
Voluntary Stewardship Program
Ferry County, WA



ANCHOR QEA

Miles
0 5 10

Figure 2
Land Ownership
Voluntary Stewardship Program
Ferry County, WA

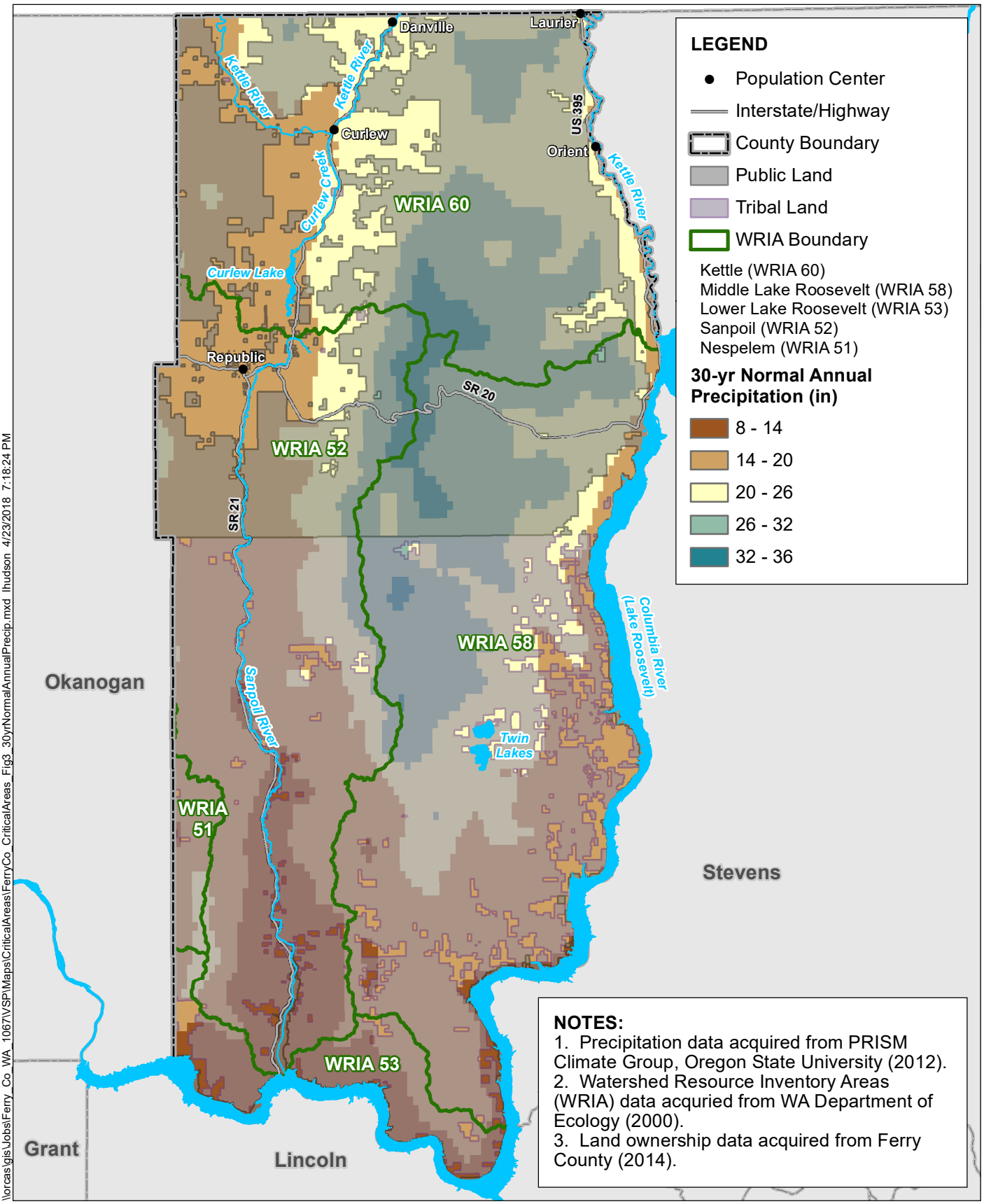
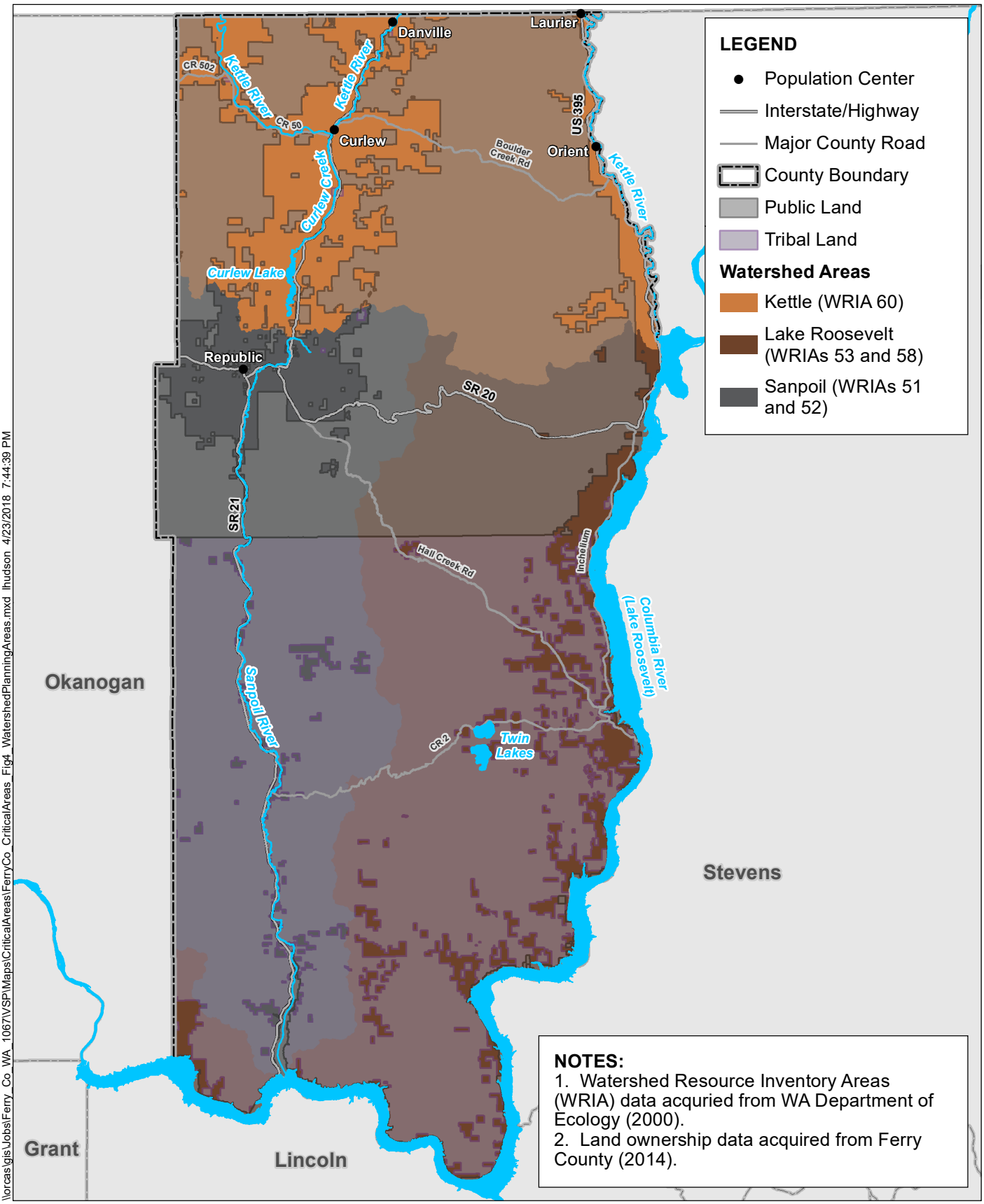


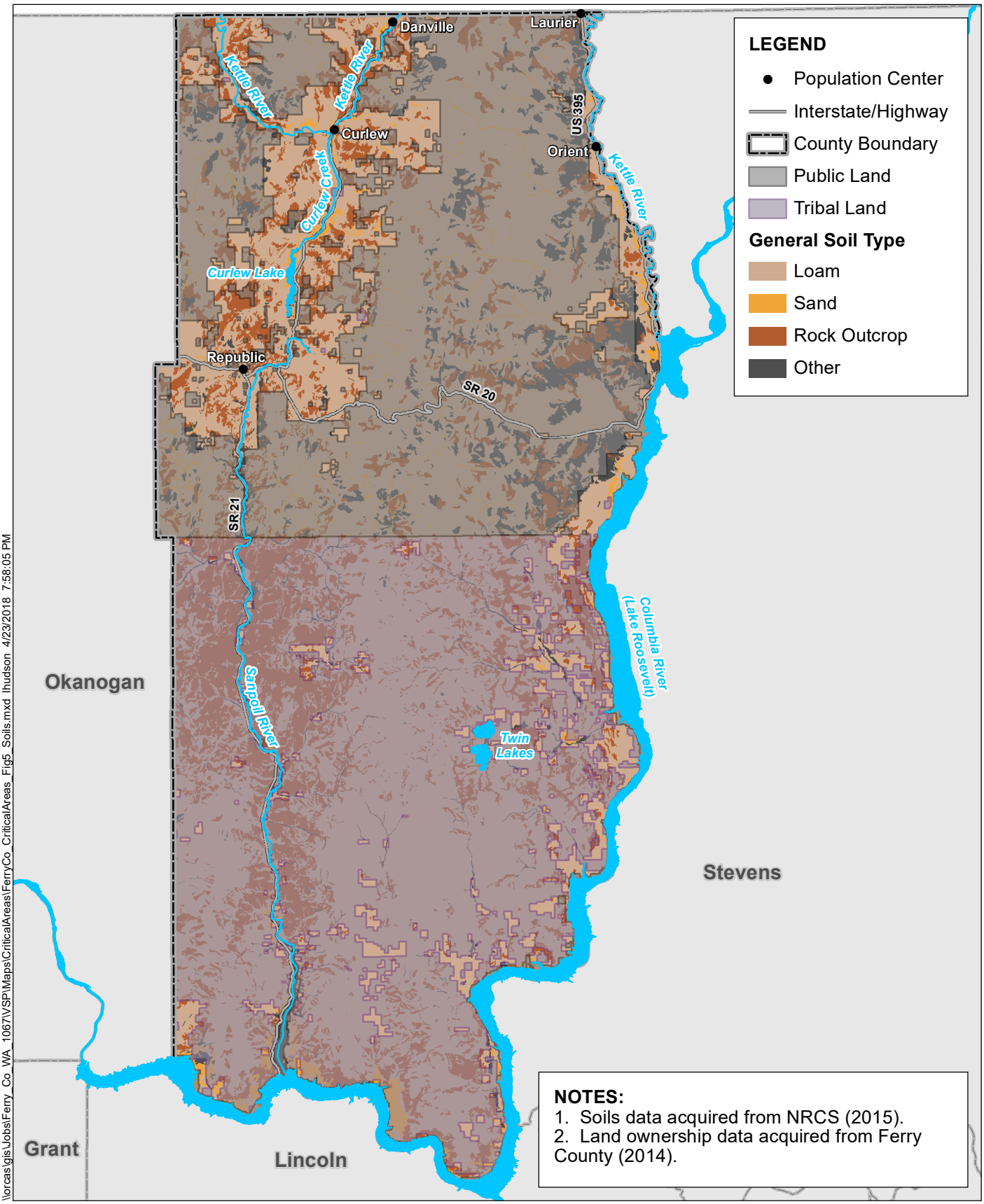
Figure 3
30-yr Normal Annual Precipitation
Voluntary Stewardship Program
Ferry County, WA



ANCHOR QEA

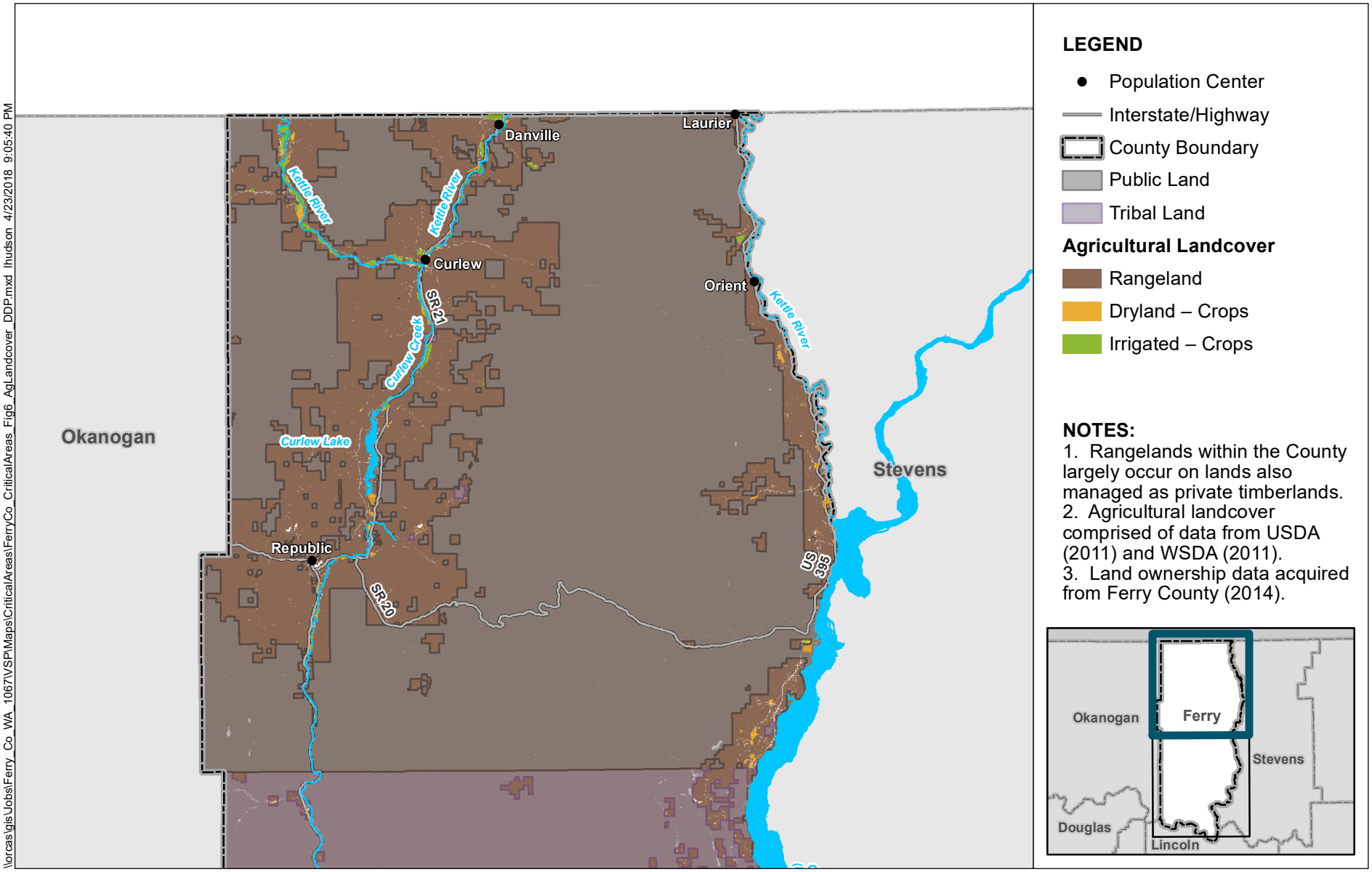
Miles
0 5 10

Figure 4
Watershed Planning Areas
Voluntary Stewardship Program
Ferry County, WA



ANCHOR QEA

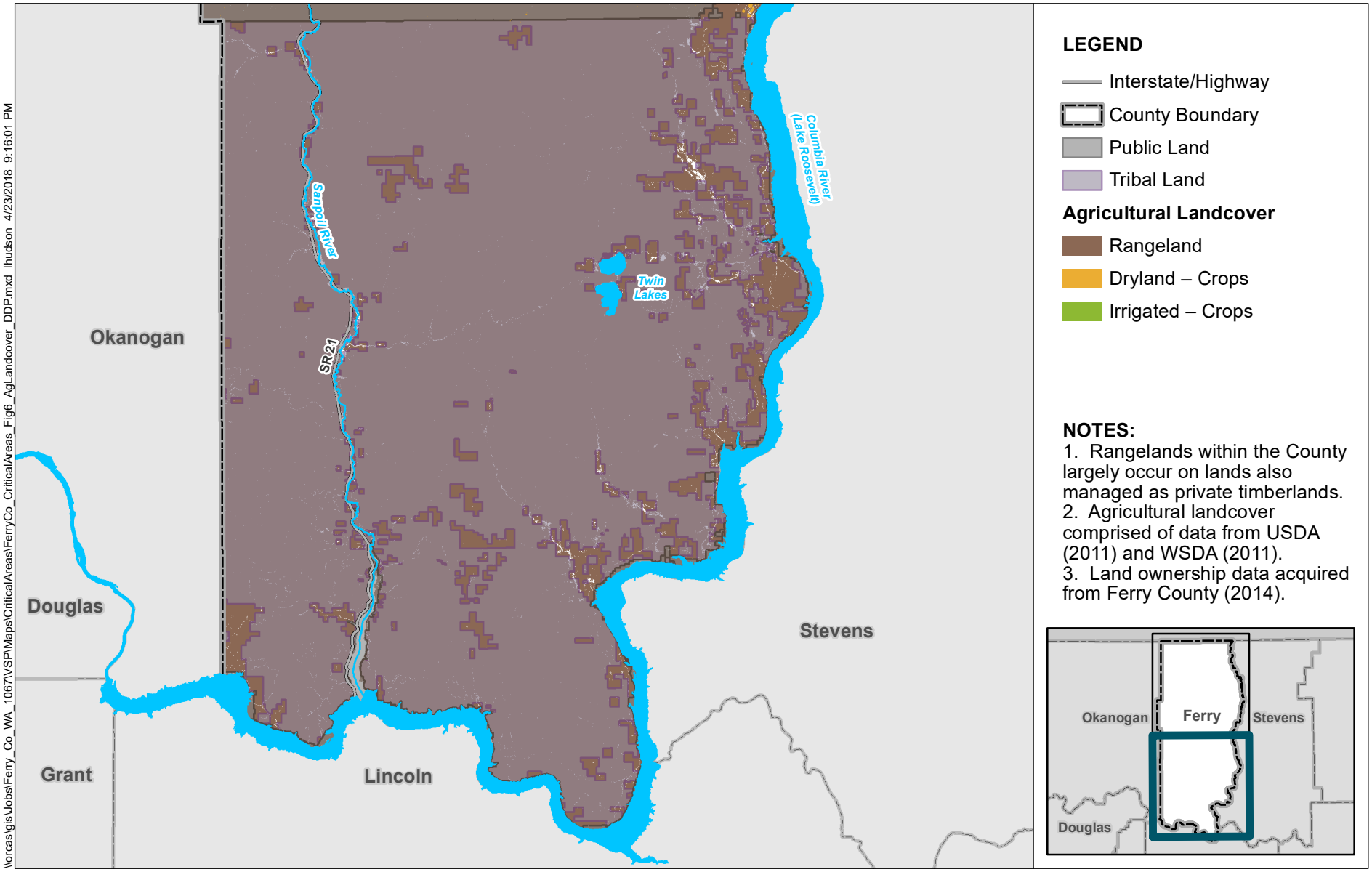
Figure 5
General Soils Map
Voluntary Stewardship Program
Ferry County, WA



\\orcas\gis\Jobs\Ferry_Co_WA_1067\VSP\Maps\CriticalAreas\FerryCo_CriticalAreas_Fig6_AgLandcover_DDP.mxd lhudson 4/23/2018 9:05:40 PM

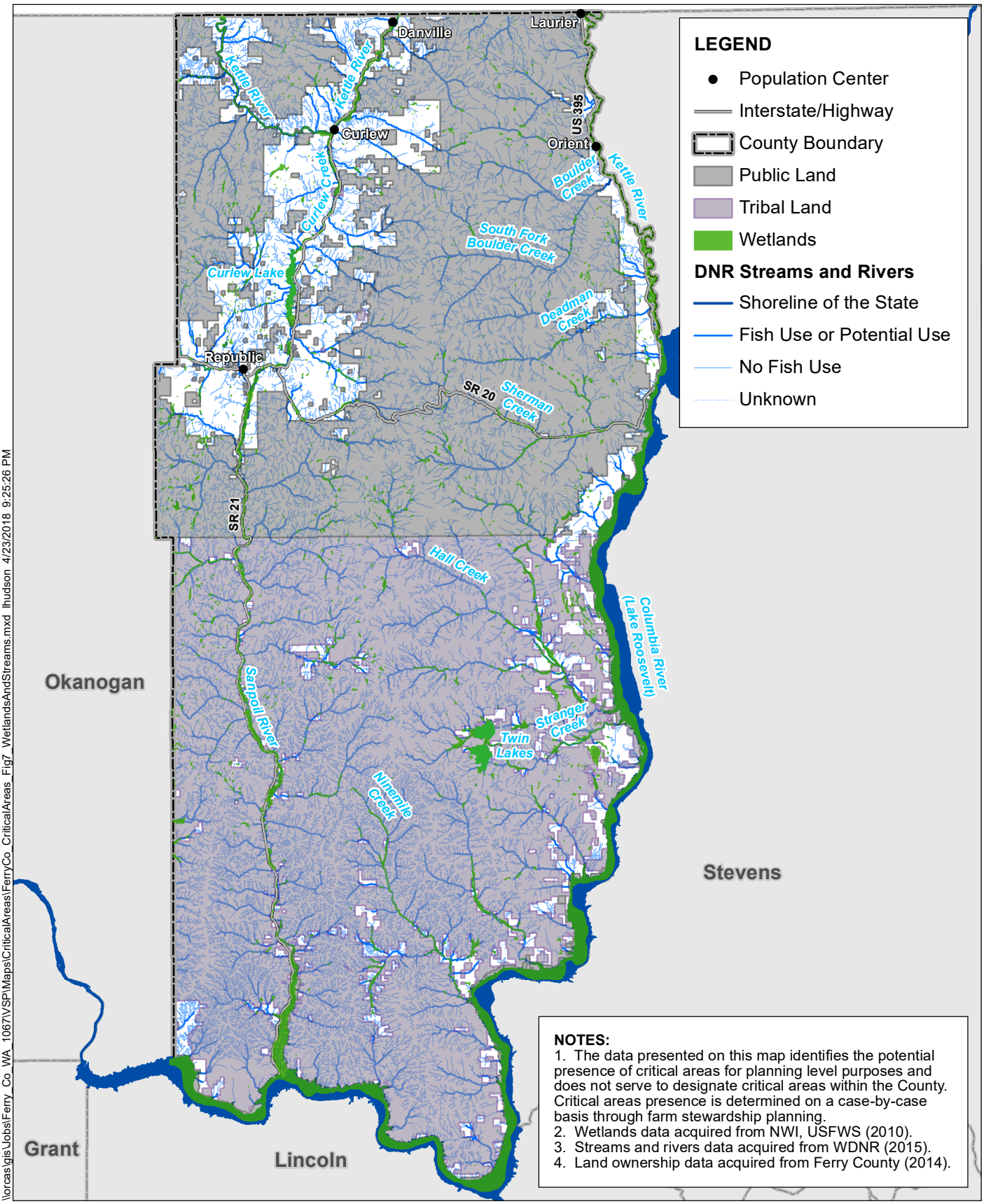
ANCHOR QEA

Figure 6a
Agricultural Landcover
Voluntary Stewardship Program
Ferry County, WA



ANCHOR QEA

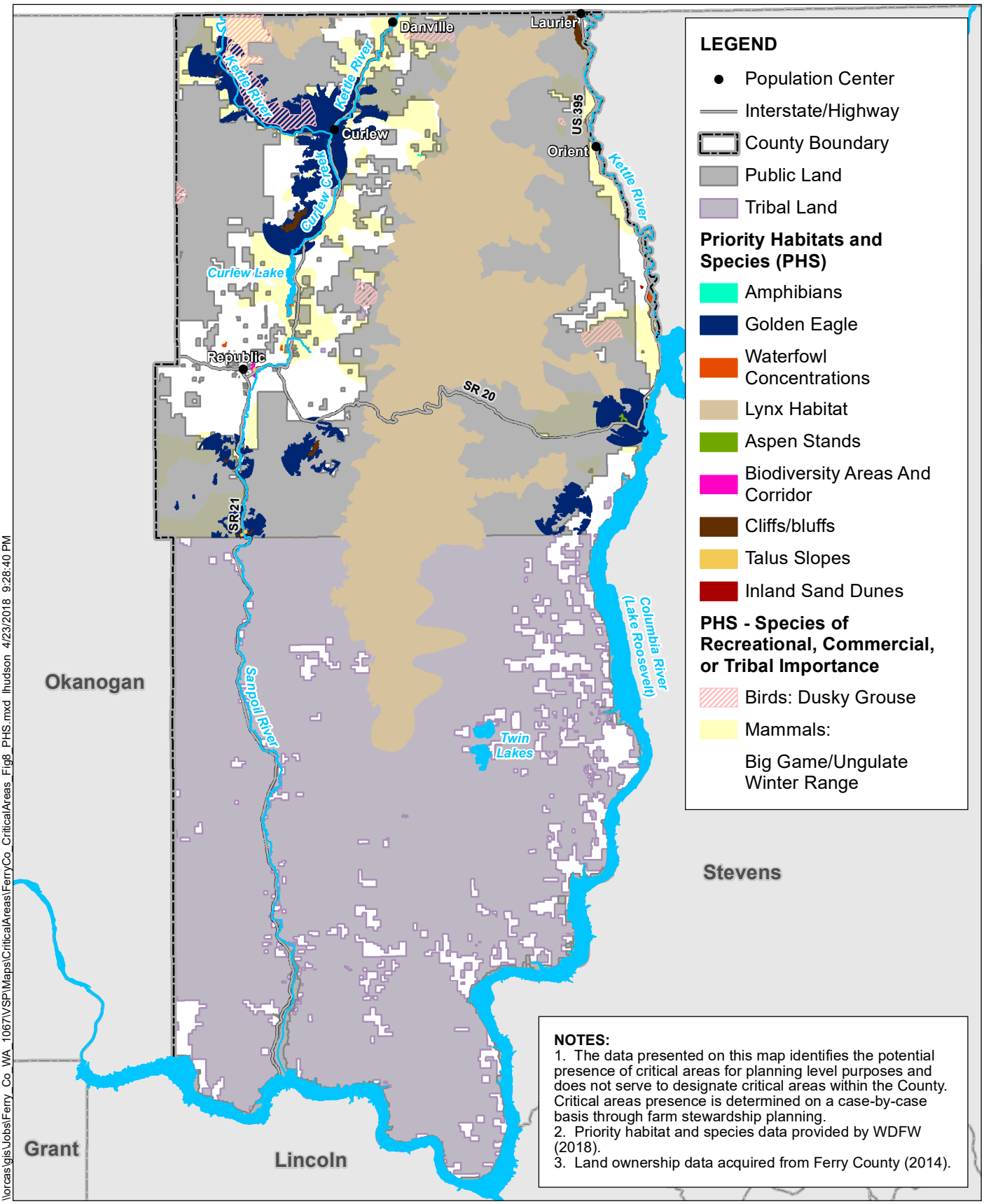
Figure 6b
Agricultural Landcover
Voluntary Stewardship Program
Ferry County, WA



ANCHOR QEA

Miles
0 5 10

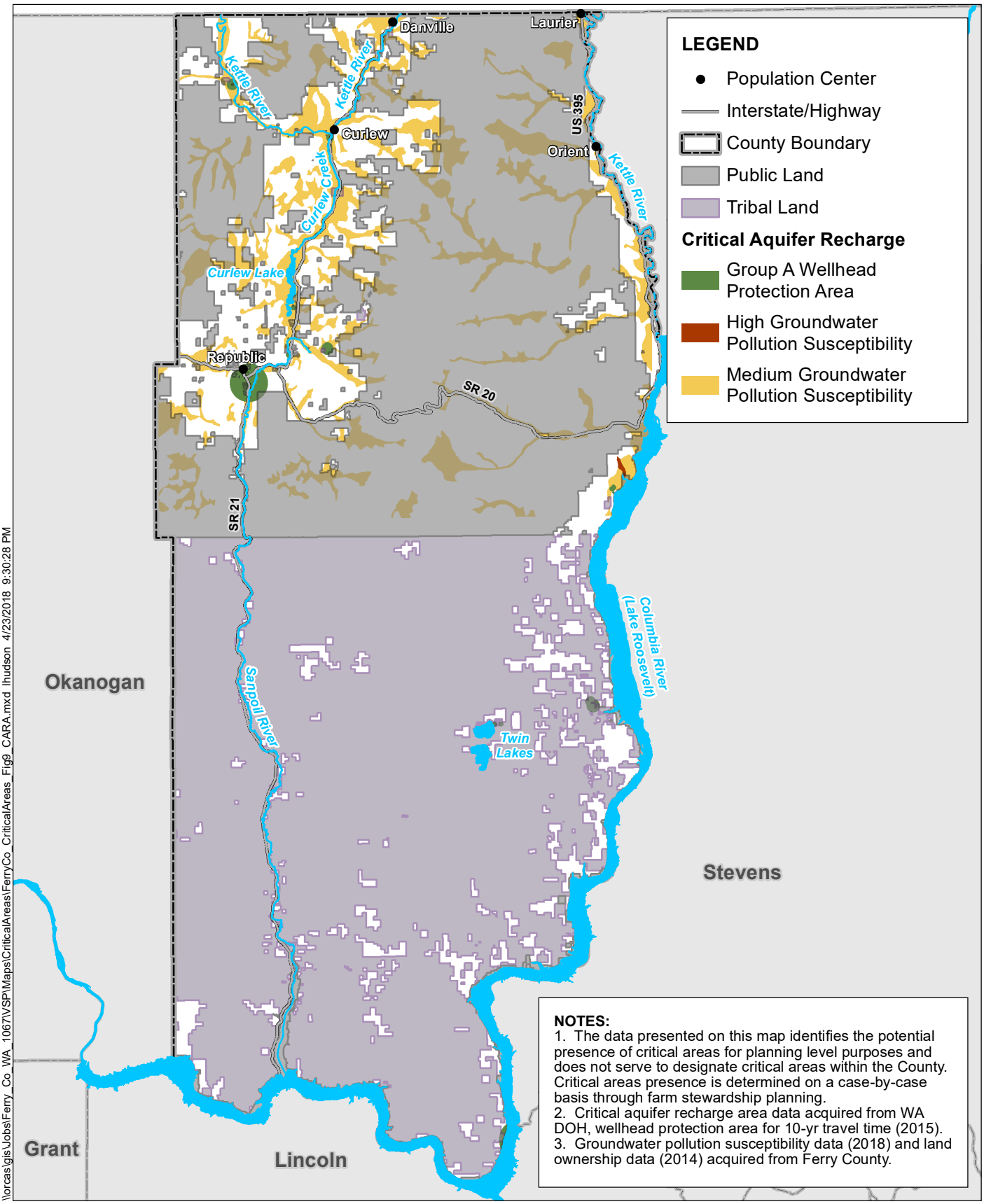
Figure 7
Wetlands and Streams
Voluntary Stewardship Program
Ferry County, WA



ANCHOR QEA

Miles
0 5 10

Figure 8
Priority Habitat and Species Map
Voluntary Stewardship Program
Ferry County, WA



\orcas\gis\Jobs\Ferry_Co_WA_1067\VSP\Maps\CriticalAreas\FerryCo_CriticalAreas_Fig9_CARA.mxd lhudson 4/23/2018 9:30:28 PM

ANCHOR QEA

Figure 9
Critical Aquifer Recharge Areas
Voluntary Stewardship Program
Ferry County, WA

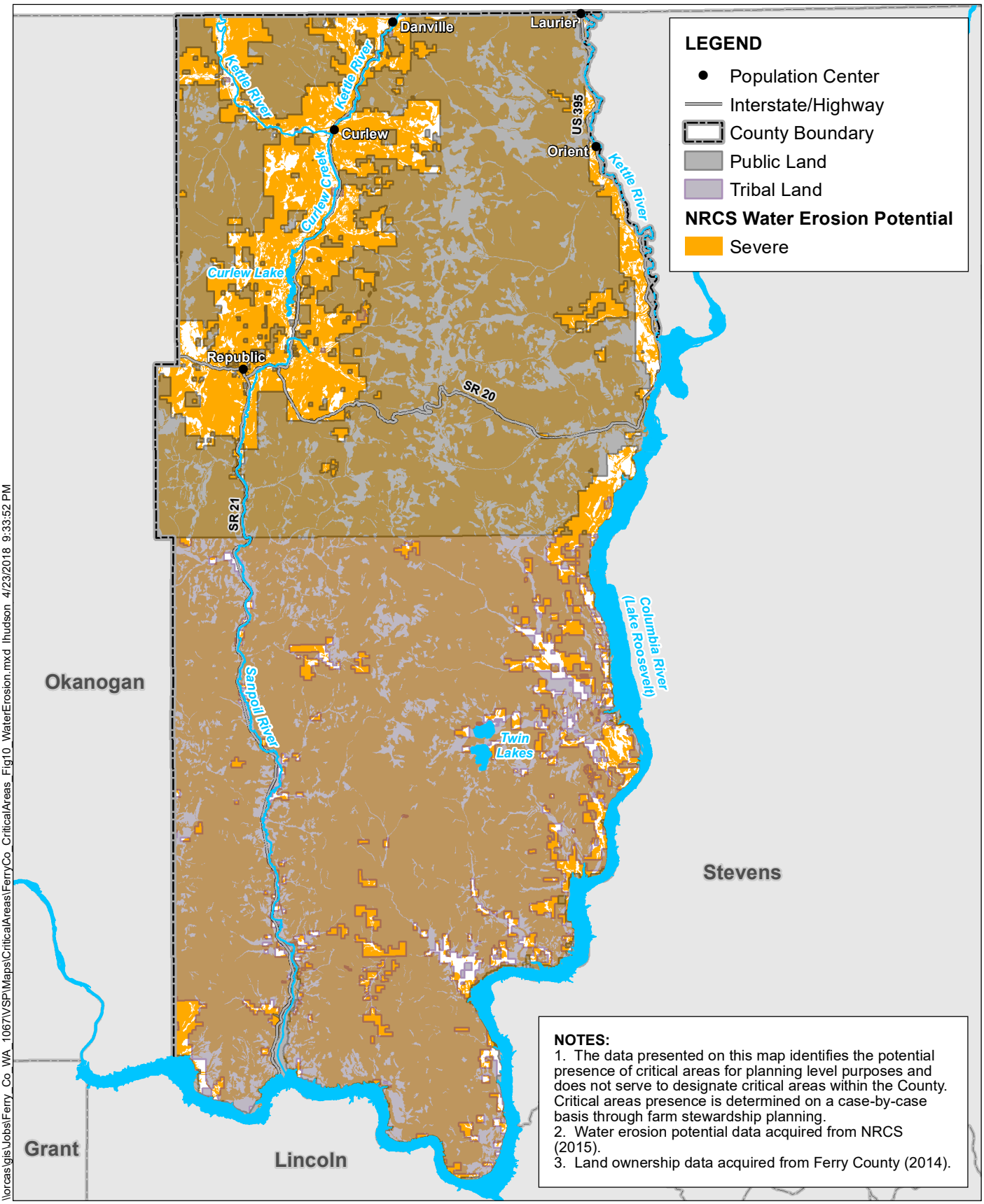
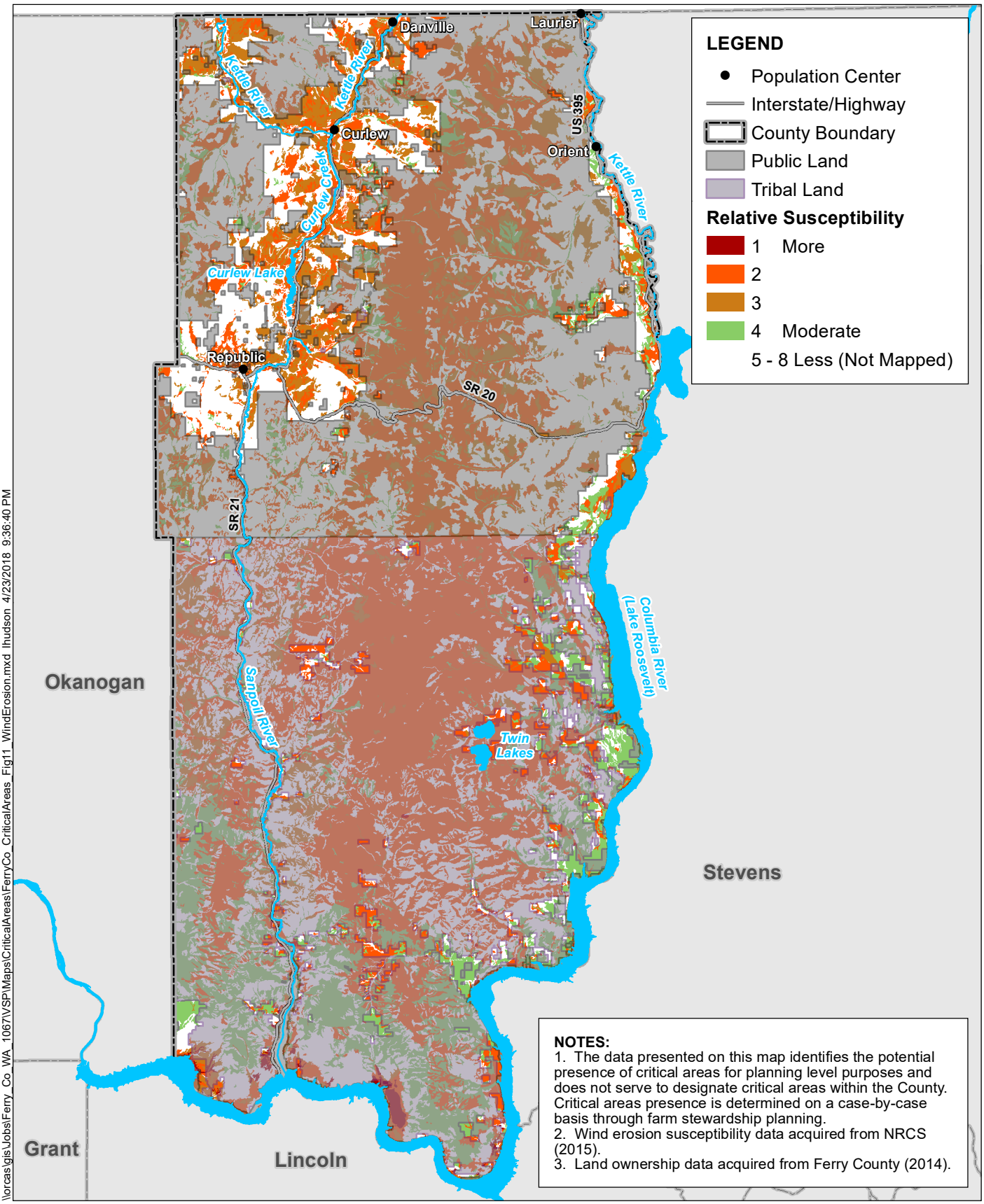


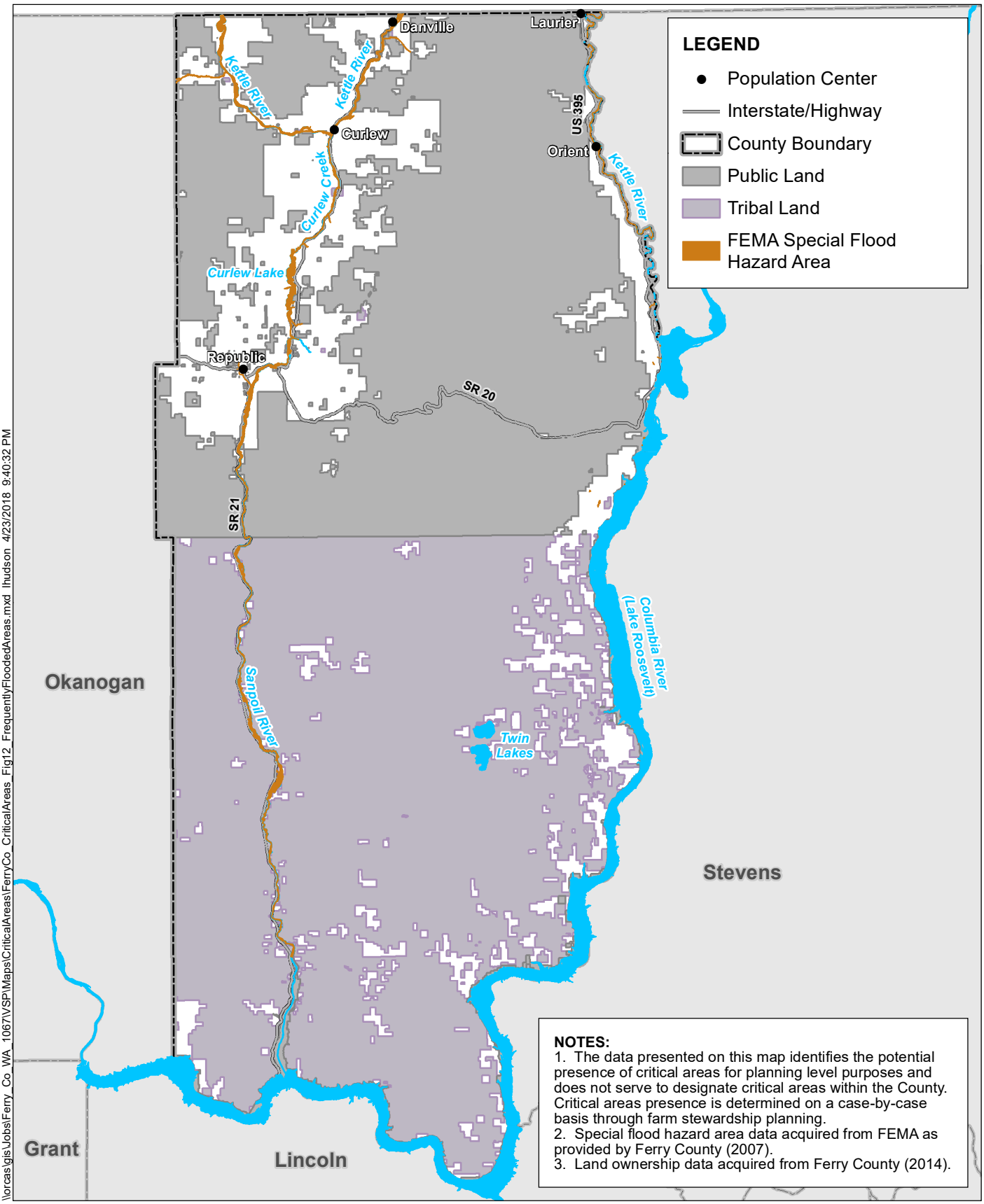
Figure 10
Water Erosion Potential
Voluntary Stewardship Program
Ferry County, WA



ANCHOR QEA

Miles
0 5 10

Figure 11
Wind Erosion Susceptibility
Voluntary Stewardship Program
Ferry County, WA



ANCHOR QEA

Miles
0 5 10

Figure 12
Frequently Flooded Areas (FEMA SFHA)
Voluntary Stewardship Program
Ferry County, WA

Appendix B
Baseline Conditions Summary

- B-1: Baseline Conditions Summary Methods and Data Sources
- B-2: Ferry County Critical Areas Designations and Definitions
- B-3: Critical Areas Data Summary Tables
- B-4: Ferry County Water Quality 303(d) Listings (2018)

Appendix B-1
Baseline Conditions Summary Method and Data Sources

Appendix B-1: Baseline Conditions Summary Method and Data Sources

Overview

The effective date of the Voluntary Stewardship Program (VSP) legislation is July 22, 2011. This is also the date chosen by the legislature as the applicable baseline for accomplishing the following items (Revised Code of Washington [RCW] 36.70A.703):

- Protecting critical areas functions and values
- Providing incentive based voluntary enhancements to critical areas functions and values
- Maintaining and enhancing the viability of agriculture in the County

The 2011 baseline sets the conditions from which Ferry County will measure progress in implementing the Work Plan and meeting measurable benchmarks. Measurable benchmarks are a required Work Plan element under VSP (RCW 36.70A.720 (1)(e)) and provided in the Ferry County VSP Work Plan, Section 5: Goals, Benchmarks, and Adaptive Management.

The methods and data sources relied upon to establish 2011 baseline conditions for Ferry County's five critical areas and agricultural activities are described in the following sections.

Methods for Establishing Baseline Conditions

The 2011 baseline conditions summary prepared for this appendix includes an inventory of agriculture land cover and critical area resources. The following methods were applied in the baseline conditions inventory (see Table 1 for a complete list of data sources):

- **Agricultural landcover assessment.** This was based primarily on Washington State Department of Agriculture (WSDA) 2011 agricultural landcover data for croplands (irrigated and dryland agriculture). U.S. Department of Agriculture (USDA) 2011 agricultural landcover data was primarily relied upon for additional data on rangelands. Three major agricultural land categories were characterized within Ferry County: 1) rangeland; 2) irrigated crops; and 3) dryland crops. These categories are associated with different crops, agricultural activities, stewardship strategies and practices, and intersections with critical areas.
- **Critical areas assessment** was based on:
  - Critical areas designations included in the County's Critical Areas Ordinance (CAO; 2016) (see Appendix B-2 for CAO summary).
  - Data sources for planning-level critical areas mapping (Appendix A: Map Folio) and critical area/agricultural intersections summaries (Appendix B-3: Critical Areas Data Summary Tables) ranged from 2010 to 2017. See Table 1 for a complete list of data sources.

- **Privately owned lands.** These were used when assessing critical area intersections with agricultural lands. The VSP does not apply to:
  - Agricultural activities occurring on public lands through leases or other agreements
  - Agricultural activities occurring on tribe-owned lands unless they are "fee lands" and taxable by Ferry County (Fee lands within the Colville Reservation are subject to County regulations and subject to VSP where agricultural activities are conducted.)
- **Use of maps.** Data sources and the VSP Map Folio (Appendix A) were used to assess the potential presence of critical areas within Ferry County and intersection with agricultural lands and were used for planning-level purposes only. Actual critical areas presence is determined on a case-by-case basis through farm stewardship planning.

Data Sources

The data sources listed in Table 1 were used in the baseline conditions inventory, to assess the conditions as close to the 2011 baseline as data availability allowed.

Table 1
2011 Baseline Conditions Data Sources

Title	Year	Author
Watershed Resource Inventory Area	2000	Washington State Department of Ecology
Special Flood Hazard Areas	2007	Federal Emergency Management Agency
National Wetland Inventory Data	2010	U.S. Fish and Wildlife Service
USDA Agricultural Landcover	2011	USDA
WSDA Agricultural Landcover	2011	WSDA
PRISM Climate Group Precipitation Data	2012	Oregon State University
Land Ownership (parcels)	2014	Ferry County
Public Lands (Public Lands Inventory)	2014	Washington State Recreation and Conservation Office
Streams and Rivers Data	2015	Washington State Department of Natural Resources
Water Erosion Potential	2015	Natural Resources Conservation Service
Wellhead Protection Area	2015	Washington Department of Health
Wind Erosion Susceptibility	2015	Natural Resources Conservation Service
Public Lands (Gap Analysis Program)	2016	U.S. Geological Survey
Public Lands (Non-DNR Major Public Lands)	2016	Washington State Department of Natural Resources
Priority Habitat and Species Data	2018	Washington Department of Fish and Wildlife
Groundwater Pollution Susceptibility Data	2018	Ferry County

Appendix B-2
Ferry County Critical Areas Designations and Definitions

Appendix B-2: Ferry County Critical Areas Designations and Definitions

Ferry County Critical Areas Ordinance 2016-03

General Provisions

Critical areas in Ferry County are categorized as follows:

1. Wetlands
2. Fish and Wildlife Habitat Conservation Areas (FWHCAs)
3. Frequently Flooded Areas (FFAs)
4. Critical Aquifer Recharge Areas (CARAs)
5. Geologically Hazardous Areas (GHAs)

Resource Information and Maps:

- Critical areas are designated on a series of data maps maintained by the Ferry County Planning and Building Department.
- The maps are for information and illustrative purposes, and are intended to alert a person to the potential presence of critical areas:
  - Intended to indicate if further study or review is needed to determine the presence of critical areas
  - Actual presence of critical areas will be based on field investigation and best available science

Wetlands

Identification and Designation (Section 5.03)

Wetlands will be rated (identified as to type and class and assigned to a category) using the methodology described in the following publication: *Washington State Wetland Rating System for Eastern Washington* issued by the Washington State Department of Ecology (Publication No. 14-06-030 October 2014).

Maps and References (Section 5.04)

Ferry County will be using the National Wetland Inventory Maps (NWI) and the Tri-County Wetlands Maps as preliminary tools for locating wetlands. Final site delineation will be based on the Regional Supplement to the *U.S. Army Corps of Engineers Wetland Delineation Manual: Arid West Final Regional Supplement*, September 2008.

Fish and Wildlife Habitat Conservation Areas

Identification and Designation (Section 9.01)

FWHCAs in the County shall include:

- Areas within which State and Federal endangered and threatened species exist, or State sensitive, candidate and monitor species have a primary association per Critical Areas Ordinance (CAO) Tables 9.02A and B (see Table 1 for summary).

Table 1
Fish and Wildlife Habitat Conservation Areas for Federally and State Listed Species

Species	Federal/State Listing
Fish	
Bull trout	Federal
Pygmy whitefish	State
Mammals	
Grizzly bear	Federal and State
Lynx	Federal and State
Gray wolf	State
Birds	
Yellow-billed cuckoo	Federal
Bald eagle	State
Peregrine falcon	State
Common loon	State

- Habitats and species of local importance that have been designated by the County at the time of application
  - The Washington State Priority Habitats and Species (PHS) list as of 4/8/15 for Ferry County is adopted as Habitats and Species of Local Importance per CAO Table 9.02C and designated as FWHCA (see Table 2 for summary of habitat below and see CAO Table 9.02C for full list of associated species of local importance).

Table 2
Fish and Wildlife Habitat Conservation Areas for Habitats of Local Importance

Habitats of Local Importance	
▪ Aspen stands	▪ Northern goshawk habitat
▪ Bighorn sheep habitat	▪ Northwest white-tailed deer habitat
▪ Biodiversity areas and corridors	▪ Old growth/mature forest
▪ Caves	▪ Riparian
▪ Cliffs	▪ Rocky mountain mule deer habitat
▪ Eastside steppe	▪ Roosting concentrations of bats
▪ Elk habitat	▪ Shrub-steppe
▪ Freshwater wetlands and fresh deep water	▪ Snags and logs
▪ Golden eagle habitat	▪ Talus
▪ Great blue heron breeding areas	▪ Waterfowl concentration areas (excluding Canada geese in urban areas)
▪ Inland dunes	
▪ Instream	

- Naturally occurring ponds under 20 acres that provide fish or wildlife habitat
- Rivers, Streams, and Lakes. as defined by Washington Administrative Code 222-16-031
- Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity
- State Natural Area Preserves and Natural Resource Conservation Areas

Frequently Flooded Areas

Identification and Designation (Section 7.03)

Floodway: The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

Area of special flood hazard: Land in the flood plain subject to a one percent or greater chance of flooding in any given year.

Maps and References (Section 7.02)

The Federal Emergency Management Agency supplied Ferry County with Flood Insurance Rate Maps. Ferry County will be using these maps as tools to determine areas of special flood hazard.

Critical Aquifer Recharge Areas

Identification and Designation (Section 6.03)

Ferry County has designated critical aquifer recharge areas based on aquifer maps in a December 1992 report titled *Evaluation of Groundwater Pollution Susceptibility in Northern Ferry County,*

Washington using the DRASTIC Method produced by Eastern Washington University Geology Department Professor, John Buchanan.

Maps and References (Section 6.03)

- Any geographic area designated by the DRASTIC classification as having a high rating (170 through 180 DRASTIC rating) or medium (114 through 176 DRASTIC rating) susceptibility rating shall be designated a CARA.
- In addition, the 100-foot protective radius around a Group A Public Water Well System and the 200-foot protective radius around a Group A Public Water Spring System will be designated a CARA.
- Since the above Eastern Washington University study was only completed for the north part of the county, designation for fee property within the bounds of the Colville Indian Reservation will be done on a case-by-case basis using the ratings of susceptibility for aquifers as described in Appendix Two and Three of a July 2000 Department of Ecology Guidance Document for the Establishment of Critical Aquifer Recharge Area Ordinances, Publication #97-30 prepared by Kirk V. Cook, RPG, Hydrogeologist.
- A map or maps maintained by the Ferry County Planning Department shall set forth such areas.

Geologically Hazardous Areas

Identification and Designation (Section 8.02)

GHAs shall include erosion, landslide, seismic, mine, and volcanic hazards and are defined as follows:

- Erosion Hazards:
  - Natural erosion processes that can be powerful enough to dislocate big chunks of land;
  - Exposure of soil during construction, including road construction, making it susceptible to water and wind erosion; and
  - Increased runoff, because of the increase in impermeable surfaces in development area or because of the removal or destruction of vegetation, causing concentration of water in places where it can cause erosion, typically by forming rills, gullies, or deepening ravines.
- Landslide Hazards:
  - Those areas potentially subject to landslides based upon the combination of geologic, topographic, and hydrologic factors as described in Section 8.02 (1b).
- Seismic Hazards:
  - Areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, or soil faulting.

- Mine Hazards:
  - Because of the strong mining heritage in Ferry County, many mine openings and other mine-related hazards exist. Such hazards include, but are not limited to; portals, shafts, open stopes, steep slopes caused by mining activities, impoundments, dumps, stockpiles, abandoned mine buildings and facilities, abandoned workings, and surface drill holes.
- Volcanic Hazards:
  - The potential risk from volcanic hazards for any particular area is generally related to how far the area is from a volcanic vent. At the present time Ferry County has no volcanic vents within a large radius.

Structures in agricultural lands will continue to be permitted and regulated through the County's CAO, notably for landslide, seismic, mine, and volcanic hazard areas. GHAs for erosion hazards have primary applicability in the VSP context.

Maps and References (Section 8.03)

Ferry County will be utilizing the U.S. Department of Agriculture Natural Resources Conservation Service and other agencies' existing surveys. These surveys along with the soils surveys will be tools used by the Planning Department to assist in judging the possible risk that may exist on case-by-case basis.

Appendix B-3
Critical Areas Data Summary Tables

Ferry County Critical Areas Data Summary Tables

Table 1

Agricultural Activity Landcover

Landcover	Acres	Percent
Total Area	**1,440,689**	N/A
Agricultural Landcover	**255,304**	**18%**
Irrigated	1,837	1%
Dryland	3,714	1%
Range	249,752	98%

Analysis Unit: County-Wide Summary

Global Notes: - Agricultural areas included in VSP are limited to privately-owned lands. Additionally, incorporated city/town limits are not included in VSP and are excluded from these calculations.
- See Appendix B-1 for GIS data sources and methods.
- Critical area percentages are based on the total private agricultural landcover stated in Table 1

Table 2

Critical Areas within Agricultural Lands

Critical Areas		Areas within Agricultural Lands							
		Irrigated		Dryland		Rangeland		Total	
		Acres	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Wetlands		35	0%	318	0%	3,696	1%	4,049	2%
Fish and Wildlife Habitat Conservation Areas[1,2]		938	0%	544	0%	28,113	11%	29,595	12%
Critical Aquifer Recharge Areas	Wellhead Protection Area	117	0%	147	0%	3,690	1%	3,954	2%
	Groundwater Susceptibility Area	1,649	1%	1,477	1%	59,925	23%	63,051	25%
Geologic Hazards	Water Erosion	233	0%	1,244	0%	190,754	75%	192,231	75%
	Wind Erosion	1,273	0%	2,547	1%	142,436	56%	146,257	57%
Frequently Flooded Areas		385	0%	442	0%	2,868	1%	3,694	1%

Notes:

1. Excluding game species (see Table 6 for full list of game species)

2. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted

Table 3

Stream Summary[1]

Critical Areas	Areas within Agricultural Lands							
	Irrigated		Dryland		Rangeland		Total	
	Miles	*Percent*	*Miles*	*Percent*	*Miles*	*Percent*	*Miles*	*Percent*
Streams Total	**7**	**0%**	**14**	**1%**	**1,657**	**95%**	**1,679**	**96%**
Shorelines of the State	0		1		21		22	
Fish Use or Potential Fish Use	1		3		286		290	
No Fish Use	1		4		956		961	
Unknown	5		6		394		405	

Notes:

1. Streams data exclude irrigation canals

Wetlands Data Summary

Table 4

Wetland Summary

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Wetlands (all types)	**35**	**318**	**3,696**	**4,049**
Freshwater Emergent Wetland	29	297	1,843	2,169
Freshwater Forested/Shrub Wetland	0	19	1,464	1,483
Lake/Pond	0	1	142	143
Riverine	5	2	244	251
Other	0	0	3	3

Fish and Wildlife Habitat Conservation Areas - PHS Data Summary

Table 5

Priority Habitats and Species Summary - Excluding Game Species[1,2]

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
Priority Habitats and Species	**938**	**544**	**28,113**	**29,595**
Birds	**938**	**544**	**25,753**	**27,234**
Common Loon	0	0	0	0
Golden Eagle	938	542	25,608	27,087
Northern Goshawk	0	0	0	0
Waterfowl Concentrations	2	23	177	202
Mammals	**0**	**1**	**2,359**	**2,360**
Lynx	0	1	2,359	2,360
Amphibians	**0**	**0**	**1**	**1**
Columbia Spotted Frog	0	0	1	1
Western Toad	0	0	1	1
Aspen Stands	**0**	**0**	**0**	**0**
Biodiversity Areas And Corridor	**0**	**0**	**103**	**103**
Cliffs/bluffs	**0**	**0**	**101**	**101**
Inland Sand Dunes	**0**	**1**	**9**	**9**
Talus Slopes	**0**	**0**	**4**	**4**

Notes:

1. Excluding game species (see Table 6 for full list of game species)
2. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted

Table 6

Priority Habitats and Species Summary - Game Species[1]

Critical Areas	Acres within Agricultural Lands			
	Irrigated	Dryland	Rangeland	Total
PHS (Game Species)	**983**	**824**	**71,539**	**73,346**
Birds	**0**	**62**	**8,442**	**8,504**
Dusky Grouse	0	62	8,442	8,504
Mammals	983	823	71,210	73,017
Bighorn Sheep	0	3	1,735	1,738
Moose	0	0	2,337	2,337
Mule Deer	88	294	45,142	45,524
Northwest White-Tailed Deer	955	581	27,399	28,935

Notes:

1. Summary Priority and Habitat Species numbers are collapsed so that overlapping species or habitats are not double counted

Appendix B-4
Ferry County Water Quality 303(d) Listings (2018)

Ferry County Water Quality 303(d) Category 5 Listings (2018) –
Parameters with Potential Intersects with Agricultural Activities

Water Quality Parameter	Potential Agricultural-Related Source
Bacteria	Animal waste
Dissolved Oxygen	Organic matter decomposition
pH	Indicator
Temperature	Erosion/sediment/canopy cover
Total Phosphorus	Organic decomposition

Source: Washington Department of Ecology Water Quality Assessment Data accessed February 5, 2018

Appendix C
Benchmarks – Methods and Initial Results

Appendix C: Benchmarks – Methods and Initial Results

Methods

Linking Stewardship Practices to Resource Protection

Conservation practice benefits are related to critical areas functions and values through the use of the national conservation practice physical effect (CPPE) scores for each practice developed by U.S. Department of Agriculture (USDA; NRCS 2017). The CPPE describes how Natural Resources Conservation Service (NRCS) practices affect the human-economic environment (e.g., Agricultural Viability) and natural resources (e.g., Critical Functions). CPPE, developed by USDA NRCS economists, helps field planners describe in detail how each practice affects agricultural viability and natural resource functions. Scores range between +5 and -5, with positive scores denoting a functional beneficial effect, 0 denoting no effect, and negative scores having an adverse effect.

For each of the four key critical area functions (i.e., soil health, hydrology, water quality, and habitat), resource concerns were tailored to Ferry County by including concerns applicable to the County and were averaged together to provide an overall function score. Where a resource concern was listed as not applicable to a particular practice, this resource concern was not factored into the average function score. Table 1 and Attachments 1 and 2 provide additional details on methods applied to summary tables of practice effects on resource function in Ferry County:

- **Table 1: CPPE Resource Concerns for Ferry County** summarizes the resource concerns identified as applicable to Ferry County conditions, pared down for applicability from the comprehensive list of resource concerns in the NRCS National CPPE Summary Tool, dated July 28, 2015, and available from the NRCS CPPE webpage (NRCS 2017) at https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/econ/data/?cid=nrcs143_009740.
- **Attachment 1: Ferry County CPPE Resource Concerns and Scores** provides a detailed summary of applicable individual resource scores (identified in Table 1) and average function scores per key critical area function for all NRCS conservation practices. Resource concerns listed as a zero (and colored in red) indicate the score is applicable to the conservation practice as having no effect. Zero scores not highlighted in red indicate a resource concern that is not applicable to the practice and is therefore not factored into the average function score.
- **Attachment 2: Ferry County Practice Toolbox with CPPE Averaged Function Scores** provides an overview of NRCS conservation practices currently implemented in Ferry County, showing quantitative scores and additional applicable and key practices (scores greater than 3) for each function category.

Table 1
CPPE Resource Concerns for Ferry County

Function	Resource Concern
Soil Health	The soil function score averaged both soil erosion and soil condition scores based on the associated resource concerns listed below.
Soil Erosion	• Sheet and rill • Wind • Ephemeral gully • Classic gully • Streambank/shoreline/conveyance
Soil Condition	• Organic matter depletion • Compaction • Subsidence • Contaminants: Salts or other chemicals
Hydrology	• Excessive seepage • Excessive runoff, flooding, or ponding • Excessive subsurface water • Drifted snow • Inefficient water use on irrigated land • Inefficient water use on non-irrigated land
Water Quality	• Pesticides in surface water • Pesticides in groundwater • Nutrients in surface water • Nutrients in groundwater • Salts in surface water • Salts in groundwater • Excess pathogens and chemicals from manure, bio-solids, or compost applications in surface water • Excess pathogens and chemicals from manure, bio-solids, or compost applications in groundwater • Excessive sediments in surface water • Elevated water temperature • Petroleum, heavy metals, and other pollutants transported to surface water • Petroleum, heavy metals, and other pollutants transported to groundwater
Habitat	• Inadequate food • Inadequate cover/shelter • Inadequate water • Inadequate space

Application for Future Practices

The spreadsheets in Attachments 1 and 2 may be used to track enrollment in future practices and to continue to assess functional indicators of these practices. New NRCS practices may also be added to Ferry County's palette of protection and enhancement tools (Attachment 2).

For practices outside of NRCS, equivalent function scores should be developed to estimate the benefit or impact on soil health, hydrology, water quality, and habitat based on the understanding that scores range from +5 and -5, with positive scores denoting a beneficial effect and negative scores indicating an impact. The following steps are suggested for this process:

- Assess whether the new practice is similar to existing NRCS practices and using the resource concern scores from the existing NRCS practice as a starting point to develop function scores.
- Use experience and available technical information to develop scores, with the understanding that although a practice may have a beneficial effect on a target resource, there may be impacts to other resources. Also, not all practices will have an effect on all possible resource concerns; many will have no effect, and some will not be applicable and should be listed as a zero.

Initial Results (2011 to 2017)

To track performance from implemented conservation practices from 2011 to 2017, enrollment in conservation practices was tabulated and average function scores (Attachment 2) were applied. This provided a functional indicator that accounted for the beneficial and adverse effects of each practice.

Although NRCS enrollment data are available since 2011, the discontinuation of practices during that period was not recorded. The rate of discontinuation of practices often varies based on whether implemented practices involve stewardship investment (e.g., irrigation management systems), stewardship actions (e.g., cover cropping), or permanent conversion into conservation easements. Table 2 summarizes the proposed approach to account for the varied disenrollment rates based on some of these categories of practices.

Table 2
Calculating Disenrollment for Conservation Practices

Assumed Range of Disenrollment/Discontinuation	Conservation Practice Category	Example Practices
None	**Easements and Infrastructure** • Permanent conservation practices	• Permanent easements • Major infrastructure
Lower 0 to 3%	**Conservation Investments** • High barriers to entry/exit – Conservation investments – Maintenance cost – Effectiveness • Increases land productivity • Lowers cost	• Direct habitat management • Livestock infrastructure • Pest management • Nutrient management • Forest understory management • Irrigation management •
Higher 3 to 7%	**Conservation Actions** • Low barriers to entry/exit – Easily removed • Reduced land in production • Rotational use – Market driven rotation • Reliance on unstable conservation funding or incentives (e.g., Conservation Resource Program)	• Tillage management • Prescribed grazing • Cover crop • Pasture planting

Figures 1 through 4 illustrate the functional indicator results from 2011 to 2017 based on reported practices enrolled/implemented and estimated discontinuation of practices within that period. Figures 1 through 4 indicate a net gain in function over time for soil health, hydrology, water quality, and habitat.

Figure 1
Soil Health Functional Indictors: 2011 to 2017 NRCS Practice Enrollments

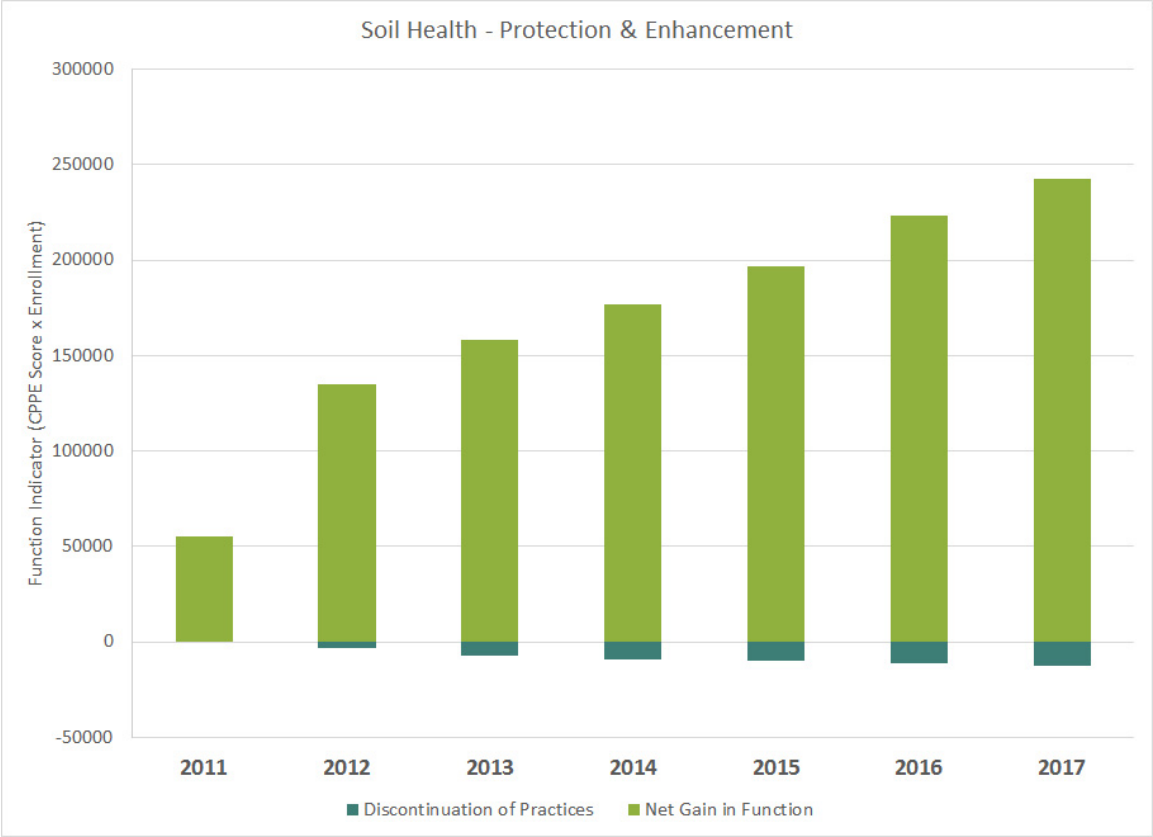


Figure 2
Hydrology Functional Indictors: 2011 to 2017 NRCS Practice Enrollments

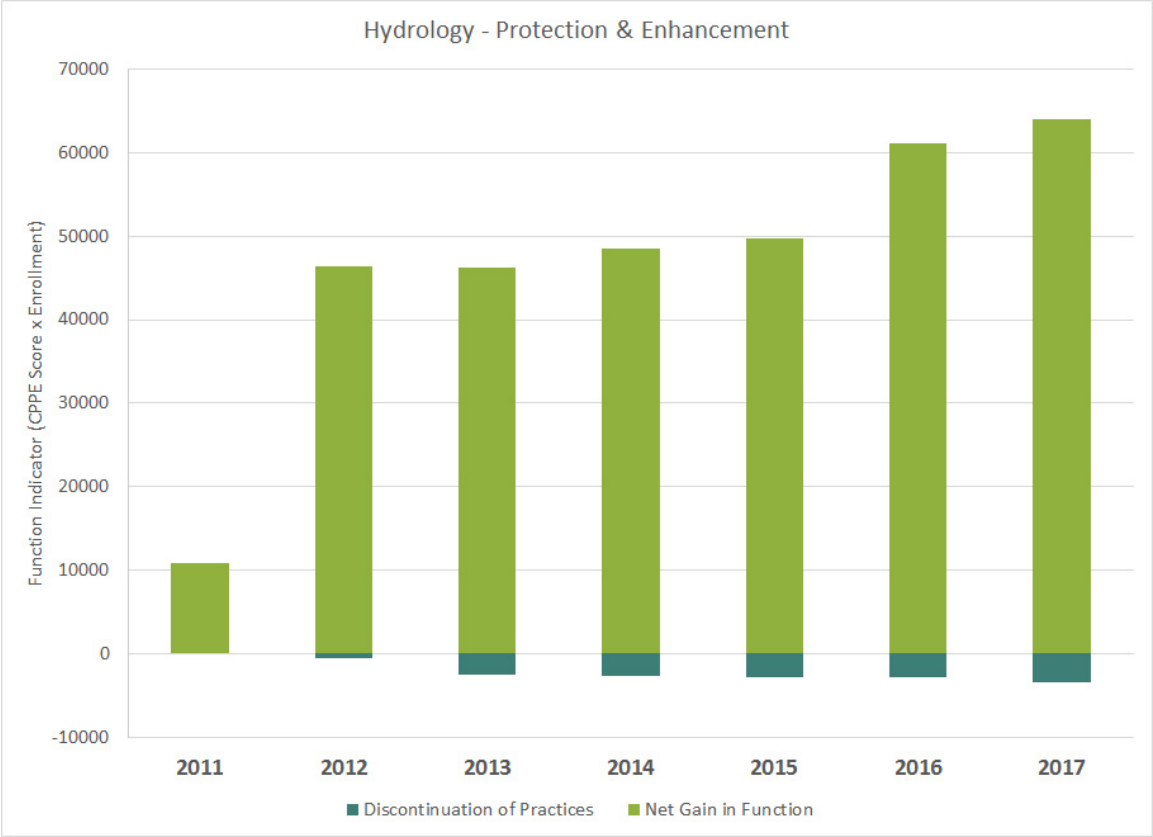


Figure 3
Water Quality Functional Indictors: 2011 to 2017 NRCS Practice Enrollments

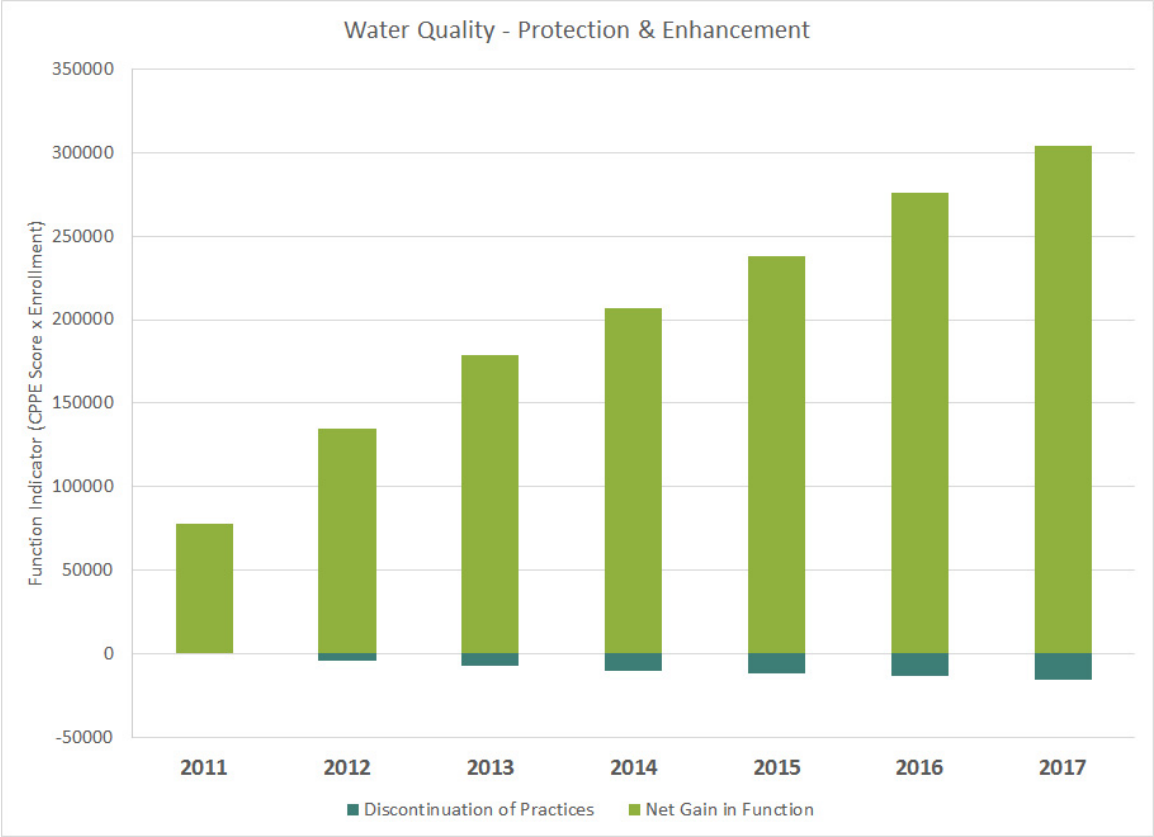
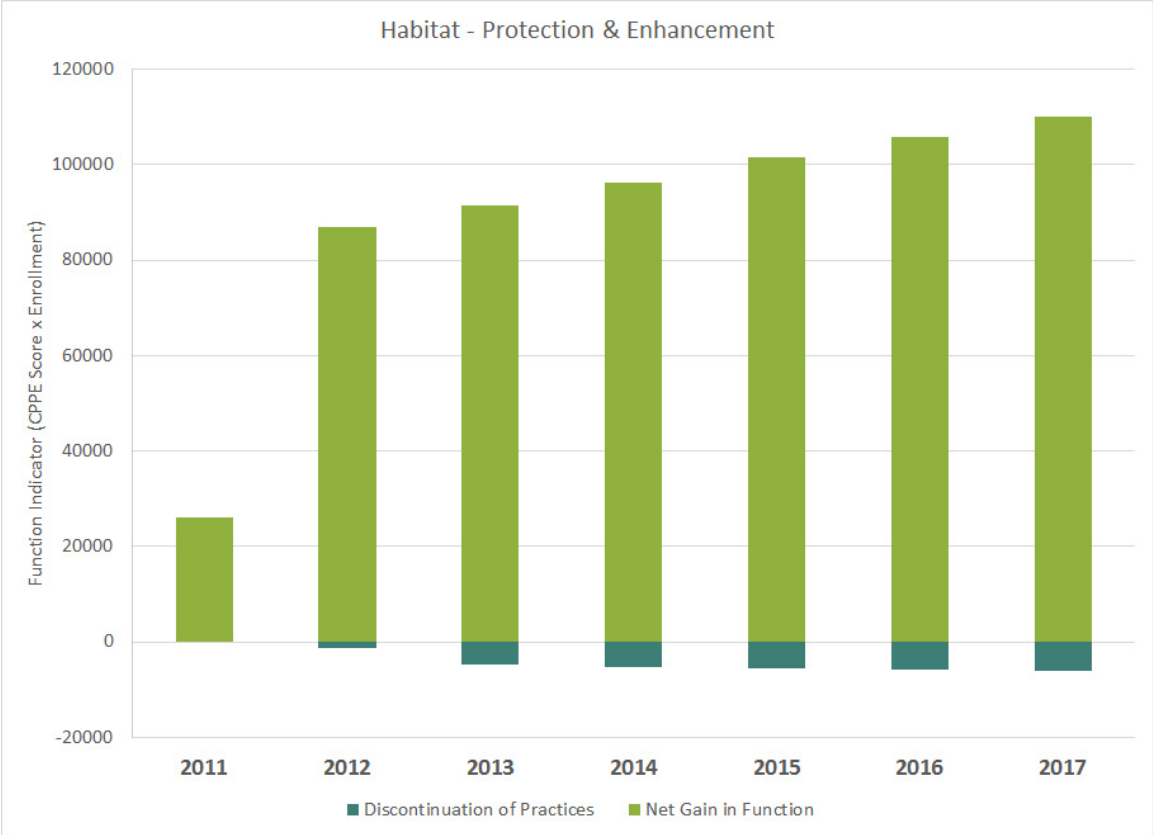


Figure 4
Habitat Functional Indictors: 2011 to 2017 NRCS Practice Enrollments



Reference

NRCS (Natural Resources Conservation Service), 2017. NRCS Conservation Practice Physical Effects CPPE|NRCS Economics. Accessed March 2017. Available at: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/econ/data/?cid=nrcs143_009740.

Attachment 1
Ferry County CPPE Resource Concerns and Scores

Ferry County VSP Work Plan	Code	Soil Erosion – Sheet and Rill	Soil Erosion – Wind	Soil Erosion – Ephemeral Gully	Soil Erosion – Classic Gully	Soil Erosion – Streambank/ Shoreline/ Conveyance	Soil Erosion Average	Soil Condition – Organic Matter Depletion	Soil Condition – Compaction	Soil Condition – Subsidence	Soil Condition – Contaminants: Salts or Other Chemicals	Soil Condition Average	Soil Function	Water Quantity – Excessive Seepage	Water Quantity – Excessive Runoff, Flooding, or Ponding	Water Quantity – Excessive Subsurface Water	Water Quantity – Drifted Snow	Water Quantity – Inefficient Water Use on Irrigated Land	Water Quantity – Inefficient Water Use on Nonirrigated Land	Hydrology Average
Access Control	472	3	1	4	4	5	3.40	1	4	0	0	2.50	2.95	1	1	2	0	0	3	1.75
Access Road	560	1	0	1	1	0	1.00	0	2	0	0	2.00	1.50	0	1	0	0	2	0	1.50
Agrichemical Handling Facility	309	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Air Filtration and Scrubbing	371	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Alley Cropping	311	5	5	5	3	0	4.50	5	2	0	1	2.67	3.58	1	1	2	3	3	0	2.00
Amending Soil Properties with Gypsum Products	333	1	1	0	0	0	1.00	1	0	0	1	1.00	1.00	0	1	0	0	1	0	1.00
Amendments for Treatment of Agricultural Waste	591	0	0	0	0	0	0.00	1	0	0	0	0.50	0.25	0	0	0	0	1	0	0.50
Anaerobic Digester	366	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Animal Mortality Facility	316	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Anionic Polyacrylamide (PAM) Erosion Control	450	2	2	2	0	0	2.00	0	2	0	0	2.00	2.00	0	0	0	0	1	1	1.00
Aquaculture Ponds	397	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Aquatic Organism Passage	396	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Bedding	310	2	0	0	0	0	2.00	-1	-1	0	1	-0.33	0.83	0	5	0	0	0	-1	2.00
Bivalve Aquaculture Gear and Biofouling Control	400	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Brush Management	314	1	1	1	1	0	1.00	0	0	0	0	0.00	0.50	0	1	0	0	0	2	1.50
Building Envelope Improvement	672	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Channel Bed Stabilization	584	0	0	0	2	2	2.00	0	0	0	0	0.00	1.00	2	2	0	0	0	0	2.00
Clearing & Snagging	326	0	0	0	0	2	2.00	0	0	0	0	0.00	1.00	0	2	0	0	0	0	2.00
Combustion System Improvement	372	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Composting Facility	317	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Conservation Cover	327	4	4	1	1	1	2.20	5	3	0	2	3.33	2.77	1	2	1	1	0	0	1.25
Conservation Crop Rotation	328	4	4	0	0	0	4.00	4	1	0	2	2.33	3.17	1	2	1	0	2	2	1.60
Constructed Wetland	656	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	2	0	0	0	0	2.00
Contour Buffer Strips	332	3	0	0	0	0	3.00	2	0	0	0	2.00	2.50	-2	1	-1	0	0	0	-0.67
Contour Farming	330	2	0	0	0	0	2.00	1	0	0	0	1.00	1.50	-2	1	-1	0	0	1	-0.25
Contour Orchard and Other Perennial Crops	331	4	0	1	0	0	2.50	2	0	0	0	2.00	2.25	-2	1	-1	0	1	2	0.20
Controlled Traffic Farming	334	0	0	0	0	0	0.00	0	4	0	0	4.00	2.00	0	0	0	0	1	1	1.00
Cover Crop	340	4	4	3	0	0	3.67	2	2	0	1	1.25	2.46	1	2	1	0	1	2	1.40
Critical Area Planting	342	5	5	5	4	4	4.60	5	2	0	1	2.67	3.63	0	0	0	0	0	0	0.00
Cross Wind Ridges	588	0	4	0	0	0	4.00	1	0	0	0	1.00	2.50	0	0	0	0	0	0	0.00
Cross Wind Trap Strips	589C	0	4	0	0	0	4.00	2	0	0	0	2.00	3.00	0	0	0	0	0	0	0.00
Dam	402	0	0	0	2	1	1.50	0	0	0	-1	-1.00	0.25	-2	2	-1	0	2	0	0.25
Dam, Diversion	348	0	0	0	0	-1	-1.00	0	0	0	0	0.00	-0.50	0	2	0	0	2	2	2.00
Deep Tillage	324	0	0	0	0	0	0.00	-4	5	-1	2	0.50	0.25	-2	0	2	0	2	2	1.00
Denitrifying Bioreactor	605	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Dike	356	0	0	0	1	-2	-0.50	0	0	0	0	0.00	-0.25	-1	2	-1	0	0	0	0.00
Diversion	362	1	0	2	2	1	1.50	0	0	0	0	0.00	0.75	-1	2	2	0	2	2	1.40
Drainage Water Management	554	0	2	0	0	0	2.00	2	-1	2	0	1.00	1.50	1	-2	2	0	0	0	0.33
Dry Hydrant	432	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	-1	-1	-1.00
Dust Control from Animal Activity on Open Lot Surfaces	375	0	2	0	0	0	2.00	0	0	0	0	0.00	1.00	0	0	0	0	0	0	0.00
Dust Control on Unpaved Roads and Surfaces	373	1	2	0	0	0	1.50	0	0	0	-1	-1.00	0.25	0	0	0	0	0	0	0.00
Early Successional Habitat Development/Mgt.	647	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Emergency Animal Mortality Management	368	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Farmstead Energy Improvement	374	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Feed Management	592	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Fence	382	1	0	0	0	0	1.00	0	1	0	0	1.00	1.00	0	0	0	0	0	0	0.00
Field Border	386	4	4	1	0	1	2.50	4	2	0	0	2.00	2.25	0	1	0	0	0	0	1.00
Field Operations Emissions Reduction	376	1	3	0	0	0	2.00	0	0	0	0	0.00	1.00	0	0	0	0	0	0	0.00
Filter Strip	393	0	0	0	0	0	0.00	5	0	0	0	5.00	2.50	0	0	0	0	0	0	0.00
Firebreak	394	-1	-1	-1	-1	0	-0.80	-2	-2	0	0	-2.00	-1.40	0	0	0	0	0	0	0.00
Fish Raceway or Tank	398	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Fishpond Management	399	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Forage and Biomass Planting	512	1	1	0	0	0	1.00	1	2	0	0	1.50	1.25	0	1	0	0	0	0	1.00
Forage Harvest Management	511	1	1	0	0	0	1.00	1	3	0	0	2.00	1.50	0	0	0	0	1	1	1.00
Forest Stand Improvement	666	1	0	1	1	0	0.75	1	-1	0	0	0.00	0.38	0	0	0	0	0	3	3.00
Forest Trails and Landings	655	-1	0	-1	-1	0	-0.75	-1	1	0	0	0.00	-0.38	0	0	0	0	0	0	0.00
Fuel Break	383	-1	-1	-1	-1	0	-1.00	-3	-1	0	0	-2.00	-1.50	0	0	-1	0	0	0	-1.00
Grade Stabilization Structure	410	0	0	0	2	2	2.00	0	0	0	0	0.00	1.00	0	0	0	0	0	0	0.00
Grassed Waterway	412	0	0	5	4	1	3.33	3	0	0	-1	1.00	2.17	0	3	2	0	0	0	2.50
Grazing Land Mechanical Treatment	548	1	1	0	0	0	1.00	1	0	0	0	1.00	1.00	0	2	0	0	0	2	2.00
Groundwater Testing	355	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Heavy Use Area Protection	561	2	2	2	2	0	2.00	0	1	0	0	0.50	1.25	0	-1	0	0	0	0	-1.00
Hedgerow Planting	422	0	1	0	0	0	1.00	2	1	0	0	1.50	1.25	0	0	0	2	0	0	2.00
Herbaceous Weed Control	315	4	4	2	2	4	3.20	0	0	0	0	0.00	1.60	0	0	0	0	2	0	2.00
Herbaceous Wind Barriers	603	0	4	0	0	0	4.00	2	0	0	0	2.00	3.00	0	0	0	0	0	3	3.00
High Tunnel System	325	0	0	-1	0	0	-1.00	1	0	0	0	1.00	0.00	0	-3	0	0	0	-1	-2.00
Hillside Ditch	423	2	0	2	2	1	1.75	0	0	0	0	0.00	0.88	0	4	0	0	0	1	2.50
Integrated Pest Management	595	2	2	2	2	0	2.00	2	2	0	0	2.00	2.00	0	0	0	0	0	0	0.00
Irrigation Canal or Lateral	320	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	2	-2	0	5	0	1.67
Irrigation Ditch Lining	428	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	1	0	-1	0	5	0	1.67
Irrigation Field Ditch	388	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	1	-1	0	5	0	1.25
Irrigation Land Leveling	464	1	0	1	0	0	1.00	-2	-2	0	-1	-1.67	-0.33	0	1	2	0	4	0	2.33
Irrigation Pipeline	430	0	0	0	2	0	2.00	0	0	0	0	0.00	1.00	1	0	1	0	2	0	1.33
Irrigation Reservoir	436	0	0	0	2	1	1.50	0	0	0	0	0.00	0.75	-1	2	-1	0	2	0	0.50
Irrigation System, Microirrigation	441	0	0	0	0	0	0.00	0	0	0	1	1.00	0.50	2	2	2	0	2	0	2.00
Irrigation System, Surface & Subsurface	443	0	1	0	-1	-1	-0.33	0	-1	0	0	-0.50	-0.42	1	1	1	0	2	0	1.25
Irrigation System, Tailwater Recovery	447	0	0	1	1	1	1.00	0	-1	0	-1	-1.00	0.00	-1	1	-1	0	2	0	0.25
Irrigation Water Management	449	0	2	0	0	0	2.00	1	0	0	2	1.50	1.75	0	0	1	0	2	0	1.50
Karst Sinkhole Treatment	527	0	0	4	4	0	4.00	0	0	0	2	2.00	3.00	0	-2	0	0	0	0	-2.00
Land Clearing	460	0	0	0	0	0	0.00	-3	-1	0	0	-2.00	-1.00	0	-1	0	0	0	0	-1.00
Land Reclamation, Abandoned Mined Land	543	4	4	4	1	0	3.25	3	1	0	4	2.67	2.96	0	3	0	0	0	0	3.00
Land Reclamation, Currently Mined Land	544	4	4	4	1	0	3.25	3	1	0	4	2.67	2.96	0	3	0	0	0	0	3.00
Land Reclamation, Landslide Treatment	453	2	2	2	0	0	2.00	2	0	0	0	0.67	1.33	2	0	2	0	0	0	2.00
Land Reclamation, Toxic Discharge Control	455	2	2	2	0	0	2.00	0	0	0	2	2.00	2.00	2	1	2	0	0	0	1.67
Land Smoothing	466	0	0	1	0	0	0.50	-2	-2	0	-1	-1.67	-0.58	2	2	2	0	2	2	2.00
Lighting System Improvement	670	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Lined Waterway or Outlet	468	0	0	5	2	0	3.50	0	0	0	0	0.00	1.75	2	2	2	0	0	0	2.00
Livestock Pipeline	516	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Livestock Shelter Structure	576	0	0	0	0	3	3.00	0	0	0	0	0.00	1.50	0	0	0	0	0	0	0.00
Mine Shaft & Adit Closing	457	0	0	0	0	0	0.00	0	0	2	0	2.00	1.00	0	0	2	0	0	0	2.00
Mole Drain	482	1	0	1	0	-1	0.20	-2	1	-2	2	-0.25	-0.03	2	2	2	0	0	0	1.20
Monitoring Well	353	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Mulching	484	4	4	0	0	0	4.00	1	0	0	1	1.00	2.50	-1	1	-1	0	2	2	0.60
Multi-Story Cropping	379	1	1	1	1	0	1.00	5	2	1	1	2.25	1.63	1	1	1	0	0	0	1.00
Nutrient Management	590	0	0	0	0	0	0.00	2	-1	0	4	1.67	0.83	0	0	0	0	0	0	0.00
Obstruction Removal	500	0	0	0	0	0	0.00	1	-1	0	0	0.00	0.00	0	0	0	2	0	0	2.00
On-Farm Secondary Containment Facility	319	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Open Channel	582	0	0	0	0	2	2.00	0	0	0	0	0.00	1.00	1	5	2	0	0	0	2.67
Pond	378	0	0	0	2	1	1.50	0	0	0	-1	-1.00	0.25	-2	2	-1	0	2	2	0.60
Pond Sealing or Lining, Concrete	522	0	0	0	0	0	0.00	0	0	0	1	1.00	0.50	1	0	2	0	2	2	1.75
Pond Sealing or Lining, Compacted Soil Treatment	520	0	0	0	0	0	0.00	0	0	0	1	1.00	0.50	1	0	2	0	2	2	1.75
Pond Sealing or Lining, Flexible Membrane	521A	0	0	0	0	0	0.00	0	0	0	1	1.00	0.50	1	0	2	0	2	2	1.75
Precision Land Forming	462	0	0	2	4	0	2.00	-2	-1	0	1	-0.67	0.67	2	2	2	0	0	2	2.00
Prescribed Burning	338	2	2	1	1	1	1.40	1	0	-1	-1	-0.33	0.53	0	1	0	0	0	0	1.00
Prescribed Grazing	528	4	4	3	1	3	3.00	4	2	0	2	2.67	2.83	0	1	0	0	0	2	1.50
Pumping Plant	533	0	0	0	0	0	0.00	0	0	2	0	2.00	1.00	2	2	2	0	2	2	2.00
Range Planting	550	4	4	4	2	2	3.20	4	4	0	1	3.00	3.10	0	0	0	1	0	2	0.75
Recreation Area Improvement	562	1	1	1	1	1	1.00	1	1	0	0	1.00	1.00	0	1	0	0	0	0	1.00
Recreation Land Grading and Shaping	566	0	0	0	4	2	1.20	1	0	0	0	0.50	0.85	0	2	0	0	0	0	2.00
Residue and Tillage Management, No Till	329	4	5	0	0	0	4.50	2	2	0	0	2.00	3.25	-1	2	-1	0	2	2	0.80
Residue and Tillage Management, Reduced Till	345	4	4	0	0	0	4.00	2	1	0	0	1.50	2.75	0	1	0	0	1	2	1.33
Restoration and Management of Rare or Declining Habitats	643	2	2	2	0	0	2.00	0	0	0	-1	-1.00	0.50	0	0	0	0	0	0	0.00
Riparian Forest Buffer	391	3	2	1	3	4	2.60	4	2	0	1	2.33	2.47	1	-1	2	0	0	0	0.67
Riparian Herbaceous Cover	390	2	2	1	0	4	2.25	4	4	0	2	3.33	2.79	2	-3	2	0	0	0	0.33
Road/Trail/Landing Closure and Treatment	654	5	1	5	5	4	4.00	5	2	0	0	2.33	3.17	1	3	4	0	0	1	2.25
Rock Barrier	555	5	0	5	1	1	3.00	0	0	0	0	0.00	1.50	1	0	1	2	0	0	1.33
Roof Runoff Structure	558	1	0	3	1	1	1.50	0	0	0	0	0.00	0.75	1	-1	1	0	0	3	1.00
Roofs and Covers	367	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	-1	0	0	0	0	-1.00
Row Arrangement	557	3	1	3	0	0	2.33	1	0	0	1	1.00	1.67	-1	2	-1	0	4	4	1.60
Salinity and Sodic Soil Management	610	0	0	0	0	0	0.00	0	0	0	2	2.00	1.00	0	0	0	0	2	2	2.00
Saturated Buffer	604	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Sediment Basin	350	0	0	2	2	0	1.33	0	0	0	0	0.00	0.67	-2	2	-2	0	0	0	-0.67
Shallow Water Development and Management	646	0	0	0	0	0	0.00	1	0	0	0	1.00	0.50	0	2	0	0	0	0	2.00
Short Term Storage of Animal Waste and Byproducts	318	0	0	0	0	0	0.00	1	1	0	0	1.00	0.50	0	0	0	0	0	0	0.00
Silvopasture Establishment	381	4	3	3	2	2	2.80	3	0	0	0	3.00	2.90	1	2	1	2	0	2	1.60
Spoil Spreading	572	0	0	0	0	0	0.00	1	-1	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Spring Development	574	0	0	0	1	1	1.00	0	-1	0	0	-1.00	0.00	2	1	2	0	2	2	1.80
Sprinkler System	442	0	2	0	0	0	2.00	0	-1	0	2	0.50	1.25	0	2	1	0	5	0	2.67
Stormwater Runoff Control	570	0	0	2	0	3	2.50	0	1	0	0	1.00	1.75	-1	4	-1	0	0	0	0.67
Streambank and Shoreline Protection	580	0	0	0	0	4	4.00	0	0	0	0	0.00	2.00	0	0	0	0	0	0	0.00
Stream Crossing	578	0	0	0	0	2	2.00	0	0	0	0	0.00	1.00	0	0	0	0	0	0	0.00
Stream Habitat Improvement and Management	395	0	0	0	0	5	5.00	0	0	0	0	0.00	2.50	0	0	0	0	0	0	0.00
Stripcropping	585	4	4	0	0	0	4.00	2	0	0	0	2.00	3.00	-2	1	-1	1	0	1	0.00
Structure for Water Control	587	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	2	0	0	2	2	2.00
Structures for Wildlife	649	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Subsurface Drain	606	4	-1	4	1	1	1.80	-2	2	-2	2	0.00	0.90	4	4	4	0	2	1	3.00
Surface Drainage, Field Ditch	607	1	-1	2	0	0	0.67	-2	1	-1	2	0.00	0.33	0	2	2	0	2	2	2.00
Surface Drainage, Main or Lateral	608	0	-1	2	0	0	0.50	0	0	0	0	0.00	0.25	0	2	2	0	2	2	2.00
Surface Roughening	609	0	3	0	0	0	3.00	0	0	0	0	0.00	1.50	0	0	0	0	0	0	0.00
Terrace	600	5	1	4	2	1	2.60	2	-1	0	0	0.50	1.55	-1	4	-1	-1	0	3	0.80
Trails and Walkways	575	1	1	1	4	2	1.80	0	2	0	0	2.00	1.90	0	2	0	0	0	0	2.00
Tree/Shrub Establishment	612	5	5	4	2	2	3.60	4	2	0	1	2.33	2.97	2	0	2	1	0	1	1.50
Tree/Shrub Site Preparation	490	-1	-1	-2	-1	0	-1.25	-2	-1	0	0	-1.50	-1.38	0	0	0	0	0	2	2.00
Tree/Shrub Pruning	660	1	0	0	0	0	1.00	1	0	0	0	1.00	1.00	0	0	0	0	0	0	0.00
Underground Outlet	620	0	0	5	4	-1	2.67	0	0	0	0	0.00	1.33	0	4	0	0	0	0	4.00
Upland Wildlife Habitat Management	645	3	3	3	2	1	2.40	0	0	0	0	0.00	1.20	0	-3	2	0	0	0	-0.50
Vegetated Treatment Area	635	4	4	0	0	0	4.00	3	3	0	-2	1.33	2.67	-1	0	-2	0	0	0	-1.50
Vegetative Barrier	601	4	1	1	0	0	2.00	0	0	0	-2	-2.00	0.00	0	0	0	0	0	0	0.00
Vertical Drain	630	0	0	0	1	0	1.00	0	0	0	0	0.00	0.50	0	4	-2	0	0	0	1.00
Waste Facility Closure	360	0	0	0	0	0	0.00	0	0	0	2	2.00	1.00	0	0	0	0	0	0	0.00
Waste Recycling	633	0	0	0	0	0	0.00	1	0	0	0	1.00	0.50	0	0	0	0	1	1	1.00
Waste Separation Facility (no)	632	0	0	0	0	0	0.00	1	0	0	0	0.50	0.25	0	0	0	0	1	0	1.00
Waste Storage Facility	313	0	0	0	0	0	0.00	1	1	0	1	1.00	0.50	0	0	0	0	1	0	1.00
Waste Transfer	634	-1	-1	-1	0	0	-1.00	0	-1	0	0	-1.00	-1.00	0	0	0	0	0	1	1.00
Waste Treatment	629	0	0	0	0	0	0.00	1	1	0	0	1.00	0.50	0	0	0	0	1	0	0.25
Waste Treatment Lagoon	359	0	0	0	0	0	0.00	1	1	0	0	1.00	0.50	0	0	0	0	1	0	0.50
Water and Sediment Control Basin	638	0	0	2	2	0	2.00	0	0	0	0	0.00	1.00	-2	2	-2	0	0	0	-0.67
Water Harvesting Catchment	636	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	1	0	0	0	0	0	1.00
Watering Facility	614	2	2	2	1	4	2.20	0	0	0	0	0.00	1.10	0	0	0	0	0	0	0.00
Water Well	642	2	2	2	0	0	2.00	0	0	0	1	1.00	1.50	0	0	2	0	2	0	2.00
Waterspreading	640	0	0	0	-1	0	-1.00	1	0	0	1	1.00	0.00	0	1	-1	0	1	2	0.75
Well Decommissioning	351	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Wetland Creation	658	0	0	0	0	0	0.00	2	0	0	0	2.00	1.00	0	2	-1	0	0	0	0.50
Wetland Enhancement	659	0	0	0	0	0	0.00	1	0	0	0	1.00	0.50	0	2	0	0	0	0	2.00
Wetland Restoration	657	0	0	0	0	0	0.00	1	0	0	0	1.00	0.50	0	2	0	0	0	0	2.00
Wetland Wildlife Habitat Management	644	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00	0	2	0	0	0	0	2.00
Windbreak/Shelterbelt Establishment	380	1	5	2	0	0	2.67	4	2	0	1	2.33	2.50	2	0	2	5	5	3	2.83
Windbreak/Shelterbelt Renovation	650	1	5	2	0	0	2.67	4	2	0	1	2.33	2.50	2	0	2	5	5	3	2.83
Woody Residue Treatment	384	1	1	1	1	0	1.00	-1	-2	0	0	-1.50	-0.25	0	0	0	0	0	1	1.00

Ferry County VSP Work Plan	Water Quality Degradation - Pesticides in Surface Water	Water Quality Degradation - Pesticides in Groundwater	Water Quality Degradation - Nutrients in Surface water	Water Quality Degradation - Nutrients in Groundwater	Water Quality Degradation - Salts in Surface Water	Water Quality Degradation - Salts in Groundwater	Water Quality Degradation - Excess Pathogens and Chemicals from Manure, Bio-solids or Compost Applications in Surface Water	Water Quality Degradation - Excess Pathogens and Chemicals from Manure, Bio-solids or Compost Applications in Groundwater	Water Quality Degradation - Excessive Sediment in Surface Water	Water Quality Degradation - Elevated Water Temperature	Water Quality Degradation - Petroleum, Heavy Metals and Other Pollutants Transported to Surface Water	Water Quality Degradation - Petroleum, Heavy Metals and Other Pollutants Transported to Groundwater	Water Quality Average	Fish and Wildlife – Inadequate Food	Fish and Wildlife – Inadequate Cover/Shelter	Fish and Wildlife – Inadequate Water	Fish and Wildlife – Inadequate Space	Habitat Average	Livestock Production Limitation - Inadequate Feed and Forage	Livestock Production Limitation - Inadequate Shelter	Livestock Production Limitation - Inadequate Water	Inefficient Energy Use - Equipment and Facilities	Inefficient Energy Use - Farming/Ranching Practices and Field Operations	Cultural Resources and/or Historic Properties Present or Suspected to be Present (Effect)
Access Control	1	0	1	1	0	0	1	1	3	3	1	1	1.44	3	3	1	1	2.00	3	1	0	0	0	-4
Access Road	0	0	0	0	0	0	0	0	1	0	0	0	1.00	0	0	0	-1	-1.00	0	0	0	1	1	-4
Agrichemical Handling Facility	5	5	5	5	0	0	0	0	0	0	0	0	5.00	0	0	0	0	0.00	0	0	0	0	0	1
Air Filtration and Scrubbing	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	-1	0	0
Alley Cropping	3	1	3	1	1	1	3	1	3	0	1	1	1.73	2	2	0	3	2.33	1	2	0	1	1	2
Amending Soil Properties with Gypsum Products	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	2
Amendments for Treatment of Agricultural Waste	0	0	2	2	2	2	2	2	0	0	2	2	2.00	0	0	0	0	0.00	0	0	1	0	0	2
Anaerobic Digester	0	0	2	0	0	0	2	0	0	0	0	0	0.67	0	0	0	0	0.00	0	0	0	0	0	2
Animal Mortality Facility	0	0	2	2	0	0	2	2	0	0	0	0	2.00	0	0	0	0	0.00	0	0	0	0	0	2
Anionic Polyacrylamide (PAM) Erosion Control	2	-1	2	-1	0	0	0	0	4	0	1	0	1.17	0	0	0	0	0.00	0	0	0	0	2	0
Aquaculture Ponds	0	0	-2	-2	0	0	-2	0	0	-2	0	0	-2.00	0	0	1	0	1.00	0	2	0	0	0	2
Aquatic Organism Passage	0	0	0	0	0	0	0	0	0	2	0	0	2.00	0	2	1	5	2.67	0	0	0	0	0	2
Bedding	-2	1	-2	1	-2	1	-2	1	-1	0	-2	1	-0.55	0	0	0	0	0.00	0	0	0	0	0	0
Bivalve Aquaculture Gear and Biofouling Control	0	0	2	0	0	0	2	0	0	0	0	0	2.00	0	0	2	0	2.00	0	0	0	0	0	2
Brush Management	-1	0	0	0	0	0	0	0	2	0	0	0	0.50	2	2	0	1	1.67	4	0	0	0	0	2
Building Envelope Improvement	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	4	0	0
Channel Bed Stabilization	0	0	0	0	0	0	0	0	1	1	0	0	1.00	1	1	1	2	1.25	0	0	0	0	0	2
Clearing & Snagging	0	0	0	0	0	0	0	0	-2	-1	0	0	-1.50	-2	-2	-1	-2	-1.75	0	0	0	0	0	2
Combustion System Improvement	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	2	0	0
Composting Facility	0	0	2	2	0	0	2	2	0	0	0	0	2.00	0	0	0	0	0.00	0	0	0	1	2	2
Conservation Cover	2	2	4	4	5	2	1	2	4	0	0	0	2.89	4	4	0	2	3.33	0	0	0	0	0	-2
Conservation Crop Rotation	2	2	2	2	1	2	1	0	2	0	0	0	1.75	2	2	0	2	2.00	2	0	0	0	1	0
Constructed Wetland	2	1	4	1	1	1	4	3	5	0	4	1	2.25	3	3	0	2	2.00	0	0	0	0	0	2
Contour Buffer Strips	2	0	2	-1	1	-1	1	-1	2	0	0	0	0.56	2	2	0	2	2.00	1	0	0	1	1	2
Contour Farming	1	-1	2	-1	1	-1	1	0	2	0	0	0	0.50	0	0	0	0	0.00	0	0	0	1	1	0
Contour Orchard and Other Perennial Crops	1	-1	2	-1	1	-1	0	0	2	0	0	0	0.43	0	0	0	0	0.00	0	0	0	1	1	2
Controlled Traffic Farming	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	
Cover Crop	2	2	2	2	0	1	1	2	2	0	0	0	1.75	2	2	0	2	2.00	2	0	0	0	2	-2
Critical Area Planting	0	0	2	1	0	0	0	0	4	0	0	0	2.33	2	2	0	2	2.00	0	0	0	0	0	-2
Cross Wind Ridges	1	0	1	0	1	0	0	0	1	0	0	0	1.00	0	0	0	0	0.00	0	0	0	0	0	-2
Cross Wind Trap Strips	2	0	2	0	1	0	0	0	1	0	0	0	1.50	0	0	0	2	2.00	1	0	0	0	0	-2
Dam	0	0	0	-1	0	0	-2	0	2	0	0	0	-0.25	2	2	1	2	1.75	0	0	4	0	0	4
Dam, Diversion	0	0	0	0	0	0	0	0	0	-2	0	0	-2.00	-2	-2	-2	-2	-2.00	0	0	4	0	0	4
Deep Tillage	0	0	1	-2	1	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	2	0	0	0	0	2
Denitrifying Bioreactor	0	0	3	1	0	0	0	0	0	0	0	0	2.00	0	0	0	0	0.00	0	0	0	0	0	
Dike	2	2	0	0	0	0	0	0	0	0	0	0	1.33	-2	-2	1	1	-0.50	0	0	0	0	0	4
Diversion	1	1	0	-1	0	0	1	0	2	0	1	0	0.71	0	0	0	0	0.00	0	0	0	0	0	4
Drainage Water Management	2	2	1	-1	0	0	1	1	0	0	2	0	0.89	0	0	2	2	2.00	4	0	0	0	0	0
Dry Hydrant	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	2
Dust Control from Animal Activity on Open Lot Surfaces	0	0	1	0	1	0	1	0	0	0	0	0	1.00	0	0	0	0	0.00	0	0	0	0	0	2
Dust Control on Unpaved Roads and Surfaces	0	0	-1	0	-1	0	0	0	1	0	-1	0	-0.50	0	0	0	0	0.00	0	0	0	0	0	0
Early Successional Habitat Development/Mgt.	0	0	0	0	0	0	0	0	0	-2	0	0	-1.00	4	4	0	4	4.00	1	0	0	0	0	0
Emergency Animal Mortality Management	0	0	2	2	0	0	2	2	0	0	0	0	2.00	0	0	0	0	0.00	0	0	0	0	0	
Farmstead Energy Improvement	0	0	0	0	0	0	0	0	0	-2	0	0	-2.00	0	0	0	0	0.00	0	0	0	4	0	0
Feed Management	0	0	2	2	1	0	1	1	0	0	0	0	1.40	0	0	0	0	0.00	5	0	0	0	1	0
Fence	0	0	0	0	0	0	2	0	0	0	0	0	2.00	0	0	0	0	0.00	3	0	0	0	0	2
Field Border	2	2	1	1	0	1	1	0	2	0	0	0	1.43	2	2	0	2	2.00	0	0	0	0	0	-2
Field Operations Emissions Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	
Filter Strip	2	1	5	2	1	1	3	1	5	0	4	1	2.36	2	2	0	2	2.00	0	0	0	0	0	-5
Firebreak	0	0	0	0	0	0	0	0	-1	0	0	0	-1.00	0	0	0	-1	-1.00	0	0	0	2	0	2
Fish Raceway or Tank	0	0	-1	-1	-1	0	-1	-1	0	-1	0	0	-1.00	0	0	0	0	0.00	5	5	0	0	0	2
Fishpond Management	0	0	0	-2	0	0	0	0	0	0	0	0	-2.00	4	4	2	4	3.50	0	0	0	0	0	0
Forage and Biomass Planting	1	0	1	0	0	0	1	0	1	0	1	0	1.00	1	1	0	0	1.00	5	0	0	0	0	0
Forage Harvest Management	2	0	1	0	0	0	1	0	1	0	1	0	1.25	1	1	0	0	1.00	2	0	0	0	0	0
Forest Stand Improvement	0	0	1	2	1	0	1	1	0	1	1	1	0.75	3	1	0	3	2.33	2	0	0	1	1	2
Forest Trails and Landings	0	0	1	0	0	0	0	0	0	0	0	0	0.50	1	1	0	-1	0.33	1	0	0	0	1	0
Fuel Break	-1	-1	0	0	0	0	0	0	-1	0	0	0	-1.00	1	-1	0	0	0.40	1	-1	0	1	0	2
Grade Stabilization Structure	0	0	0	0	0	0	0	0	2	0	0	0	1.00	2	2	1	0	1.67	0	0	0	0	0	2
Grassed Waterway	2	0	2	0	0	0	1	0	2	0	1	0	1.33	1	1	1	1	1.00	1	0	0	1	1	2
Grazing Land Mechanical Treatment	0	0	1	0	0	0	1	0	5	0	0	0	2.33	0	0	0	0	0.00	1	0	0	0	0	2
Groundwater Testing	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	
Heavy Use Area Protection	0	0	1	0	0	0	2	0	2	0	0	0	1.67	0	0	0	0	0.00	0	0	0	0	0	0
Hedgerow Planting	1	0	2	0	0	0	0	0	1	1	0	0	1.33	4	4	0	4	4.00	0	1	0	0	0	2
Herbaceous Weed Control	-1	0	0	0	0	0	0	0	0	0	0	0	-0.25	2	2	0	1	1.67	4	0	0	0	0	-1
Herbaceous Wind Barriers	1	0	1	0	0	0	0	0	1	0	0	0	1.00	2	2	0	2	2.00	0	0	0	0	0	0
High Tunnel System	0	0	0	0	0	0	0	0	-1	0	0	0	-1.00	0	0	0	0	0.00	0	0	0	0	0	
Hillside Ditch	1	0	-1	-1	0	0	-2	0	2	0	-1	0	-0.25	0	0	1	0	1.00	0	0	0	0	0	2
Integrated Pest Management	5	5	0	0	0	0	0	0	2	0	0	0	4.00	2	0	2	0	2.00	0	0	2	0	2	0
Irrigation Canal or Lateral	0	0	-2	0	0	0	-2	0	2	0	0	0	-1.33	0	0	1	0	1.00	0	0	0	0	0	0
Irrigation Ditch Lining	0	0	1	1	1	2	-1	1	1	0	-1	1	0.60	0	0	1	0	1.00	0	0	0	0	2	2
Irrigation Field Ditch	0	0	0	0	0	0	-1	0	0	0	1	0	0.00	0	0	1	0	1.00	0	0	0	0	0	2
Irrigation Land Leveling	2	2	2	2	0	2	2	2	1	0	1	1	1.70	0	0	0	0	0.00	0	0	0	0	2	4
Irrigation Pipeline	0	0	1	0	1	2	1	1	1	0	0	1	1.14	0	0	0	0	0.00	0	0	0	0	2	2
Irrigation Reservoir	0	0	0	-1	0	0	0	0	2	0	0	0	0.50	2	-1	2	-1	0.50	0	0	4	0	2	-4
Irrigation System, Microirrigation	2	2	2	2	0	2	2	1	1	0	1	1	1.60	0	0	1	0	1.00	4	0	0	2	2	2
Irrigation System, Surface & Subsurface	1	1	1	1	1	1	1	1	0	0	1	1	1.00	0	0	1	0	1.00	4	0	0	0	2	0
Irrigation System, Tailwater Recovery	2	2	2	-1	1	-1	1	0	1	0	4	-1	0.73	0	0	1	0	1.00	0	0	0	0	2	2
Irrigation Water Management	2	2	2	2	2	2	2	2	2	0	2	2	2.00	0	0	0	0	0.00	4	0	0	0	2	2
Karst Sinkhole Treatment	2	2	2	2	0	2	2	2	2	0	0	2	2.00	0	0	0	0	0.00	0	0	0	0	2	2
Land Clearing	-1	0	-1	0	0	0	-1	0	-1	-2	-1	0	-1.00	-2	-2	0	-2	-2.00	0	-2	0	0	0	2
Land Reclamation, Abandoned Mined Land	0	0	0	0	1	1	3	0	4	0	0	1	2.00	2	2	0	1	1.67	4	0	0	0	0	2
Land Reclamation, Currently Mined Land	0	0	0	0	1	1	3	0	4	0	0	1	2.00	2	2	0	1	1.67	4	0	0	0	0	2
Land Reclamation, Landslide Treatment	0	0	0	0	0	0	1	0	4	0	4	0	3.00	2	2	0	0	2.00	0	0	0	0	0	2
Land Reclamation, Toxic Discharge Control	0	0	0	0	0	2	0	0	0	0	4	2	2.67	2	2	0	0	2.00	0	0	0	0	0	2
Land Smoothing	1	1	1	2	0	0	0	0	1	0	1	0	1.17	0	0	0	-1	-1.00	0	0	0	0	0	2
Lighting System Improvement	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	4	0	
Lined Waterway or Outlet	0	0	0	2	0	0	0	0	2	0	0	0	2.00	-2	1	0	0	-0.50	0	0	0	0	0	0
Livestock Pipeline	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	5	0	2	2
Livestock Shelter Structure	0	0	3	0	0	0	2	0	2	0	0	0	2.33	0	0	0	0	0.00	3	5	0	0	0	3
Mine Shaft & Adit Closing	0	0	0	0	0	2	0	0	0	0	2	1	1.67	0	0	0	2	2.00	0	0	0	0	0	2
Mole Drain	1	1	-4	2	-2	2	0	2	1	0	0	2	0.56	0	0	0	0	0.00	4	0	0	0	0	2
Monitoring Well	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Mulching	2	0	2	-1	1	-1	0	0	2	0	0	0	0.83	1	1	0	0	1.00	0	0	0	0	0	2
Multi-Story Cropping	3	1	1	0	1	0	1	1	1	0	1	1	1.10	3	1	0	1	1.67	0	0	0	0	0	0
Nutrient Management	0	0	5	5	3	3	4	4	0	0	2	2	3.50	0	0	0	0	0.00	4	0	0	0	0	2
Obstruction Removal	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	-2	0	0	-2.00	0	-1	0	0	0	2
On-Farm Secondary Containment Facility	0	0	0	0	0	0	0	0	0	0	5	5	5.00	0	0	0	0	0.00	0	0	0	0	0	
Open Channel	0	0	-1	0	0	0	0	0	0	0	-1	0	-0.67	0	0	-2	0	-0.50	0	0	0	0	0	2
Pond	0	0	2	-1	0	0	-2	0	2	0	0	0	0.20	2	2	4	2	2.50	0	0	5	0	0	0
Pond Sealing or Lining, Concrete	0	0	2	2	0	3	0	2	0	0	0	1	2.00	0	0	1	0	1.00	0	0	4	0	0	0
Pond Sealing or Lining, Compacted Soil Treatment	0	0	2	2	0	3	0	2	0	0	0	1	2.00	0	0	1	0	1.00	0	0	4	0	0	0
Pond Sealing or Lining, Flexible Membrane	0	0	2	2	0	3	0	2	0	0	0	1	2.00	0	0	1	0	1.00	0	0	4	0	0	0
Precision Land Forming	1	1	1	2	0	1	0	1	1	0	1	1	1.11	0	0	0	0	0.00	0	0	0	0	0	2
Prescribed Burning	0	0	2	1	0	0	0	0	1	0	1	0	1.25	2	2	0	4	2.67	5	-1	0	0	1	2
Prescribed Grazing	2	1	1	1	2	1	1	1	2	1	0	0	1.30	2	2	0	4	2.67	5	2	0	0	0	0
Pumping Plant	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	5	4	2	2
Range Planting	2	2	1	1	1	1	1	1	2	1	2	1	1.33	2	2	0	4	2.67	5	0	0	0	0	0
Recreation Area Improvement	1	1	0	0	0	0	0	0	1	0	0	0	1.00	1	1	0	-1	0.33	0	0	0	0	0	2
Recreation Land Grading and Shaping	0	0	0	0	0	0	0	0	2	0	0	0	2.00	-2	-2	0	-2	-2.00	0	0	0	0	0	2
Residue and Tillage Management, No Till	4	0	2	-1	0	0	1	0	4	0	0	0	2.00	2	2	0	1	1.67	0	0	0	4	4	0
Residue and Tillage Management, Reduced Till	4	0	2	0	1	0	1	0	3	0	0	0	2.20	2	2	0	1	1.67	0	0	0	2	2	0
Restoration and Management of Rare or Declining Habitats	0	0	0	0	0	0	0	0	2	2	0	0	2.00	4	4	4	4	4.00	2	0	0	0	0	0
Riparian Forest Buffer	3	1	5	5	1	1	3	1	5	5	3	1	2.83	5	5	1	5	4.00	0	0	0	0	0	-2
Riparian Herbaceous Cover	2	2	5	5	1	1	3	2	4	2	2	1	2.50	4	4	2	4	3.50	4	0	0	0	2	0
Road/Trail/Landing Closure and Treatment	0	0	1	1	0	0	1	1	3	1	3	1	1.50	1	1	1	3	1.50	1	0	0	0	0	0
Rock Barrier	0	0	0	0	1	-1	1	0	2	0	1	0	0.80	0	0	0	0	0.00	0	0	0	0	0	2
Roof Runoff Structure	0	0	2	2	2	0	2	0	1	0	0	0	1.80	0	0	0	0	0.00	0	0	2	0	0	0
Roofs and Covers	0	0	0	0	0	0	0	1	0	0	1	1	1.00	0	0	0	0	0.00	0	0	0	1	0	2
Row Arrangement	1	-1	-2	2	0	0	1	0	2	0	0	0	0.43	0	0	0	0	0.00	0	0	0	0	0	0
Salinity and Sodic Soil Management	0	0	0	0	-2	-2	0	-1	0	0	0	-1	-1.50	0	0	0	0	0.00	4	0	0	0	0	0
Saturated Buffer	0	0	5	0	0	0	0	0	0	0	0	0	5.00	0	0	0	0	0.00	0	0	0	0	0	
Sediment Basin	2	-1	5	-1	2	-1	2	-1	4	0	2	-1	1.00	-1	-1	1	0	-0.33	0	0	0	0	0	4
Shallow Water Development and Management	0	0	1	1	0	-1	2	-1	2	0	2	1	0.70	4	2	2	4	3.00	1	0	0	0	0	2
Short Term Storage of Animal Waste and Byproducts	0	0	4	2	2	1	2	2	0	0	0	1	2.00	0	0	0	0	0.00	0	0	0	0	0	
Silvopasture Establishment	2	1	3	2	1	1	1	1	3	1	1	1	1.50	1	1	0	1	1.00	3	4	0	1	0	2
Spoil Spreading	0	0	0	0	0	0	0	0	2	0	0	0	2.00	0	0	0	0	0.00	1	0	0	0	0	0
Spring Development	0	0	0	0	1	0	1	0	1	0	2	0	1.25	0	0	4	2	3.00	2	0	5	0	0	2
Sprinkler System	2	2	2	1	2	2	2	1	1	0	1	1	1.55	0	0	1	0	1.00	4	0	0	2	2	0
Stormwater Runoff Control	0	0	2	0	0	0	0	0	4	0	2	0	2.67	0	0	0	0	0.00	0	0	0	0	0	2
Streambank and Shoreline Protection	0	0	1	0	0	0	1	0	2	1	0	0	1.25	2	2	0	2	1.50	1	0	0	0	0	2
Stream Crossing	0	0	1	0	0	0	-3	2	2	0	0	0	0.50	0	0	0	0	0.00	2	0	2	0	0	2
Stream Habitat Improvement and Management	0	0	0	0	0	0	0	0	2	2	0	0	2.00	2	3	3	4	3.00	0	0	0	0	0	2
Stripcropping	2	0	2	0	1	-1	1	0	2	0	0	0	1.17	2	2	0	1	1.67	0	0	0	0	0	0
Structure for Water Control	0	0	0	0	0	0	0	0	1	1	0	0	1.00	0	0	2	0	2.00	0	0	1	0	0	2
Structures for Wildlife	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	4	0	0	4.00	0	0	0	0	0	0
Subsurface Drain	2	2	-2	1	-2	2	0	1	2	0	0	1	0.70	0	0	0	0	0.00	4	0	0	0	0	2
Surface Drainage, Field Ditch	0	1	-2	1	-2	1	-2	1	1	0	-2	1	-0.20	0	0	0	0	0.00	4	0	0	0	0	2
Surface Drainage, Main or Lateral	0	0	-2	1	-2	2	-2	2	-1	0	-2	2	-0.22	0	0	0	0	0.00	4	0	0	0	0	2
Surface Roughening	0	0	0	0	0	0	0	-1	1	0	0	0	0.00	0	0	0	0	0.00	0	0	0	-3	-3	0
Terrace	2	-2	2	-2	2	-2	2	-1	2	0	2	-1	0.36	0	1	0	0	1.00	0	0	0	1	1	2
Trails and Walkways	0	0	0	0	0	0	1	0	2	0	2	0	1.50	4	4	2	0	3.33	1	0	1	0	0	2
Tree/Shrub Establishment	1	1	1	1	1	1	1	1	3	1	1	1	1.17	1	3	0	3	2.33	0	1	0	1	1	2
Tree/Shrub Site Preparation	-1	-1	0	0	0	0	0	0	-1	0	0	0	-0.50	0	0	0	0	0.00	0	0	0	0	0	2
Tree/Shrub Pruning	1	1	1	1	0	0	0	0	0	0	0	0	1.00	1	1	0	0	1.00	0	0	0	1	1	0
Underground Outlet	-1	0	-1	0	0	0	-1	0	0	0	1	0	-0.50	0	0	0	0	0.00	0	0	0	1	1	2
Upland Wildlife Habitat Management	0	0	0	0	0	0	0	0	2	0	0	0	2.00	5	5	0	5	5.00	2	0	0	0	0	0
Vegetated Treatment Area	0	0	4	-2	2	-2	5	0	2	0	0	0	1.50	0	0	0	0	0.00	1	0	0	0	0	1
Vegetative Barrier	2	0	2	0	1	0	1	0	2	0	0	0	1.60	1	1	1	1	1.00	0	0	0	0	0	2
Vertical Drain	0	-2	1	-2	1	-1	1	-1	1	0	1	-1	-0.20	0	0	0	0	0.00	0	0	0	0	0	2
Waste Facility Closure	0	0	2	2	0	1	0	2	0	0	0	0	1.75	0	0	0	0	0.00	0	0	0	0	0	0
Waste Recycling	0	0	2	2	2	2	0	2	0	0	0	0	1.43	0	0	0	0	0.00	1	0	0	0	0	2
Waste Separation Facility (no)	0	0	2	2	2	2	2	2	0	0	2	2	2.00	0	0	0	0	0.00	0	0	1	0	0	
Waste Storage Facility	0	0	4	2	2	1	2	2	0	0	0	1	1.75	0	0	0	0	0.00	0	0	0	0	0	2
Waste Transfer	0	0	2	2	2	2	2	2	0	0	0	0	1.50	0	0	0	0	0.00	0	0	0	0	0	1
Waste Treatment	0	0	2	2	2	2	2	2	0	0	2	2	2.00	0	0	0	0	0.00	0	0	1	0	0	2
Waste Treatment Lagoon	0	0	4	2	2	1	4	2	0	0	0	1	2.00	0	0	0	0	0.00	0	0	0	1	0	2
Water and Sediment Control Basin	0	-1	0	-1	0	-1	0	-1	4	-2	0	-1	-0.43	0	0	2	0	2.00	0	0	0	0	0	1
Water Harvesting Catchment	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0	4	2	3.00	0	0	5	0	0	2
Watering Facility	0	0	4	0	1	0	2	1	2	1	1	0	1.71	0	0	5	3	4.00	2	0	5	0	0	2
Water Well	0	0	0	0	0	0	-1	0	0	0	0	0	-1.00	0	0	2	0	2.00	2	0	5	0	0	2
Waterspreading	1	-1	2	-1	1	-1	0	-1	0	0	1	-1	0.00	2	2	1	0	1.67	4	0	0	0	0	2
Well Decommissioning	0	2	0	2	0	2	0	2	0	0	0	2	2.00	0	0	0	0	0.00	0	0	0	0	0	0
Wetland Creation	1	1	3	1	1	0	1	0	2	0	2	0	1.50	5	5	2	4	4.00	2	0	0	0	0	2
Wetland Enhancement	1	1	3	1	1	0	1	0	2	0	2	0	1.50	5	5	2	4	4.00	2	0	0	0	0	2
Wetland Restoration	1	1	3	1	1	0	1	0	2	0	2	0	1.50	5	5	2	4	4.00	2	0	0	0	0	2
Wetland Wildlife Habitat Management	0	0	0	0	0	0	1	0	3	0	0	0	2.00	5	5	2	4	4.00	2	0	0	0	0	0
Windbreak/Shelterbelt Establishment	3	0	1	1	0	0	0	0	1	0	1	0	1.40	3	3	0	3	3.00	1	5	0	3	1	2
Windbreak/Shelterbelt Renovation	3	0	1	1	0	0	0	0	1	0	1	0	1.40	3	3	0	3	3.00	1	5	0	3	1	2
Woody Residue Treatment	0	0	0	0	0	0	0	0	1	0	0	0	1.00	0	0	0	0	0.00	3	1	0	0	1	2

Ferry County VSP Work Plan	Capital - Total Investment Cost (Effect)	Capital - Annual O&M Cost (Effect)	Profitability - Change in Profitability Effect (Effect)	Risk - Yield Effect (Effect)	Risk - Cash Flow Effect (Effect)	Land - Change in Land Use (Effect)	Land - Land in Production (Effect)	Capital - Change in Equipment (Effect)	Labor - Labor (Effect)	Labor - Change in Management Level (Effect)	Risk - Flexibility and Timing (Effect)	Agr Viability	Wetlands	Fish/Wildlife Habitat Conservation Areas	Critical Aquifer Recharge Areas	Geologically Hazardous Areas (Erosion)	Frequently Flooded Areas
Access Control	-2	-3	-5	0	0	3	-3	0	3	3	-3	-0.64	1.73	2.00	0.60	3.40	2.22
Access Road	-2	-5	-4	2	0	1	-1	0	1	1	5	-0.33	0.50	-1.00	0.00	1.00	0.90
Agrichemical Handling Facility	-5	-1	-5	1	0	1	-1	-5	-1	-2	2	-1.36	1.67	0.00	2.00	0.00	1.00
Air Filtration and Scrubbing	-5	-5	-5	0	0	0	0	-5	-1	0	2	-2.86	0.00	0.00	0.00	0.00	0.00
Alley Cropping	-1	-1	-3	2	0	3	-3	0	2	-2	-3	0.07	2.02	2.33	1.00	4.50	2.65
Amending Soil Properties with Gypsum Products	-1	0	-3	0	0	0	0	0	-1	-1	4	0.00	0.33	0.00	0.00	1.00	0.60
Amendments for Treatment of Agricultural Waste	-5	-5	-3	0	0	1	-1	-5	-3	-3	2	-1.73	0.83	0.00	1.60	0.00	0.60
Anaerobic Digester	-5	-5	-1	0	0	1	-1	-5	-2	-3	2	-1.70	0.22	0.00	0.00	0.00	0.13
Animal Mortality Facility	-1	-1	0	0	0	1	-1	0	2	2	4	1.00	0.67	0.00	0.80	0.00	0.40
Anionic Polyacrylamide (PAM) Erosion Control	-1	0	0	2	5	0	0	-1	1	-1	2	1.13	0.72	0.00	-0.40	2.00	1.23
Aquaculture Ponds	-5	-3	0	5	-2	2	-1	-1	-2	-4	2	-0.42	-0.33	1.00	-0.40	0.00	-0.20
Aquatic Organism Passage	-5	-3	2	0	-1	0	0	-2	-1	2	2	-0.44	1.56	2.67	0.00	0.00	0.93
Bedding	-2	0	0	2	0	0	0	-1	-1	-1	4	0.17	0.48	0.00	1.00	2.00	0.62
Bivalve Aquaculture Gear and Biofouling Control	-5	-3	0	0	0	0	0	-5	-1	2	2	-1.67	1.33	2.00	0.00	0.00	0.80
Brush Management	-3	-1	5	5	3	0	4	0	1	2	4	2.36	1.22	1.67	0.00	1.00	0.93
Building Envelope Improvement	-5	0	0	0	-4	0	0	0	0	0	2	-0.75	0.00	0.00	0.00	0.00	0.00
Channel Bed Stabilization	-2	-5	-2	0	0	0	0	0	1	1	2	-0.43	1.42	1.25	0.00	2.00	1.25
Clearing & Snagging	-2	-5	-3	0	0	0	0	0	1	1	2	-0.57	-0.42	-1.75	0.00	2.00	0.15
Combustion System Improvement	-5	-2	-5	0	0	0	0	-5	0	0	0	-3.00	0.00	0.00	0.00	0.00	0.00
Composting Facility	-5	-2	-5	0	0	1	-1	-5	-2	-2	2	-1.17	0.67	0.00	0.80	0.00	0.40
Conservation Cover	-2	-3	-5	0	0	5	-3	0	1	2	-3	-1.11	2.49	3.33	2.00	2.20	2.60
Conservation Crop Rotation	-2	0	0	2	5	0	0	0	-1	-2	2	0.88	1.78	2.00	1.20	4.00	2.34
Constructed Wetland	-5	-1	0	0	0	5	-3	0	2	1	-1	-0.11	2.08	2.00	1.40	0.00	1.25
Contour Buffer Strips	-2	-2	1	2	4	2	-1	0	-1	-1	-1	0.43	0.63	2.00	-0.60	3.00	1.38
Contour Farming	-1	0	0	1	5	0	0	0	-1	-1	-1	0.50	0.08	0.00	-0.60	2.00	0.65
Contour Orchard and Other Perennial Crops	-1	-1	4	1	2	0	0	0	-1	-1	-1	0.55	0.21	0.00	-0.60	2.50	1.03
Controlled Traffic Farming												0.00	0.33	0.00	0.00	0.00	1.00
Cover Crop	-2	0	-1	2	0	0	3	0	-1	-1	-1	0.10	1.72	2.00	1.40	3.67	2.01
Critical Area Planting	-2	-3	-5	0	0	2	-1	0	1	2	-1	-1.00	1.44	2.00	0.20	4.60	2.32
Cross Wind Ridges	-2	-5	0	2	0	0	-1	0	-1	-1	-1	-1.38	0.33	0.00	0.00	4.00	1.20
Cross Wind Trap Strips	-2	-5	0	2	0	0	-1	0	-1	1	-1	-0.89	1.17	2.00	0.00	4.00	1.90
Dam	-5	-3	0	0	0	5	-2	-1	-2	-4	4	0.00	0.58	1.75	-0.20	1.50	0.45
Dam, Diversion	-5	-3	0	2	0	5	-2	-2	-2	-3	4	0.18	-0.67	-2.00	0.00	-1.00	-0.60
Deep Tillage	-2	0	1	1	4	0	0	-1	-1	0	2	0.89	0.33	0.00	-0.40	0.00	0.30
Denitrifying Bioreactor												0.00	0.67	0.00	0.20	0.00	0.40
Dike	-5	-5	5	2	5	2	-1	0	1	-2	4	0.91	0.28	-0.50	0.40	-0.50	0.07
Diversion	-1	-2	0	2	-1	1	-1	0	-2	-2	4	0.20	0.70	0.00	0.00	1.50	0.72
Drainage Water Management	-2	-3	5	2	4	4	3	-1	-1	-3	4	1.33	1.07	2.00	0.40	2.00	1.24
Dry Hydrant	-4	-1	-5	0	0	0	0	-1	-1	0	2	-1.14	-0.33	0.00	0.00	0.00	-0.20
Dust Control from Animal Activity on Open Lot Surfaces	-5	0	-2	0	0	0	0	-5	-1	1	2	-1.67	0.33	0.00	0.00	2.00	0.60
Dust Control on Unpaved Roads and Surfaces	-5	0	-2	0	0	0	0	-5	-1	-1	2	-2.00	-0.17	0.00	0.00	1.50	0.00
Early Successional Habitat Development/Mgt.	-3	-1	-4	0	0	4	-3	0	-1	-2	2	-0.78	1.00	4.00	0.00	0.00	0.60
Emergency Animal Mortality Management												0.00	0.67	0.00	0.80	0.00	0.40
Farmstead Energy Improvement	-5	-1	1	0	-1	0	0	-5	0	-1	2	-0.75	-0.67	0.00	0.00	0.00	-0.40
Feed Management	-5	0	-3	0	0	0	0	0	-2	-2	-1	-1.00	0.47	0.00	0.60	0.00	0.28
Fence	-1	-2	0	2	-5	0	0	0	1	-1	4	0.33	0.67	0.00	0.00	1.00	0.80
Field Border	-2	-1	-3	1	0	1	-1	0	-1	-1	-1	-1.00	1.48	2.00	0.80	2.50	1.79
Field Operations Emissions Reduction												0.00	0.00	0.00	0.00	2.00	0.40
Filter Strip	-2	-2	-3	1	0	1	-1	0	-1	-1	-1	-1.40	1.45	2.00	1.20	0.00	1.87
Firebreak	-5	-5	-3	0	0	1	-1	0	-1	-1	4	-0.70	-0.67	-1.00	0.00	-0.80	-0.96
Fish Raceway or Tank	-2	-3	5	0	5	2	-1	-5	-3	-3	2	0.69	-0.33	0.00	-0.40	0.00	-0.20
Fishpond Management	-2	0	-2	4	0	0	0	0	-3	3	2	0.33	0.50	3.50	-0.40	0.00	0.30
Forage and Biomass Planting	-3	-1	0	4	-2	5	3	0	2	-1	2	1.40	1.00	1.00	0.00	1.00	1.10
Forage Harvest Management	-2	0	1	1	2	0	0	0	-1	-2	-1	0.00	1.08	1.00	0.00	1.00	1.25
Forest Stand Improvement	-4	0	0	4	-3	0	3	0	-1	-2	2	0.45	2.03	2.33	0.80	0.75	1.37
Forest Trails and Landings	-4	-2	-5	0	0	1	-1	0	1	-1	4	-0.50	0.28	0.33	0.00	-0.75	0.02
Fuel Break	-2	0	-5	0	0	1	-1	-2	-1	-1	4	-0.33	-0.53	0.40	-0.20	-1.00	-0.92
Grade Stabilization Structure	-5	-1	-5	1	0	1	-1	0	1	0	2	-0.56	0.89	1.67	0.00	2.00	0.93
Grassed Waterway	-2	-2	-4	0	0	2	-2	0	2	-2	2	-0.08	1.61	1.00	0.00	3.33	1.83
Grazing Land Mechanical Treatment	-5	0	-1	5	0	0	0	0	0	0	2	0.67	1.44	0.00	0.00	1.00	1.27
Groundwater Testing												0.00	0.00	0.00	0.00	0.00	0.00
Heavy Use Area Protection	-4	-5	-5	0	0	1	-1	0	1	-1	2	-1.50	0.22	0.00	0.00	2.00	0.63
Hedgerow Planting	-5	-5	-4	1	0	1	-1	0	-1	-1	-1	-1.18	2.44	4.00	0.00	1.00	1.97
Herbaceous Weed Control	-3	0	0	4	1	0	0	0	-1	-1	2	0.63	1.14	1.67	0.00	3.20	1.32
Herbaceous Wind Barriers	-5	-3	-2	2	0	1	-1	0	-1	-1	2	-0.89	2.00	2.00	0.00	4.00	2.40
High Tunnel System												0.00	-1.00	0.00	0.00	-1.00	-0.60
Hillside Ditch	-1	-5	1	2	3	1	-1	-1	-1	1	4	0.42	1.08	1.00	-0.20	1.75	1.00
Integrated Pest Management	-2	0	0	2	5	0	0	-1	-1	-3	2	0.67	2.00	2.00	1.00	2.00	2.00
Irrigation Canal or Lateral	-1	-5	0	2	0	1	-1	-1	-1	-1	4	-0.33	0.44	1.00	0.00	0.00	0.27
Irrigation Ditch Lining	-2	-3	-3	2	0	0	0	0	1	0	2	0.13	1.09	1.00	1.00	0.00	0.65
Irrigation Field Ditch	-1	-5	-1	2	0	1	-1	-1	-1	-1	4	-0.18	0.75	1.00	0.00	0.00	0.45
Irrigation Land Leveling	-2	-3	1	2	-2	0	1	0	1	0	4	0.80	1.34	0.00	1.80	1.00	0.67
Irrigation Pipeline	-1	-1	5	2	3	0	1	-1	3	3	4	1.83	0.83	0.00	0.80	2.00	0.90
Irrigation Reservoir	-5	-1	3	0	-1	5	-2	-2	2	-3	5	0.23	0.50	0.50	-0.20	1.50	0.60
Irrigation System, Microirrigation	-4	-5	0	5	-1	0	3	-1	2	-2	4	0.85	1.53	1.00	1.60	0.00	1.12
Irrigation System, Surface & Subsurface	-2	-3	5	1	3	0	3	-1	1	-1	2	1.17	1.08	1.00	1.00	-0.33	0.48
Irrigation System, Tailwater Recovery	-5	-3	-5	2	0	1	-1	-3	-1	-1	2	-0.83	0.66	1.00	-0.20	1.00	0.40
Irrigation Water Management	-2	0	1	2	5	0	1	-1	-1	-2	2	1.00	1.17	0.00	2.00	2.00	1.40
Karst Sinkhole Treatment	-5	0	-5	0	0	2	2	0	-1	0	2	-0.43	0.00	0.00	2.00	4.00	1.20
Land Clearing	-3	-2	3	5	2	4	5	0	0	0	4	1.80	-1.33	-2.00	0.00	0.00	-1.20
Land Reclamation, Abandoned Mined Land	-5	0	-3	5	0	3	5	0	0	-1	5	1.67	2.22	1.67	0.40	3.25	2.52
Land Reclamation, Currently Mined Land	-5	0	-3	5	0	3	5	0	0	-1	5	1.67	2.22	1.67	0.40	3.25	2.52
Land Reclamation, Landslide Treatment	-5	0	0	5	-4	3	4	0	-1	-1	5	0.89	2.33	2.00	0.00	2.00	1.93
Land Reclamation, Toxic Discharge Control	-5	0	-1	5	0	3	3	-1	-2	-1	5	0.80	2.11	2.00	0.80	2.00	2.07
Land Smoothing	-2	0	5	2	3	0	1	0	0	0	4	2.14	0.72	-1.00	0.60	0.50	0.20
Lighting System Improvement												4.00	0.00	0.00	0.00	0.00	0.00
Lined Waterway or Outlet	-1	-5	-3	2	0	0	0	0	1	0	2	-0.67	1.17	-0.50	0.40	3.50	1.40
Livestock Pipeline	-2	-1	5	2	5	0	3	-1	1	-1	4	1.85	0.00	0.00	0.00	0.00	0.00
Livestock Shelter Structure		5	0	0	0	0	1	4	1	0	-1	2.63	0.78	0.00	0.00	3.00	1.07
Mine Shaft & Adit Closing	-5	0	-4	0	0	0	1	0	1	0	4	-0.17	1.89	2.00	0.60	0.00	1.53
Mole Drain	-2	0	-4	2	0	0	2	-1	-1	0	2	0.44	0.59	0.00	1.80	0.20	0.34
Monitoring Well	-3	-5	-5	0	0	0	0	-5	-1	-2	2	-2.71	0.00	0.00	0.00	0.00	0.00
Mulching	-2	0	0	2	0	0	0	0	-1	0	2	0.60	0.81	1.00	-0.40	4.00	1.49
Multi-Story Cropping	-2	0	2	2	5	3	3	-1	-1	-2	-1	0.80	1.26	1.67	0.60	1.00	1.40
Nutrient Management	-1	-5	0	1	5	0	0	-1	-1	-3	2	0.30	1.17	0.00	2.80	0.00	1.03
Obstruction Removal	-5	0	-4	5	0	3	1	0	1	0	2	0.44	0.00	-2.00	0.00	0.00	0.00
On-Farm Secondary Containment Facility												0.00	1.67	0.00	1.00	0.00	1.00
Open Channel	-1	-2	0	2	-5	1	-1	0	1	-1	2	-0.20	0.50	-0.50	0.00	2.00	0.70
Pond	-5	-3	-5	4	0	1	-1	-2	-1	-1	4	-0.36	1.10	2.50	-0.20	1.50	0.76
Pond Sealing or Lining, Concrete	-5	-3	-5	1	0	0	0	0	1	0	2	-0.71	1.58	1.00	1.60	0.00	1.15
Pond Sealing or Lining, Compacted Soil Treatment	-5	-3	-5	1	0	0	0	0	1	0	2	-0.71	1.58	1.00	1.60	0.00	1.15
Pond Sealing or Lining, Flexible Membrane	-5	-3	-5	1	0	0	0	0	1	0	2	-0.71	1.58	1.00	1.60	0.00	1.15
Precision Land Forming	-2	0	-1	2	0	1	1	0	0	0	4	1.00	1.04	0.00	1.20	2.00	0.89
Prescribed Burning	-3	0	0	2	-3	0	3	0	2	-2	2	0.73	1.64	2.67	0.20	1.40	1.20
Prescribed Grazing	-2	0	0	2	1	0	1	-1	-2	-2	2	0.60	1.82	2.67	0.80	3.00	2.23
Pumping Plant	-5	-2	-4	2	0	0	4	-5	2	4	2	0.85	0.67	0.00	0.00	0.00	0.80
Range Planting	-5	-1	0	5	-1	0	3	0	0	0	2	1.14	1.58	2.67	1.20	3.20	2.19
Recreation Area Improvement	-5	-5	-5	1	0	2	-1	0	0	-1	2	-1.11	0.78	0.33	0.20	1.00	0.87
Recreation Land Grading and Shaping	-5	-1	-5	0	0	2	-1	0	0	0	2	-0.86	0.67	-2.00	0.00	1.20	0.74
Residue and Tillage Management, No Till	-2	0	0	1	5	0	0	-1	2	-1	-1	1.22	1.49	1.67	-0.20	4.50	2.19
Residue and Tillage Management, Reduced Till	-2	0	0	1	5	0	0	-1	1	-1	-1	0.67	1.73	1.67	0.00	4.00	2.14
Restoration and Management of Rare or Declining Habitats	-5	-1	-3	0	0	3	-5	0	-2	-2	2	-1.22	2.00	4.00	0.00	2.00	1.40
Riparian Forest Buffer	-4	-1	-2	0	0	2	-2	0	-1	-1	-1	-1.33	2.50	4.00	1.80	2.60	2.49
Riparian Herbaceous Cover	-3	-1	-3	0	0	2	-2	0	-1	-1	-1	-0.40	2.11	3.50	2.20	2.25	2.38
Road/Trail/Landing Closure and Treatment	-1	-1	-1	0	0	1	-3	0	1	0	-3	-0.75	1.75	1.50	0.60	4.00	2.32
Rock Barrier	-2	-2	-3	0	0	1	-1	0	1	0	2	-0.25	0.71	0.00	-0.20	3.00	1.03
Roof Runoff Structure	-5	-1	-5	0	0	0	0	0	-1	-1	2	-1.29	0.93	0.00	0.40	1.50	0.86
Roofs and Covers	-5	-1	-5	0	0	0	0	0	-1	-1	2	-1.00	0.00	0.00	0.40	0.00	0.00
Row Arrangement	-1	0	0	1	2	0	0	0	-1	-1	-1	-0.17	0.68	0.00	0.20	2.33	1.07
Salinity and Sodic Soil Management	-2	-5	5	4	5	2	3	-1	-1	-2	4	1.33	0.17	0.00	-0.80	0.00	0.50
Saturated Buffer												0.00	1.67	0.00	0.00	0.00	1.00
Sediment Basin	-5	-3	-5	0	0	1	-1	-1	-2	-2	2	-1.20	0.00	-0.33	-1.00	1.33	0.27
Shallow Water Development and Management	-4	0	-4	0	0	3	-3	-1	-1	-1	2	-0.60	1.90	3.00	0.00	0.00	1.34
Short Term Storage of Animal Waste and Byproducts												0.00	0.67	0.00	1.20	0.00	0.60
Silvopasture Establishment	-4	-3	-1	2	0	3	-3	0	-1	0	2	0.42	1.37	1.00	1.20	2.80	1.98
Spoil Spreading	-2	0	-5	0	0	1	-1	-1	-1	0	-1	-1.13	0.67	0.00	0.00	0.00	0.40
Spring Development	-5	-1	-5	4	0	0	3	-5	-1	-1	4	0.17	2.02	3.00	0.00	1.00	1.21
Sprinkler System	-4	-2	0	4	0	0	3	-1	3	-1	4	1.27	1.74	1.00	1.40	2.00	1.54
Stormwater Runoff Control	-5	-5	0	0	-1	0	0	0	-1	-1	2	-1.29	1.11	0.00	0.00	2.50	1.37
Streambank and Shoreline Protection	-2	-5	-4	2	0	1	-1	0	1	-1	2	-0.36	0.92	1.50	0.00	4.00	1.35
Stream Crossing	-5	-5	-5	0	0	0	0	0	1	0	2	-0.75	0.17	0.00	0.40	2.00	0.50
Stream Habitat Improvement and Management	-5	-2	-3	0	0	0	0	0	-1	-2	2	-1.29	1.67	3.00	0.00	5.00	2.00
Stripcropping	-1	-1	3	1	3	0	-1	0	-1	-2	-1	0.00	0.94	1.67	-0.20	4.00	1.77
Structure for Water Control	-5	-1	-5	1	0	1	-1	-4	1	-1	2	-0.75	1.67	2.00	0.00	0.00	1.00
Structures for Wildlife	0	0	0	0	0	0	0	0	0	0	0	0.00	1.33	4.00	0.00	0.00	0.80
Subsurface Drain	-1	-3	0	2	0	1	1	-1	1	-1	4	0.82	1.23	0.00	1.40	1.80	1.10
Surface Drainage, Field Ditch	-1	-3	0	2	-2	1	3	-1	1	-1	4	0.75	0.60	0.00	1.00	0.67	0.49
Surface Drainage, Main or Lateral	-2	-3	0	2	0	1	3	-1	1	-1	4	0.91	0.59	0.00	1.40	0.50	0.46
Surface Roughening	-1	0	0	2	5	0	0	0	-1	0	0	-0.17	0.00	0.00	-0.20	3.00	0.60
Terrace	-5	-3	1	1	1	1	-1	-1	-1	-1	-1	-0.36	0.72	1.00	-1.60	2.60	1.05
Trails and Walkways	-2	-3	-4	1	0	1	-1	0	1	0	2	-0.09	2.28	3.33	0.00	1.80	2.13
Tree/Shrub Establishment	-5	-1	-2	0	0	3	-2	0	-1	0	-1	-0.36	1.67	2.33	1.00	3.60	2.19
Tree/Shrub Site Preparation	-3	0	-5	0	0	3	-2	0	-1	0	0	-1.00	0.50	0.00	-0.20	-1.25	-0.25
Tree/Shrub Pruning	-3	-1	-1	2	0	0	0	0	-1	0	0	-0.29	0.67	1.00	0.40	1.00	0.80
Underground Outlet	-1	-3	-2	1	0	0	-1	-1	-1	-1	2	-0.25	1.17	0.00	0.00	2.67	1.23
Upland Wildlife Habitat Management	-2	0	-1	1	0	0	0	0	-1	-2	2	-0.14	2.17	5.00	0.00	2.40	1.78
Vegetated Treatment Area	-5	0	5	0	5	1	-1	0	-1	-1	2	0.70	0.00	0.00	-0.80	4.00	1.07
Vegetative Barrier	-1	-3	-3	0	0	1	-1	0	-1	0	2	-0.50	0.87	1.00	0.00	2.00	0.52
Vertical Drain	-2	-1	-4	1	0	0	-1	0	-1	-1	2	-0.56	0.27	0.00	-1.40	1.00	0.36
Waste Facility Closure	-5	-2	-1	0	0	1	1	0	-1	0	4	-0.43	0.58	0.00	1.00	0.00	0.75
Waste Recycling	-4	0	-1	0	0	0	0	-3	-2	-1	-1	-1.13	0.81	0.00	1.20	0.00	0.69
Waste Separation Facility (no)												1.00	1.00	0.00	1.60	0.00	0.70
Waste Storage Facility	-5	-2	-3	0	0	1	-1	-5	-2	-2	-1	-1.80	0.92	0.00	1.20	0.00	0.75
Waste Transfer	-5	-5	-3	0	0	0	0	-5	1	-1	2	-1.88	0.83	0.00	1.20	-1.00	0.10
Waste Treatment	-5	-3	2	0	-1	0	0	-3	-1	-1	2	-0.70	0.75	0.00	1.60	0.00	0.65
Waste Treatment Lagoon	-5	-2	-2	0	0	1	-1	-5	-2	-2	-1	-1.45	0.83	0.00	1.20	0.00	0.70
Water and Sediment Control Basin	-5	-3	-5	0	0	1	-1	-5	-1	-1	2	-1.70	0.30	2.00	-1.00	2.00	0.58
Water Harvesting Catchment	-5	-1	-5	2	0	1	-1	-5	-1	-1	2	-0.58	1.33	3.00	0.00	0.00	0.80
Watering Facility	-5	-1	-4	4	0	0	3	-3	-1	-1	2	0.25	1.90	4.00	0.20	2.20	1.58
Water Well	-5	-1	-4	2	0	0	5	-2	0	-1	5	0.73	1.00	2.00	0.00	2.00	1.20
Waterspreading	-4	-3	-2	2	0	0	2	0	-1	-1	2	0.10	0.81	1.67	-1.00	-1.00	0.48
Well Decommissioning	-4	0	-5	0	0	0	-5	0	0	0	-3	-4.25	0.67	0.00	2.00	0.00	0.40
Wetland Creation	-5	-1	-5	0	0	5	-5	0	2	-2	-1	-0.80	2.00	4.00	0.40	0.00	1.60
Wetland Enhancement	-5	-1	-5	0	0	3	-3	0	1	-2	2	-0.60	2.50	4.00	0.40	0.00	1.70
Wetland Restoration	-5	-1	-5	0	0	3	-3	0	1	-2	2	-0.60	2.50	4.00	0.40	0.00	1.70
Wetland Wildlife Habitat Management	-5	0	-4	2	0	0	0	0	-1	-3	2	-1.00	2.67	4.00	0.00	0.00	1.60
Windbreak/Shelterbelt Establishment	-4	-1	-4	2	0	1	-1	0	-1	0	-1	0.23	2.41	3.00	0.20	2.67	2.45
Windbreak/Shelterbelt Renovation	-2	-1	-3	2	0	0	0	0	-1	0	0	0.70	2.41	3.00	0.20	2.67	2.45
Woody Residue Treatment	-4	0	-2	2	0	0	0	0	-1	-1	2	0.30	0.67	0.00	0.00	1.00	0.30

Attachment 2
Ferry County Practice Toolbox with CPPE Averaged Function Scores

NRCS Practice Code	Conservation Practice	Direct Effect Scores					Average CPPE Scores		Function Effects: Average CPPE Scores				Critical Areas					Agricultural Viability					
		Wetlands	Fish/Wildlife Habitat Conservation Areas	Critical Aquifer Recharge Areas	Geologically Hazardous Areas (Erosion)	Frequently Flooded Areas	Soil Erosion	Soil Condition	Soil Health[1]	Hydrology	Water Quality	Habitat	WET	FFA	CARA	GHA	HCA	Soil Health	Prevent Soil Loss	Moisture Management	Weed/ Pest Management	Pollinator/ Beneficial Organisms	Yield/ Fertility Management
313	Waste Storage Facility	0.92	0.00	1.20	0.00	0.75	0.00	1.00	0.50	1.00	1.75	0.00			x								
315	Herbaceous Weed Control	1.14	1.67	0.00	3.20	1.32	3.20	0.00	1.60	2.00	-0.25	1.67					x				x		
325	Seasonal High Tunnel	-1.00	0.00	0.00	-1.00	-0.60	1.00	0.00	0.50	0.00	0.00	0.00					x			x			
326	Clearing and Snagging	-0.42	-1.75	0.00	2.00	0.15	2.00	0.00	1.00	2.00	-1.50	-1.75				x					x		
327	Conservation Cover	2.49	3.33	2.00	2.20	2.60	2.20	3.33	2.77	1.25	2.89	3.33	x	x		x	x	x	x		x	x	
328	Conservation Crop Rotate	1.78	2.00	1.20	4.00	2.34	4.00	2.33	3.17	1.60	1.75	2.00	x			x	x	x	x	x	x	x	x
329	Residue and Tillage Management - No-till/ Strip Till/ Direct Seed	1.49	1.67	-0.20	4.50	2.19	4.50	2.00	3.25	0.80	2.00	1.67	x	x	x	x	x	x	x	x			x
340	Cover Crop	1.72	2.00	1.40	3.67	2.01	3.67	1.25	2.46	1.40	1.75	2.00	x	x	x	x	x	x	x	x	x	x	x
342	Critical Area Planting	1.44	2.00	0.20	4.60	2.32	4.60	2.67	3.63	0.00	2.33	2.00				x							
345	Residue Management - Mulch Till	1.73	1.67	0.00	4.00	2.14	4.00	1.50	2.75	1.33	2.20	1.67	x	x	x	x	x	x	x	x			x
367	Roofs and Covers	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	-1.00	1.00	0.00											
378	Pond	1.10	2.50	-0.20	1.50	0.76	1.50	-1.00	0.25	0.60	0.20	2.50	x				x		x		x	x	
380	Windbreak/Shelterbreak	2.41	3.00	0.20	2.67	2.45	2.67	2.33	2.50	2.83	1.40	3.00	x	x		x	x	x	x	x	x	x	x
382	Fence	0.67	0.00	0.00	1.00	0.80	1.00	1.00	1.00	0.00	2.00	0.00	x			x	x		x			x	
383	Fuel Break	-0.53	0.40	-0.20	-1.00	-0.92	-1.00	-2.00	-1.50	-1.00	-1.00	0.40									x		
384	Woody Residue Treatment	0.67	0.00	0.00	1.00	0.30	1.00	-1.50	-0.25	1.00	1.00	0.00									x		
386	Field Border	1.48	2.00	0.80	2.50	1.79	2.50	2.00	2.25	1.00	1.43	2.00	x	x	x	x	x		x	x			x
390	Riparian Herbaceous Cover	2.11	3.50	2.20	2.25	2.38	2.25	3.33	2.79	0.33	2.50	3.50	x	x		x	x		x		x	x	
391	Riparian Forest Buffer	2.50	4.00	1.80	2.60	2.49	2.60	2.33	2.47	0.67	2.83	4.00	x	x		x	x		x		x	x	
393	Filter Strip	1.45	2.00	1.20	0.00	1.87	0.00	5.00	2.50	0.00	2.36	2.00	x	x		x	x		x		x	x	
395	Stream Habitat Improvement and Management	1.67	3.00	0.00	5.00	2.00	5.00	0.00	2.50	0.00	2.00	3.00	x	x		x	x		x		x	x	
396	Aquatic Organism Passage	1.56	2.67	0.00	0.00	0.93	0.00	0.00	0.00	0.00	2.00	2.67	x	x			x					x	
422	Hedgerow Planting	2.44	4.00	0.00	1.00	1.97	1.00	1.50	1.25	2.00	1.33	4.00	x	x	x	x	x		x	x			x
430	Irrigation Pipeline	0.83	0.00	0.80	2.00	0.90	2.00	0.00	1.00	1.33	1.14	0.00			x				x				x
441	Irrigation system, microirrigation (No)	1.53	1.00	1.60	0.00	1.12	0.00	1.00	0.50	2.00	1.60	1.00	x		x	x	x		x	x			x
442	Sprinkler System	1.74	1.00	1.40	2.00	1.54	2.00	0.50	1.25	2.67	1.55	1.00	x		x	x	x	x	x	x			x
449	Irrigation Water Management	1.17	0.00	2.00	2.00	1.40	2.00	1.50	1.75	1.50	2.00	0.00	x		x	x	x						
450	Anionic Polyacrylamide (PAM) Application	0.72	0.00	-0.40	2.00	1.23	2.00	2.00	2.00	1.00	1.17	0.00				x				x			
472	Access Control	1.73	2.00	0.60	3.40	2.22	3.40	2.50	2.95	1.75	1.44	2.00	x	x	x	x	x	x	x		x	x	x
484	Mulching	0.81	1.00	-0.40	4.00	1.49	4.00	1.00	2.50	0.60	0.83	1.00				x	x	x	x	x	x		
490	Tree/Shrub Site Preparation	0.50	0.00	-0.20	-1.25	-0.25	-1.25	-1.50	-1.38	2.00	-0.50	0.00	x	x		x	x				x	x	
512	Pasture and Hayland Seeding	1.00	1.00	0.00	1.00	1.10	1.00	1.50	1.25	1.00	1.00	1.00	x	x	x	x	x	x	x	x	x	x	x
516	Pipeline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			x	x	x						x
528	Prescribed Grazing	1.82	2.67	0.80	3.00	2.23	3.00	2.67	2.83	1.50	1.30	2.67	x	x	x	x	x		x				x
533	Pumping Plant	0.67	0.00	0.00	0.00	0.80	0.00	2.00	1.00	2.00	0.00	0.00		x					x		x		x
550	Range Planting	1.58	2.67	1.20	3.20	2.19	3.20	3.00	3.10	0.75	1.33	2.67				x	x	x	x		x	x	x
561	Heavy Use Area Protection	0.22	0.00	0.00	2.00	0.63	2.00	0.50	1.25	-1.00	1.67	0.00				x	x		x				
574	Spring Development	2.02	3.00	0.00	1.00	1.21	1.00	-1.00	0.00	1.80	1.25	3.00		x					x		x		x
578	Stream Crossing	0.17	0.00	0.40	2.00	0.50	2.00	0.00	1.00	0.00	0.50	0.00	x	x		x	x		x				
580	Streambank and Shoreline Protection	0.92	1.50	0.00	4.00	1.35	4.00	0.00	2.00	0.00	1.25	1.50				x			x				
584	Channel Bed Stabilization	1.42	1.25	0.00	2.00	1.25	2.00	0.00	1.00	2.00	1.00	1.25				x			x				
587	Structure for Water Control	1.67	2.00	0.00	0.00	1.00	0.00	0.00	0.00	2.00	1.00	2.00			x					x			
590	Nutrient Management	1.17	0.00	2.80	0.00	1.03	0.00	1.67	0.83	0.00	3.50	0.00			x		x	x					x
595	Pest Management	2.00	2.00	1.00	2.00	2.00	2.00	2.00	2.00	0.00	4.00	2.00			x		x	x			x	x	
600	Terrace	0.72	1.00	-1.60	2.60	1.05	2.60	0.50	1.55	0.80	0.36	1.00				x			x				
601	Vegetative Barrier	0.87	1.00	0.00	2.00	0.52	2.00	-2.00	0.00	0.00	1.60	1.00	x	x	x	x	x		x	x			x
612	Tree/Shrub Establishment	1.67	2.33	1.00	3.60	2.19	3.60	2.33	2.97	1.50	1.17	2.33	x		x	x	x		x			x	
612	Tree Planting	1.67	2.33	1.00	3.60	2.19	3.60	2.33	2.97	1.50	1.17	2.33	x		x	x	x		x			x	
614	Watering Facility	1.90	4.00	0.20	2.20	1.58	2.20	0.00	1.10	0.00	1.71	4.00					x						x
642	Water Well	1.00	2.00	0.00	2.00	1.20	2.00	1.00	1.50	2.00	-1.00	2.00					x			x			x
643	Restoration and Management of Rare and Declining Habitats	2.00	4.00	0.00	2.00	1.40	2.00	-1.00	0.50	0.00	2.00	4.00					x				x	x	
644	Wetland Wildlife Habitat Management	2.67	4.00	0.00	0.00	1.60	0.00	0.00	0.00	2.00	2.00	4.00	x				x		x		x	x	
645	Upland Wildlife Habitat Management	2.17	5.00	0.00	2.40	1.78	2.40	0.00	1.20	-0.50	2.00	5.00					x		x		x	x	
647	Early Successional Habitat Development/Management	1.00	4.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	-1.00	4.00					x				x	x	
659	Wetland Enhancement	2.50	4.00	0.40	0.00	1.70	0.00	1.00	0.50	2.00	1.50	4.00	x				x		x		x	x	

Notes:
1. Soil health function scores are based on the average scores for Soil Condition and Soil Erosion as summarized in Attachment 1.
CARA: Critical Aquifer Recharge Areas
CPPE: conservation practice physical effect
FFA: Frequently Flooded Areas
GHA: Geologically Hazardous Areas
HCA: Fish and Wildlife Habitat Conservation Areas
NRCS: Natural Resources Conservation Service
WET: Wetlands

Appendix D
Existing and Related Plans, Programs, and Regulations

Appendix D: Existing and Related Plans, Programs, and Regulations

Existing Conservation Programs

As described in the Voluntary Stewardship Program (VSP) Work Plan, the VSP provides a voluntary framework for critical areas protection and enhancement actions carried out by agricultural producers while maintaining and improving agricultural viability. Other similar programs are available to agricultural producers that are designed to incentivize protection and enhancement of critical areas through conservation practices. The availability of these programs is variable, as they are heavily influenced by federal and state program funding, the regulatory environment, industry standards, and the agricultural market. Many of these programs have been in place since the July 22, 2011 baseline and have contributed to conservation practices being implemented within Ferry County.

There are a variety of voluntary incentive programs for agricultural producers provided by federal, state, and local entities. The VSP was written to be compatible with existing conservation programs to achieve protection and enhancement of critical areas. Table 1 includes a summary of federal programs and Table 2 includes a summary of state and local programs available to agricultural producers. These tables provide a general representation of available federal, state, and local programs and are not intended to provide an exhaustive list.

The following list includes international organizations that offer a variety of voluntary conservation and certification programs to agricultural producers:

- **GLOBALG.A.P.:** is an international non-profit organization that provides a voluntary good agricultural practices (GAP) certification for eligible crops and livestock that meet or exceed 16 standards for safe and environmentally sound agricultural practices.
- **Safe Quality Food Institute:** offers certifications recognized by the Global Food Safety Initiative for best agricultural and livestock practices.
- **PrimusLabs:** is a food safety company located in North and South America that provides a GAP auditing program that certifies agricultural producers who comply with standard operating procedures for food safety.

Table 1
Federal Conservation Programs

Lead	Description	Program	Details
Natural Resources Conservation Service (NRCS)	NRCS provides technical and financial assistance to help agricultural producers make and maintain conservation improvements on their land. NRCS also offers conservation easement programs and partnerships to leverage existing conservation efforts on farm lands.	**Environmental Quality Incentives Program (EQIP)**[1]	Voluntary program providing financial and technical assistance for agricultural producers to plan and implement conservation practices improving soil, water, plant, animal, air, and related natural resources.
		Conservation Stewardship Program (CSP)[2]	Voluntary program providing technical assistance for agricultural and forest landowners to develop plans for conservation, management, and enhancement activities.
		Agricultural Conservation Easement Program (ACEP)[3]	Provides conservation partners with financial and technical assistance through agricultural land easements to restore, protect, and enhance wetlands.
		Agricultural Water Enhancement Program (AWEP)[4]	Voluntary program providing financial and technical assistance to agricultural producers for implementing agricultural water-enhancement activities.
		Wildlife Habitat Incentive Program (WHIP)[5]	Voluntary program for wildlife habitat conservation and enhancement on agricultural land, nonindustrial private forest land, and Native American land.
Farm Service Agency (FSA)	FSA oversees several voluntary, conservation-related programs that work to address several agriculture-related conservation measures.	**Conservation Reserve Program (CRP)**[6]	Voluntary reserve program to conserve environmentally sensitive land through agricultural protections and plant species to improve environmental health.
		Conservation Reserve Enhancement Program (CREP)[7]	Similar to the CRP, this voluntary program targets high-priority conservation issues. The contract period is typically 10 to 15 years.

[1] www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/
[2] www.nrcs.usda.gov/csp
[3] www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/
[4] www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/awep/
[5] www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/whip/
[6] www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/
[7] www.fsa.usda.gov/FSA/webapp?area=home&subject=lown&topic=cep

Lead	Description	Program	Details
United States Environmental Protection Agency (USEPA)	The USEPA writes and enforces environmental laws. It conducts environmental assessments, research, and education to maintain national standards under these environmental laws.	**Clean Water Act: Section 319 Nonpoint Source Management Program**[8]	Under Section 319, states, territories, and tribes receive grant money that supports a wide variety of activities that improve and protect water quality.

Table 2
State and Local Conservation Programs

Lead	Description	Program(s)	Details
Washington State Conservation Commission (WSCC)	WSCC works with conservation districts (CDs) to provide voluntary, incentive-based programs for implementation of conservation practices. WSCC supports the CDs through financial and technical assistance; administrative and operational oversight; program coordination; and promotion of CDs activities and services.	**Coordinated Resource Management (CRM) Program**[9]	Voluntary and locally led program for landowners seeking to resolve land-use and natural resource issues through local coalitions and consensus building.
		Irrigation Efficiencies Grant Program (IEGP)[10]	Provides financial incentives to landowners willing to install irrigation systems that save water.
		Natural Resource Investments (non-shellfish) Grants[11]	Grant program for landowners to complete natural resource enhancement projects necessary to improve water quality in non-shellfish growing areas.
		Office of Farmland Preservation (OFP)[12]	The OFP identifies and addresses farmland loss through agriculture conservation easement programs, providing technical assistance, developing farm transition programs, and providing data and analysis on trends.

[8] https://www.epa.gov/nps/319-grant-program-states-and-territories
[9] http://scc.wa.gov/crm/
[10] http://scc.wa.gov/iegp/
[11] http://scc.wa.gov/nri/
[12] http://scc.wa.gov/office-of-farmland-preservation/

Lead	Description	Program(s)	Details
Washington State Department of Fish and Wildlife (WDFW)	WDFW provides financial assistance for habitat projects that restore and/or preserve fish and wildlife habitat through funding opportunities.	**Aquatic Lands Enhancement Account (ALEA)**[13]	Grant program for qualifying landowners who undertake projects that benefit Washington state's fish and wildlife resources.
		Voluntary Public Access and Habitat Incentive Program[14]	Financial assistance for habitat improvement on private lands participating in public access hunting programs.
		Crop Damage Claims[15]	Financial compensation may be paid to eligible producers for damage to their commercial crops from deer or elk.
		Damage Prevention Cooperative Agreements[16]	Cost-share funding available to livestock producers who proactively use non-lethal preventative measures to minimize conflicts between livestock and wolves.
Washington State Recreation and Conservation Office	The Washington State Recreation and Conservation Office provides funding to protect aquatic lands and for projects aimed at achieving overall salmon recovery, including habitat projects and other activities that result in sustainable and measurable benefits for salmon and other fish species.	**Aquatic Lands Enhancement Account (ALEA)**[17]	Local and state agencies and Native American Tribes can apply for grants to fund aquatic habitat-enhancement projects.
		Salmon Recovery Funding Board Salmon Recovery Grants[18]	Grant program for eligible parties seeking to improve important habitat conditions or watershed processes to benefit salmon and bull trout.
		Farmland Preservation Grants[19]	Grant program for local agencies and non-profits to buy development rights on farmlands to ensure the lands remain available for farming in the future.

[13] http://wdfw.wa.gov/grants/alea/index.html
[14] https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/farmbill/?cid=stelprdb1242739
[15] https://wdfw.wa.gov/living/damage/
[16] https://wdfw.wa.gov/conservation/gray_wolf/livestock/agreements.html
[17] https://www.rco.wa.gov/grants/alea.shtml
[18] https://www.rco.wa.gov/boards/srfb.shtml
[19] https://www.rco.wa.gov/grants/farmland.shtml

Lead	Description	Program(s)	Details
Washington State Department of Ecology (Ecology)	Ecology provides funding for water-quality improvement and protection projects, including grant and loan programs and voluntary partnership programs.	**Water Quality Combined Funding Program**[20]	Grant and loan program in a single-application process for funding from multiple sources, for eligible projects that benefit water quality.
		Voluntary Clean Water Guidance for Agricultural Advisory Group[21]	The Advisory Group will be working with Ecology on identifying practices that support healthy farms and help farmers to meet the clean water standards. The guidance resulting from this process will be a technical resource to help the agricultural community implement practices in a way that ensures protection of water quality.
		Farmed Smart Partnership[22]	Regional voluntary program overseen by the Pacific Northwest Direct Seed Association, in coordination with Ecology, that certifies agricultural producers for environmentally friendly and sustainable dryland agriculture practices.
		Coastal Protection Fund – Terry Husseman Grants[23]	An account that supports locally sponsored projects that restore or enhance the natural environment, typically relating to water quality, fish and wildlife habitat, or waters of the state. Projects receiving this funding must provide benefits to public resources and infrastructure.
Ferry Conservation District (FCD)	FCD works through voluntary, incentive-based programs to assist landowners and agricultural operators with the conservation of natural resources including cost-share, and assistance in the development of range management and farm conservation plans.	**Cost-Share Assistance Programs**[24]	Program providing technical and financial assistance for various conservation practices (i.e., fencing to prevent access to a water body by livestock or revegetating a riparian buffer).

[20] https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Water-Quality-Combined-Funding-Program
[21] https://ecology.wa.gov/About-us/Our-role-in-the-community/Partnerships-committees/Voluntary-Clean-Water-Guidance-for-Agriculture-Adv
[22] http://www.directseed.org/certification/
[23] https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Coastal-protection-fund/THA-additional-information
[24] https://www.ferrycd.org/ferry-conservation-district-programs

Lead	Description	Program(s)	Details
Washington State University (WSU) Extension	The WSU Extension program connects agricultural and natural resource stakeholders and industries, as well as the general public, to extend research-based information and conduct locally relevant applied research in the fields of agriculture and natural resource sciences.	**Agriculture and Natural Resources Program**[25]	Program providing technical assistance, research, and education to producers.
Washington State Department of Natural Resources (DNR)	DNR offers financial and technical assistance with thinning, pruning, slash treatment, and forest management planning.	**Forest Fuel Reduction Assistance**[26]	Program providing technical and financial assistance to Small Private Forest landowners to reduce the risk of wildlife and improve forest health.

[25] http://extension.wsu.edu/ferry/
[26] https://www.ferrycd.org/ferry-conservation-district-programs

Related Plans and Programs

As required by the Revised Code of Washington (RCW) 36.70A.720(1)(a), the VSP Work Plan must incorporate applicable water quality, watershed management, farmland protection, and species recovery data and plans. Table 3 includes a summary of the planning documents and programs that were referenced for the VSP Work Plan and appendices. This includes watershed management and wildlife management programs prepared applicable to Ferry County.

The County includes portions of five watersheds, or Water Resource Inventory Areas (WRIAs). The majority of privately owned lands are within three watersheds: Kettle (WRIA 60), Middle Lake Roosevelt (WRIA 58), and Sanpoil (WRIA 52). The other two watersheds are located on the Colville Reservation in the southern portion of the County and include Lower Lake Roosevelt (WRIA 53) and Nespelem (WRIA 51).

There are three Washington State Department of Ecology Total Maximum Daily Loads (TMDLs) in Ferry County.

- Mid-Columbia River and Lake Roosevelt: TMDL for Total Dissolved Gas[27]
- Columbia River Basin: TMDL to Limit Discharges of 2,3,7,8-TCDD (Dioxin)[28]
- Colville National Forest Temperature, Bacteria, and pH TMDL (Water Cleanup Plan)[29]

Table 3
Summary of Planning Documents

Plan or Program	Date	Author/Agency	Description
State and Local Management Plans and Programs			
Curlew Lake Sub Area Plan	1993	Ferry County	A plan for protecting the Curlew Lakes Basin and maintaining good water quality. Strategies include environmental protections of the lake with a focus on water quality improvement.
Natural Resources Policy Plan	1997	Ferry County	A policy designed to protect private property rights while encouraging natural resource conservation.
Ferry County Community Wildfire Protection Plan (CWPP)	2014	Ferry County and DNR	The CWPP guides countywide wildfire hazard mitigation using the best available science and local and regional knowledge.

[27] https://fortress.wa.gov/ecy/publications/SummaryPages/0403002.html
[28] https://fortress.wa.gov/ecy/publications/summarypages/0910058.html
[29] https://fortress.wa.gov/ecy/publications/summarypages/0510047.html

Plan or Program	Date	Author/Agency	Description
State and Local Management Plans and Programs			
Ferry County Shoreline Master Program (SMP) and Restoration Plan	February 2016	Ferry County and the City of Republic	The SMP includes shoreline goals and policies for management and protection of shorelines of the state located within the County. The Restoration Plan describes existing restoration planning, programs, and partners and summarizes goals and priorities for the County.
Management Recommendations for Washington's Priority Habitats and Species	1991	WDFW	This plan includes species specific management recommendations for the following PHS species that have agricultural connection in Ferry County: bighorn sheep, blue (dusky) grouse, cavity nesting ducks, golden eagle, Lewis' woodpecker, Columbia spotted frog, Townsend's big-eared bat, white-tailed deer, and yellow-billed cuckoo.
Management Recommendations for Washington's Priority Species, Volume I: Invertebrates	1995	WDFW	This plan includes recommendations for the California floater, a species of local importance in Ferry County.
Riparian Ecosystems Volumes 1 & 2	2018	WDFW	The riparian habitat management plan provides statewide riparian management recommendations based on the best available science.
Management Recommendations for Washington's Priority Species Volume III: Amphibians and Reptiles	1997	WDFW	This plan includes recommendations for the Columbia spotted frog, a species of local importance in Ferry County.
Management Recommendations for Washington's Priority Species Volume IV: Birds	2004	WDFW	This plan includes recommendations for the blue (dusky) grouse, a species of local importance in Ferry County,
Sherman Creek Wildlife Area Management Plan	2006	WDFW	This local plan provides objectives for the protection and enhancement of Sherman Creek Wildlife Area.
Washington State Deer Management Plan: White-tailed Deer	2010	WDFW	This wildlife management plan provides natural history, status, management issues, and recommendations for strategies to benefit White-tailed deer in the state.
Wolf Conservation Management Plan	2011	WDFW	The Wolf Conservation and Management Plan guides recovery and management of gray wolves in the state.

Plan or Program	Date	Author/Agency	Description
State and Local Management Plans and Programs			
Management Recommendations for Washington's Priority Habitats: Managing Shrub-steppe in Developing Landscapes	2011	WDFW	This plan has management recommendations specific to shrub-steppe habitat.
Selkirk Elk Herd Management Plan	2014	WDFW	This wildlife management plan provides direction for managing the Selkirk elk herd that is present in parts of Ferry County.
Washington Department of Fish and Wildlife 2015-2021 Game Management Plan	2014	WDFW	The Game Management Plan guides the WDFW's management of hunted wildlife from 2015-2021.
Washington State Mule Deer Management Plan	2016	WDFW	This wildlife management plan provides natural history, status, management issues, and recommendations for strategies to benefit mule deer in the state.
Management Recommendations for Washington's Priority Species Volume V: Mammals	In progress	WDFW	This plan includes recommendations for Townsend's big-eared bat, a species of local importance in Ferry County.
FY-2012 Transition Watershed Restoration Action Plan: Colville National Forest	2012	USFS	This watershed report documents conditions in the Ninemile Creek subbasin and identifies goals and objectives for the improvements to water quality and habitat restoration.
Draft San Poil River Sub Basin Summary	2000	San Poil River Team	This subbasin plan identifies fish and wildlife habitat restoration goals for the San Poil River.
Upper Columbia and Sanpoil Habitat Restoration Plan	2017	Cramer Fish Sciences	This plan used data collected through habitat studies in these basins to identify restoration actions to enhance fish habitat per reach of river.
A Landowners Guide to Wildlife Friendly Fences	2012	Montana Fish, Wildlife & Parks	This document provides guidance for installing wildlife-friendly fencing, fence alternatives, and predator deterrence.

Federal, State, and Local Regulations that Apply to Agriculture

The VSP is provided as an alternative to protecting critical areas used for agricultural activities through development regulations under the Growth Management Act. Despite its voluntary nature, it is still the intent of the VSP to improve, and not limit, "compliance with other laws designed to protect water quality and fish habitat," per RCW 36.70A.700 and 36.70A.702. Per RCW 36.70A.720, the development regulations used to achieve the goals and measurable benchmarks for protection of critical areas must be incorporated into the VSP Work Plan.

Tables 4 and 5 include a summary of federal, state, and local development regulations that are used to achieve the goals and measurable benchmarks of the VSP Work Plan. This list includes the most common environmental regulations affecting agriculture. The list does not include all regulations potentially impacting agricultural producers in the County. For instance, regulations on taxation, employment practices, marijuana production, and other regulations are not included. Because no regulations are enforced via the VSP, regulatory enforcement in the County provides a "regulatory backstop." For example, the Washington State Department of Ecology will continue to regulate wetland conversions on agricultural lands through the local Water Pollution Control Act.[30] Continued compliance with these regulations provides assurance the functions and values of critical areas are protected.

As illustrated in Figure 1, the VSP is intended to balance critical areas protection and agricultural viability at the County level through voluntary actions by agricultural producers. VSP is not a replacement for compliance with other laws and regulations, but participation in the program can often help agricultural producers comply with these requirements.

[30] Washington State Department of Ecology, 2013. The Voluntary Stewardship Program and Clean Water. Available at: https://fortress.wa.gov/ecy/publications/publications/1310030.pdf.

Figure 1
Balanced Approach of Critical Areas Protection and Agricultural Viability

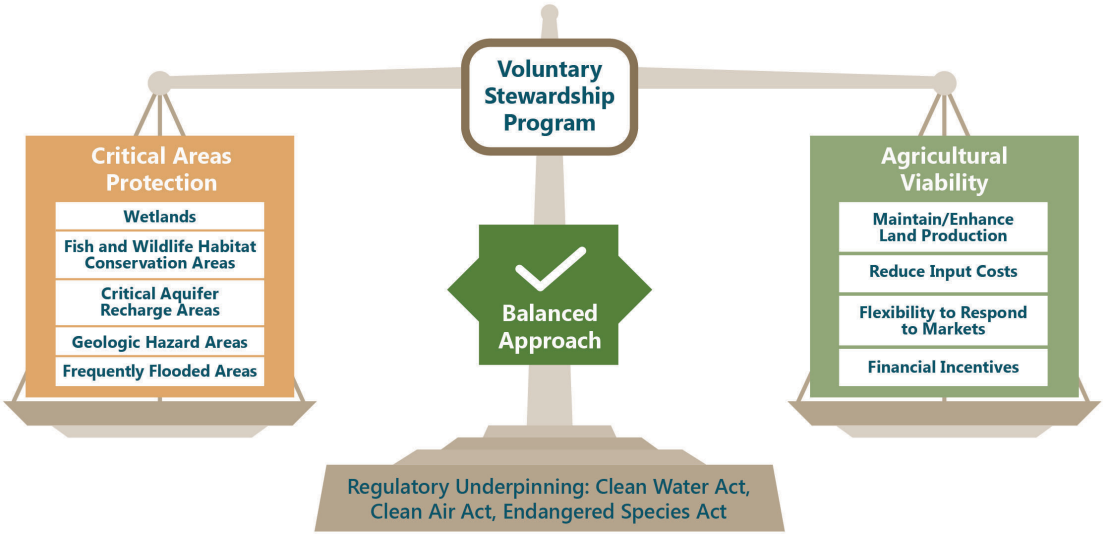


Table 4
Federal Regulations that Apply to Agriculture

Regulation(s)	Agency	Description	VSP Intersect
Agricultural Act (Farm Bill)[31]	U.S. Department of Agriculture	The Farm Bill, reauthorized in 2014, eliminates direct payments and continues crop insurance.	The Farm Bill includes the "swampbuster" conservation policy prohibiting landowners from converting wetlands to cropland. The "sodbuster" provision requires participating parties to maintain a specified level of conservation.
Clean Water Act (CWA)[32]	U.S. Environmental Protection Agency (USEPA); regulated locally by Washington State Department of Ecology	The CWA regulates discharges of pollutants into waters of the United States, including discharges of dredge or fill material in wetlands. CWA exemptions for agriculture are designed to be consistent with and to support existing U.S. Department of Agriculture programs.	Compliance with the CWA maintains or enhances water quality, which in turn benefits critical areas, including wetlands and fish and wildlife habitat conservation areas.
Safe Drinking Water Act (SDWA)[33]		The SDWA protects public drinking water supplies in the United States, including sole-source aquifers. The USEPA provides technical and financial resources under the Clean Water State Revolving Fund (CWSRF) for improving water quality, protecting drinking water sources, and controlling nonpoint source pollution.	The SDWA is designed to protect critical aquifer recharge areas, an important source for drinking water that is vulnerable to contamination.
National Pollution Discharge Elimination System (NPDES)[34]		NPDES is promulgated under the CWA to regulate discharges to waters of the United States from animal feeding operations.	Regulated discharges to waters of the United States helps to protect water quality in critical areas, including wetlands and fish and wildlife habitat conservation areas.

[31] https://www.fsa.usda.gov/programs-and-services/farm-bill/index
[32] https://www.epa.gov/laws-regulations/summary-clean-water-act
[33] https://www.epa.gov/sdwa
[34] https://www.epa.gov/npdes

Regulation(s)	Agency	Description	VSP Intersect
Endangered Species Act (ESA)[35][36]	National Marine Fisheries Service and the U.S. Fish and Wildlife Service	The ESA protects threatened and endangered species and critical habitat throughout the United States.	ESA-listed species and critical habitat are protected through avoidance and minimization measures such as the "no-spray" pesticide buffer zones near ESA-listed salmon-bearing waterbodies. The no-spray buffer zones are 60 feet for ground and 300 feet for aerial pesticide applications.
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)[37]	USEPA	FIFRA regulates pesticide distribution, sale, and use and includes labeling and registration requirements.	Compliance with FIFRA is intended to maintain or enhance water quality, which in turn benefits critical areas, including wetlands, fish and wildlife habitat conservation areas, and critical aquifer recharge areas.
National Emissions Standards for Hazardous Air Pollutants (NESHAP)[38]	USEPA	NESHAP regulates hazardous air pollutant emissions, including from new and existing facilities that manufacture organic pesticide active ingredients used in herbicides, insecticides, and fungicides.	These regulations are intended to reduce or eliminate hazardous air pollutant emissions with the potential to spread via aerial application to critical areas, including wetlands and fish and wildlife habitat conservation areas.

[35] http://www.nmfs.noaa.gov/pr/laws/esa/
[36] https://www.fws.gov/endangered/
[37] https://www.epa.gov/laws-regulations/summary-federal-insecticide-fungicide-and-rodenticide-act
[38] https://www.epa.gov/stationary-sources-air-pollution/national-emission-standards-hazardous-air-pollutants-neshap-9

Table 5
State and Local Regulations that Apply to Agriculture

Regulation(s)	Agency	Description	VSP Intersect
Revised Code of Washington (RCW)			
Title 15 Agriculture and Marketing	Washington State Department of Agriculture	RCW Title 15 includes general regulations pertaining to agricultural practices.	• Regulations cover pest and disease control, fertilizers, and commodity commissions
Title 16 Animals and Livestock	Washington State Department of Agriculture	RCW Title 16 includes general regulations pertaining to animals and livestock practices.	• Regulations cover range areas, meat licensing, feed lot certification, and fencing.
Title 17 Weeds, Rodents, and Pests	Washington State Noxious Weed Control Board*	RCW Title 17 includes general regulations pertaining to weed, rodent, and pest control.	• RCW Title 17.06 establishes intercounty weed districts.
Title 36 Counties	*Various*	RCW Title 36 includes regulations pertaining to counties including the Voluntary Stewardship Program.	• RCW Titles 36.70A.700-904 comprise the Voluntary Stewardship Program, a program designed to promote plans to protect and enhance critical areas while maintaining and improving agricultural viability.
Title 77 Fish and Wildlife	Washington Department of Fish and Wildlife	RCW Title 77 includes fish and wildlife enforcement regulations.	• Salmon recovery and enhancement programs include habitat projects and plans, including voluntary, incentive-based enhancement programs. • In-water construction activities (i.e., hydraulic projects) are regulated under RCW Title 77.55.
Title 87 Irrigation	Irrigation Districts	RCW Title 87 regulates irrigation and irrigation districts.	• RCW Title 87.03 establishes irrigation and improvement districts.
Title 89 Reclamation, Soil Conservation, and Land Settlement	Conservation Districts, Office of Farmland Preservation, and Irrigation Districts	RCW includes general regulations pertaining to reclamation and local conservation districts.	• RCW Title 89.08 establishes conservation districts • RCW Title 89.10 establishes the Office of Farmland Preservation

Regulation(s)	Agency	Description	VSP Intersect
Title 90 Water Rights – Environment	*Various*	RCW Title 90 regulates various aspects of water rights and appropriation for public and industrial purposes.	• RCW Titles 90.42-46 include regulations pertaining to water resource management, regulation of public groundwater, and reclaimed water use. • RCW Title 90.48 includes the Water Pollution Control Act which regulates agricultural discharges to surface waters and wetlands. • RCW Title 90.64 includes dairy nutrient management regulations. • RCW Title 90.90 includes the Columbia River Basin water supply rules for allocation and development of water supplies.
Washington Administrative Code (WAC)			
Title 16	Washington State Department of Agriculture	WAC Title 16 includes Washington State Department of Agriculture rules pertaining to agriculture regulation, certification, and marketing.	• WAC Chapters 16-200 through 16-202 include standards for fertilizer and pesticide usage. • WAC Chapter 16-611 includes standards for nutrient management.
Title 173	Washington State Department of Ecology	WAC Title 173 includes Washington State Department of Ecology rules for air and water quality protection.	• WAC Chapters 173-15 through 173-27 include state Shoreline Management Act rules and permitting requirements. The County currently implements the Shoreline Master Program under these state rules. • WAC Chapter 173-158 includes floodplain management rules. • WAC Chapters 173-166, 173-170, and 173-173 include rules for drought relief programs, agricultural water supply facilities, and measuring and reporting water usage. • WAC Chapter 173-220 includes National Pollution Discharge Elimination System rules for discharges to waters of the state. • WAC Chapter 173-430 includes rules for agricultural burning.

Regulation(s)	Agency	Description	VSP Intersect
Title 220 and 232	Washington State Department of Fish and Wildlife	WAC Title 220 and 232 includes Washington State Department of Fish and Wildlife rules for management of fish and wildlife species and habitat.	• WAC Chapter 220-410 defines game management areas, including the Game Management Units in Ferry County. • WAC Chapter 220-620 describes the volunteer cooperative fish and wildlife enhancement program. • WAC Chapter 220-660 includes the Washington State Hydraulic Code which regulates in-water construction activities (hydraulic projects) through Hydraulic Project Approvals. • WAC Chapter 232-28 includes wildlife interaction rules, including those pertaining to damage of commercial crops and livestock.
Title 246	Washington State Department of Health	WAC Title 246 includes Washington State Department of Health rules, including those for protection of water systems.	• WAC Chapters 246-290 and 246-291 includes rules for Group A and B public water supplies and water systems, respectively. These include regulations for using greywater for irrigation purposes.
Ferry County Regulations			
Critical Areas Ordinance	Ferry County Planning Department	The Ferry County Critical Areas Code is promulgated under the Critical Areas Ordinance #2016-03.	• Section 5.08 establishes that for agricultural activities that tend to degrade wetland quality (i.e. feed lots, excessive use of fertilizers) a permit shall be obtained from the Ferry County Planning Department as per Section 10.02 prior to undertaking these activities in a regulated wetland or its buffer, unless authorized by Section 5.09. • Section 5.09 permits pre-existing and ongoing agricultural activities within a wetland buffer to the extent that they are not prohibited by any other chapter or law and provided they do not disturb the natural functions of the wetland. • Section 9.03 permits existing and ongoing agricultural activities will not impact the functions or value of a Fish and Wildlife Habitat Conservation Area buffer beyond its ability to recover.
Shoreline Master Program	Ferry County Planning Department	The Ferry County Shoreline Master Program (2017) provides regulation of County shorelines.	• The Shoreline Master Program covers new or additional uses within shorelines of the state (defined as 200 feet from mean higher high water) and does not limit or modify existing or ongoing agricultural practices. The VSP applies to critical areas both inside and outside of the shoreline jurisdiction.

Regulation(s)	Agency	Description	VSP Intersect
Flood Damage Prevention	Ferry County	Ferry County Ordinance 2002-01	• This ordinance implements RCW 86.16 which creates land use regulations for flood hazard areas and is intended to minimize public and private losses due to flood conditions.

*Includes agencies responsible for overseeing agriculture-specific regulations. Other agencies may be assigned jurisdiction for non-agriculture related regulations described therein.

Appendix E
Ferry County Voluntary Stewardship Program Outreach Plan

Appendix E: Ferry County Voluntary Stewardship Program Outreach Plan

Introduction

The Ferry County Voluntary Stewardship Program (VSP) Outreach Plan provides a summary of outreach and public participation measures that were conducted during work plan development to ensure that the agricultural community and other interested parties were involved in all aspects of the Ferry County VSP Work Plan.

Public Involvement During Work Plan Development

Work Group Formation

The Ferry County Work Group was first convened in October 2016 and formally established by the Board of County Commissioners in December 2017. Prior to Work Group formation, the Ferry Conservation District (FCD) conducted extensive outreach to seek input and participation from tribes, agencies, stakeholders, and agricultural producers, including invitation letters and postcard mailers, as summarized in Table 1. Additional public outreach efforts included flyers distributed at the major farm supply and grocery stores in Ferry County, an informational booth at the Ferry County Fair, several newspaper articles and advertisements, and informal conversations with community members.

An informational 'Kickoff Meeting' was held on October 20, 2016, in which information on the background, process, and future meetings for the VSP Work Plan in Ferry County was presented.

Table 1
Work Group Formation Public Outreach Summary

Type	Date	Description
News Release	7/08/2016	A news release from the Washington State University Ferry County Extension invited all interested people to take part in the VSP process and announced an September 14, 2016 VSP informational meeting.
VSP Contact List Created	8/30/2016	An extensive contact list was compiled made up of watershed planning groups, existing lead entities, local integrating organizations, and members of the Colville Confederated Tribes.
VSP Announcement Letter	9/02/2016	An invitation letter was mailed to local stakeholders in the agricultural, environmental, and tribal communities inviting participation in the VSP process and announcing the September 14, 2016 informational meeting date.
VSP Informational Meeting	9/14/2016	VSP meeting with no attendees. Meeting rescheduled to an October 20, 2016 formal VSP Kickoff Meeting.
VSP Post Card Mailer	10/03/2016	An informational postcard was mailed to the VSP Contact List announcing a VSP kick-off meeting.

Type	Date	Description
VSP Kickoff Meeting	10/20/2016	A kick-off meeting was held to discuss of the background and process of the VSP, request Work Group members, and announce of future meetings.

Work Group Members

Through the outreach efforts mentioned above, the Ferry VSP Work Group was formed. Work Group and Advisory members are listed in Table 2. The Ferry County VSP Work Group conducted its first meeting on October 20, 2016.

Table 2
Work Group Members and Advisory Members

Work Group Members	Advisory Members
Kim Charles – Farmer Brad Miller – Cattle Rancher Julie Olsen – Cattle and Hay Rancher Dennis Olsen – Cattle and Hay Rancher Saundra Richartz – Rancher Dolly Watkins – Cattle, Hay, and Horse Rancher Dave Hendrick – Rancher, Farmer, and Timber-grower	Johnna Exner, County Commissioner Sandy Dotts, WDFW Evan Sheffels, WSFB Mary Kalinowski, Ferry County Planning Director Lloyd Odell, FCD

Public Participation and Outreach

The Work Group welcomed the participation of interested parties at all meetings. The interested parties list was sent all Work Group meeting announcement emails. The following agencies, tribes, and stakeholders were included when creating a mailing list for outreach during Work Group formation and maintained as a part of the VSP interested parties list:

- Landowners
- Cattlemen's Association
- Colville Confederated Tribes
- Washington State Farm Bureau (WSFB)
- U.S. Fish and Wildlife Service
- Washington Department of Fish and Wildlife (WDFW)

All meeting dates, materials, and notes, and draft Work Plan materials were made available to the public on the FCD's VSP webpage at: https://www.ferrycd.org/voluntary-stewardship. Additionally, Table 3 summarizes the public participation and outreach activities that were conducted during the Work Plan development process.

Continued public outreach and education is integral to implementing the Work Plan following its approval by the State Technical Panel. For discussion of outreach planned during the implementation phase, see Chapter 6 of the Ferry VSP Work Plan.

Table 3
Public Participation and Outreach Summary

Type	Date	Description
Websites	Ongoing	All background documents and meeting materials were made available to the public on the FCD and the Ferry County websites:[1] • https://www.ferrycd.org/voluntary-stewardship • http://www.ferry-county.com/Plan_Building.html
Agricultural Viability Survey	November and December 2017	An agricultural viability online survey and handout were developed for feedback on strengths, weaknesses, opportunities, and threats for agriculture in Ferry County. The survey was provided to the Work Group and interested parties list. One survey response was received and considered in the Work Plan.
VSP Handout	12/2/2017	A VSP Overview and Frequently Asked Questions handout was developed and made available on the Ferry VSP website.
Cattlemen's Association Meeting	12/2/2017	Lloyd Odell, FCD, presented an overview and update on the status of Ferry VSP Work Plan at the Cattlemen's Association Meeting.
County Spring Conservation Fair	4/21/2018	Lloyd Odell, FCD, hosted a booth to provide information on VSP to fair attendees.
Public Meetings and Comment Period	June 2018	The Ferry VSP Draft Work Plan was provided for public review and comment. Lloyd Odell, FCD, and the Work Group hosted three public meetings on June 1, 18, and 19, 2018, in Barstow, Curlew, and Republic to present the Ferry VSP Draft Work Plan and hear feedback. Public comments received were considered by the Work Group prior to Work Plan submittal to the State Technical Panel. See Attachment 1 for the Public Meetings Summary.

Notes:

1. Washington State University Extension provided meeting facilitation service and hosted the County's VSP website during the 2015 to 2017 biennium.

Public Involvement During Plan Implementation

Continued public outreach and education is integral to implementing the Work Plan following its approval by the State Technical Panel. The FCD will commit to an annual effort to reach out to 15 to 20% of the producers that operate the approximately 255 farms in the County, using the methods described in this Outreach Plan. Within the first 5 to 6 years of implementation, the FCD plans to target 60% to 75% of all producers. As part of the adaptive management process, this percentage may change based on available funding and resources and/or how the County is progressing toward the goals and benchmarks described in the Work Plan during implementation.

See Tables 4 and 5 for planned and potential public outreach strategies. Figure 1 provides a protocol on how the VSP Checklist (Appendix F) will be used and illustrates the process from outreach to implementation.

Table 4
Planned Public Communication and Outreach Activities

Type	Description
Maintain and update email list	FCD created an email list containing all interested parties (e.g., Work Group, Technical Committee, public) for the VSP Work Plan process. All meeting notices and materials as well as documents will continue to be provided to the email list during implementation. Anyone may subscribe to the email list by contacting Lloyd Odell at lloyd.odell@conservewa.net.
Update website and media	FCD created a webpage specifically for the VSP and will continually update it with meeting notices and materials as well as documents. Additional information will be added for the implementation phase. FCD also has links to social media, including Facebook, on which they frequently engage with the public. The website, with links to social media, can be found at: https://www.ferrycd.org/voluntary-stewardship
VSP Checklist	The VSP Checklist was completed as part of the VSP Work Plan (see Appendix F). This checklist will help facilitate participation in VSP and tracking of currently ongoing conservation practices. The VSP Checklist may potentially be converted to an online fillable document in the future.
Individual Stewardship Plans	FCD will work with producers to help them prepare stewardship plans for their farms, and support in implementation of these plans.
Reporting on stewardship strategies and practices	FCD will work with NRCS and FSA to annually collect information related to ongoing and new practices implemented on individual farms. Additionally, FCD will also work with individual producers to annually collect information on self-funded practices implemented, with associated metrics to use in developing 2-year and 5-year reports and performance reviews.
Educational Opportunities	Educational opportunities focused on particular critical area concerns and agricultural practices are available to producers at their convenience, for booths at the fair or farmers markets. FCD's educational offerings are described on the FCD website: https://www.ferrycd.org/conservation-corner
Tours	FCD-led annual tours are opportunities to share information with producers, partners and the public. Tours may include on-farm testing/demonstration and field trials.

Table 5
Potential Community Meetings or Other Outreach Opportunities

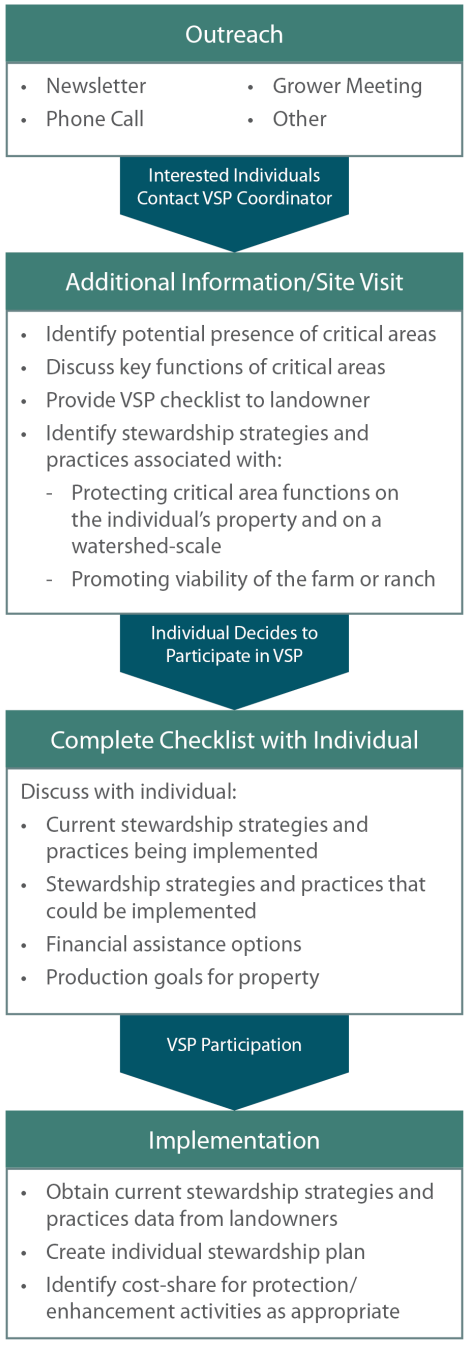
Outreach Opportunity	Description
FCD Meetings	FCD hosts monthly board meetings that are available to the public.
FCD Newsletter	FCD publishes quarterly newsletters to provide information and outreach to producers and post Work Group meeting announcements.
County Fair	Host a booth to provide information on the VSP to a broad range of people.
Farmers Markets	Host a booth to provide information on the VSP to a broad range of people.
Association Meetings	Give presentations at association meetings.
Work Group Member Outreach	Outreach activities with members of the Work Group to reach agricultural producers who are comfortable speaking with a fellow producer.
Newspapers	Provide information to producers though posting in local newspapers.
County Spring Conservation Fair	Host a booth to provide information on the VSP to a broad range of people.
Grange Hall Local Meetings	Host local meetings to provide information to producers.

Government Agencies and Agricultural Groups

FCD will coordinate with the following agencies and groups to help with outreach and implementation:

- Natural Resources Conservation Service
- Ferry County Noxious Weed Board

Figure 1
VSP Checklist Use Protocol



Notes:
1. The VSP Checklist is not a self-certification process (i.e., it is not considered an individual stewareship plan by itself).
2. Based on flowchart developed by the Franklin Conservation District for the Franklin County VSP Work Plan.

Attachment 1
Public Meetings Summary

Ferry County Voluntary Stewardship Program

Public Meetings Summary: June 1, 18, and 19, 2018

Introduction

The Ferry Conservation District (FCD) hosted two public meetings in Ferry County and presented at one additional meeting to discuss the draft Ferry County Voluntary Stewardship Program (VSP) Work Plan. Postcards were sent out by mail and emails were also sent out to a list of interested parties and others that were on FCD's distribution list. Information was presented about the Draft Work Plan at each of these meetings.

Friday, June 1:	7:00 – 8:30 PM	**Barstow – Kettle River Grange** 25262 Highway 395 N Kettle Falls, WA
Monday, June 18:	5:00 – 7:00 PM	**Curlew – Fire Hall** 7 River Street Curlew, WA
Tuesday, June 19:	5:00 – 7:00 PM	**Republic – Ferry County Commissioner's Office** 290 E. Tessie Boulevard Republic, WA

Presentation and Attendees

Lloyd Odell (FCD) presented to 12 members and guests of the Kettle River Grange along with some work group members who were in attendance. White Bluffs Consulting staff presented information at the two public meetings held in Curlew and Republic. Only a few work group members and members of the public attended these mid-June meetings.

Public Comments Summary

Comments from the group were generally positive, and a few questions were asked. A summary of the comments and questions with responses are provided below:

- People like the voluntary aspects of the program.
- They also like that VSP puts agricultural viability on equal footing with environmental protection.
- In rural areas there are strong feelings that economic concerns take a back seat to environmental measures that are imposed by "outside interests."
- Attendees felt that VSP gives a better voice to rural people who make their livings using natural resources.
- People liked that VSP recognizes peoples' past conservation activities.

- Several members of the group hope that wolf elimination could be part of VSP activities. *Response: Wolf management is a contentious ongoing issue outside the scope of the VSP.*
- Group members expressed some suspicion that the voluntary parts of the program could become mandatory.
- Some voiced concern about whether confidentiality and anonymity will be able to be maintained for those that participate in the program, and the risk of participants being "singled out" by regulators.
- Are there exceptions to buffer rules about how close you can farm next to rivers? Could buffer averaging happen sometimes? *Response: It's a one-size-doesn't-fit-all. Under VSP there is more flexibility with buffers than Washington Department of Ecology or Washington Department of Fish and Wildlife. There is buffer averaging at times.*
- What is the source of the numbers from in table of actions to protect critical areas since 2011? *Response: National Resources Conservation Service (NRCS) and FCD.*
- If the County does not implement VSP do the County agriculture activities become regulated under the critical areas code/Growth Management Act? *Response: Yes, the County would have to amend the code to include regulation of agriculture if VSP fails.*
- Does VSP apply to small acreage operations as well? *Response: Yes, it applies to all agriculture activities that could impact critical areas in the county, whether they occur on small or large operations.*
- A producer mentioned that most of the farmers and producers he knows are mindful of erosion. Over the last 15 years he has probably planted 1,000 trees but beavers have eaten a lot of them. His opinion is that a lot of erosion is from the beavers.
- The State gives money to the County and FCD for the VSP program? *Response: Yes, funding is provided for development of the Work Plan and for implementation. If someone wants to do additional conservation practices on their property it is likely they will be given priority consideration, dependent on available funding. VSP funding can be used with other funding sources as match.*
- Many local producers already work through NRCS. Will this information be used in VSP? *Response: Yes, VSP will not require double-counting of conservation practices. We obtain information directly from NRCS. We would like to collect additional information on self-funded conservation efforts.*

Next Steps

Public comments are requested through June 29, 2018. The FCD will share public comments with the Ferry County VSP Work Group at the July 16, 2018 meeting. The Work Plan will be submitted for State review on August 30, 2018.

Appendix F
Ferry County Voluntary Stewardship Program Overview and Checklist

- F-1: Ferry County Voluntary Stewardship Program Overview
- F-2: Ferry County Voluntary Stewardship Program Checklist

Appendix F-1
Ferry County Voluntary Stewardship Program Overview

Ferry County
Voluntary Stewardship Program

Overview

August 2018

Funded by Washington State Conservation Commission

Voluntary Stewardship Program Overview

VSP is a non-regulatory, incentive-based approach to protecting critical areas on agricultural lands, while maintaining agriculture viability. VSP allows farmers and ranchers to continue agricultural practices without regulation under Ferry County's Critical Areas Ordinance by promoting voluntary stewardship strategies and practices by producers that protect critical areas and maintain and enhance agricultural viability.

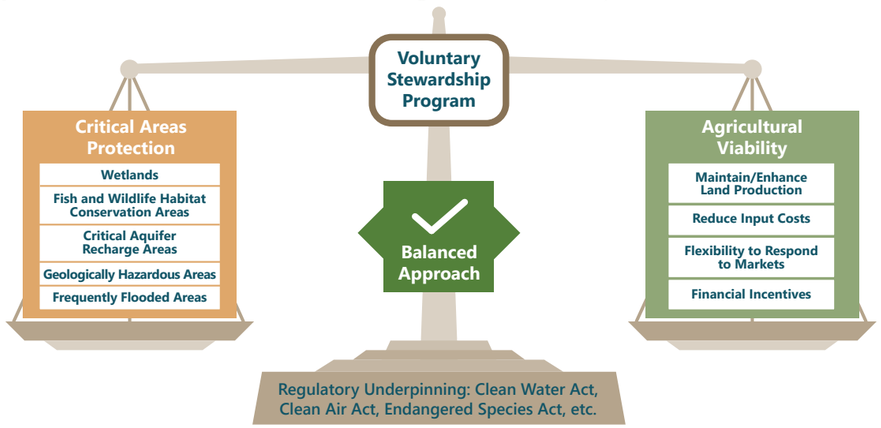
VSP is allowed under a recent change in the Growth Management Act and provides an alternative to traditional approaches to critical areas protection, such as protection buffers. VSP is intended to balance critical areas protection and agricultural viability at the County level through voluntary actions by agricultural producers, as illustrated in Figure 1. VSP is not a replacement for compliance with other laws and regulations, but participation in the program can often help agricultural producers comply with these requirements.

Critical Areas per RCW 36.70A.020(5) include:

- Wetlands
- Fish and wildlife habitat conservation areas
- Areas with a critical recharging effect on aquifers used for potable water
- Geologically hazardous areas
- Frequently flooded areas

Under VSP, critical areas on lands where agricultural activities are conducted are managed under this voluntary program. Lands used for non agricultural purposes are regulated under Ferry County's Critical Areas Ordinance.

Figure 1
Balanced Approach of Critical Areas Protection and Agricultural Viability



VSP Work Plan Background and Purpose

The guiding document for the VSP is the Work Plan. The Ferry County VSP Work Plan (Work Plan) was developed by the Ferry County VSP Work Group, which was convened by the County, and comprises agricultural producers, local government-elected officials and staff, and agency representatives. This document provides an overview of the VSP Work Plan and a VSP Checklist. The Work Plan includes detailed information intended to fulfill the state requirements outlined under the Revised Code of Washington (RCW) 36.70A.720(1), which includes several elements, such as protection and enhancement goals, measurable benchmarks, and an implementation, reporting, and tracking framework. See below for a description of the VSP Work Plan organization.

One of the main goals of the Work Plan is to identify stewardship strategies and practices that are implemented under existing programs or voluntarily implemented through producer-funded practices, and identify future goals and benchmarks for continued protection and enhancement of the County's critical area functions and values.

Failure of the Work Plan in meeting protection goals will trigger a regulatory approach to protecting critical areas under the Growth Management Act, such as applying buffers and setbacks along streams or wetlands. Additionally, the regulatory approach for protecting critical areas on agricultural lands would not have the equally important VSP goal of maintaining and enhancing agricultural viability. Neither would it necessarily encourage outreach or technical assistance for agricultural operators. Therefore, producer participation is encouraged, through implementing conversation practices, to help ensure the success of VSP.

Ferry County VSP Work Plan Organization

Detailed information outlining the background, existing conditions, goals and benchmarks, and implementation is found in the Ferry County VSP Work Plan. See below for an overview of what is included in the Work Plan:

- **Introduction:** Background on VSP regulation and how it applies to Ferry County.
- **Regional Setting:** Overview of Ferry County conditions, including description of critical areas and associated key functions.
- **Baseline Conditions:** Description of county-wide critical areas presence and functions and values as of 2011 (effective date of VSP; see Frequently Asked Questions).
- **Protection and Enhancement Strategies:** Description of currently implemented conservation practices that protect and enhance critical areas functions and values.
- **Goals, Benchmarks, and Adaptive Management:** Description of VSP goals for each critical area, measurable benchmarks, and indicators and methods for adaptive management.
- **Implementation:** Detailed plan outlining implementation of VSP actions by the VSP Coordinator and Work Group.
- **Appendices:** Additional detailed information referenced by the above sections.

Work Plan Implementation

Agricultural producers are continually improving agricultural practices, applying new science and technology, and implementing stewardship strategies and practices that reduce agricultural impacts on critical areas, while maintaining and increasing the viability of farms and ranches and the larger Ferry County agricultural economy.

Work Plan implementation is expected to continue largely through producer-funded activities, existing programs, and organizations that provide technical support to producers. Many producers are already implementing conservation actions throughout the County that are protecting critical areas and supporting agricultural viability. VSP aims to:

1. Better identify and document producer-funded and other conservation practices implemented since 2011
2. Increase agricultural producer participation in implementing conservation practices

Stewardship Activities and Conservation Practices

Examples of practices that protect critical area functions and values and promoting agricultural viability include:

- Riparian Restoration
- Grazing Management
- Fencing
- Weed Management

See the VSP Checklist for additional examples of voluntary stewardship practices and resources for additional information and potential incentive funding.

To meet the goals of the Work Plan, VSP implementation will include agricultural producer participation and outreach, technical assistance, program performance tracking and reporting, and adaptive management. Commodity groups, the Ferry Conservation District, and others can help in performing these responsibilities.

VSP Checklist

The VSP Checklist is a helpful tool to help assess how the VSP could support individual agricultural producers. It includes additional examples of stewardship practices that protect and enhance critical areas and promote agricultural viability.

Participation in Programs

Private, federal, state, and local government programs and opportunities are available to support producers in addressing agricultural and resource concerns. See the VSP for additional resources and technical assistance available to agricultural producers on a voluntary basis. **Participation in a government-funded program is not required to be a VSP participant.**

Privacy Note: Information collected by producers using this checklist will be used to quantify, at the County-level, stewardship measures that have been implemented, as well as associated critical area protections and enhancements, and agricultural viability benefits. VSP Checklists can also assist producers in developing an "individual stewardship plan" in coordination with the Ferry Conservation District. "Individual stewardship plans" that a conservation district helps a producer develop are confidential and exempt from disclosure, similar to farm plans developed by conservation districts. Conservation practices information shared by producers with the Conservation District will be reported for VSP at the watershed and County scales.

Frequently Asked Questions

What are critical areas?

Critical areas perform key functions that enhance our environment (e.g., water quality and fish and wildlife habitat) and provide protection from hazards (e.g., flood, erosion, or landslide hazards). Critical areas that are specifically defined and managed under the Growth Management Act include wetlands, fish and wildlife habitat conservation areas, critical aquifer recharge areas, geologically hazardous areas, and frequently flooded areas.

The four primary functions provided by the County's critical areas include:

- **Water quality function** through filtration and retention of fine sediments, excessive nutrients, and other pollutants, as well as temperature regulation through canopy shade
- **Hydrology** through the delivery, movement, and storage of water
- **Soil function** through the preservation of soil and the quality of the underground living ecosystem, which preserves plants, animals, and human life
- **Habitat** through the natural environments in which a species or populations can live

Are there critical areas on my land?

Critical areas are designated through the County Critical Areas Ordinance. Each critical area has specific characteristics used for identification. Additionally, critical areas maps can be used to help identify where critical areas may occur; however, presence of critical areas is determined on an individual site basis.

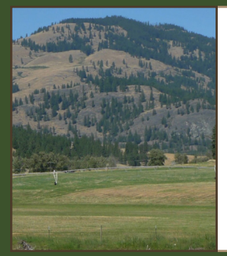
Critical Areas

Wetlands

Areas inundated by surface water or groundwater for at least part of the growing season and support vegetation adapted for life in saturated soil conditions.

Fish and Wildlife Habitat Conservation Areas

Lands and waters that provide habitat to support fish and wildlife species throughout their life stages.



Critical Aquifer Recharge Areas

Areas that have a critical recharging effect on aquifers used for drinking water, including aquifers vulnerable to contamination.

Geologically Hazardous Areas

Areas susceptible to erosion, sliding, and other geological events. Geologic hazards related to agricultural activities are primarily associated with erosion from summer wildfires.

Frequently Flooded Areas

Includes floodplains and floodways, and often includes the low-lying areas adjacent to rivers and lakes that are prone to inundation during heavy rains and snowmelt.

What is meant by "Baseline Conditions"?

The effective date of the VSP legislation is July 22, 2011. This date identifies the baseline for protecting critical areas functions and maintaining agricultural viability that will be the comparison for determining the success of the Work Plan during implementation.

What does it mean to "Protect and Enhance Critical Areas"?

VSP requires creation of measurable benchmarks that will protect and enhance critical area functions and values through voluntary actions by agricultural producers while maintaining agricultural viability.

- **Protection:** Prevention of the degradation of functions and values of baseline conditions.
- **Enhancement:** Improvement of the processes, structure, and functions of baseline conditions for ecosystems and habitats associated with critical areas.

What are the differences between VSP and the Critical Areas Ordinance?

VSP is a non-regulatory and incentive-based approach that balances the protection of critical areas on agricultural lands while promoting agricultural viability. VSP is allowed under the Growth Management Act as an alternative to traditional approaches to critical areas protection required under the County's Critical Areas Ordinance, such as protection buffers. See the comparison chart between VSP and Critical Areas Ordinance requirements in the table below.

What does it mean to "Maintain Agricultural Viability"?

To receive approval, the Work Plan must protect critical areas while maintaining and enhancing agricultural viability (RCW 36.70A.725). Agricultural viability in the County can include regional and individual agricultural elements:

- **At a regional level,** agricultural viability is the regional support system sustaining production and providing the services, conditions, land base, and infrastructure for individual farms and ranches to succeed.
- **At a farm or ranch level,** agricultural viability rests mostly on the productivity of the land and the ability of the operator to balance input costs with sales and market conditions. In the County, a main farm-level agricultural viability concern is land productivity, which can be impacted by soil erosion and soil quality (moisture and nutrient management).

Balancing critical areas protection while maintaining agricultural viability means protection activities have to be conducted in a manner that keeps land in production, provides producers with the flexibility to implement stewardship strategies and practices that fit with their business goals, and provides certainty for future business decisions.

Critical Areas Ordinance	VSP
Protective regulatory provisions, such as buffers and enforcement	Voluntary participation in stewardship practices and plans
Preserve functions and values of the natural environment, or safeguard the public from hazards to health and safety (WAC 365-196-830)	Prevent degradation of critical area functions and values existing as of July 22, 2011 (RCW 36.70A.703(8))
Site-by-site basis	Collective, watershed-scale
Watershed scale monitoring and site-by-site enforcement	Watershed-scale monitoring to demonstrate that objective benchmarks of critical area protection are met for areas of intersect with each of the five critical area types; progress reports every 5 years

How will critical areas be protected if VSP fails in my County?

Failure of the VSP Work Plan will trigger a regulatory approach to critical areas protection under the Growth Management Act, which includes mandated regulation on critical areas, such as buffers and setbacks. Additionally, regulation of critical areas on agricultural lands through the Growth Management Act does not take agricultural viability into account and does not encourage outreach or technical assistance for agricultural operators. Therefore, agricultural operators are encouraged to participate in the program to ensure VSP succeeds.

What does participation look like?

VSP participation includes tracking conservation practices that protect and enhance critical areas functions and values at a farm and ranch level through the VSP Checklist. There are many ways that agricultural producers can get involved, either through existing Conservation District, Natural Resources Conservation Service, or other publicly-funded programs, or through self-funded improvements. Participation in the VSP is voluntary, meaning that agricultural landowners and operators (commercial and noncommercial) are not required to participate. However, many producers already implement conservation practices that protect and enhance critical areas through government- or self-funded practices. These practices can be recorded anonymously as part of the VSP to ensure success of the Work Plan. Voluntary participation, anonymity, and privacy are all key principles that will be maintained during the reporting process. Agricultural producers who choose to participate are free to withdraw at any time without penalty (RCW 36.70A.760).

Is there funding to support VSP?

The VSP received statewide funding for the 2017 to 2019 biennium. However, future funding is contingent on additional appropriations by the state. Other funding sources, such as local conservation district funding, federal funding through farm bills or other programs, and private funding, can also be used to support VSP protection and enhancement goals.

How do I get involved in VSP?

To participate in VSP, complete the attached VSP checklist and share your checklist findings with the VSP Coordinator. Additionally, to increase involvement in VSP, consider reaching out to your commodity group representative and share ideas on new practices. If you have any questions or would like more information on how to get involved, contact the VSP Coordinator at the Ferry County Conservation District.

Ferry County

Voluntary Stewardship Program Overview

Prepared by Anchor QEA, LLC for the Ferry County Work Group

Funded by the Washington State Conservation Commission

Ferry County VSP Coordinator

Lloyd Odell, Ferry Conservation District
lloyd.odell@conservewa.net
(509) 775-3473 ext. 104
84. E. Delaware Ave.
Republic, WA 99166
https://www.ferrycd.org/voluntary-stewardship

Appendix F-2
Ferry County Voluntary Stewardship Program Checklist

Ferry County Voluntary Stewardship Program Checklist

This Voluntary Stewardship Program (VSP) checklist is intended to help farmers and ranchers contribute to the goals and benchmarks of the Ferry County VSP Work Plan. Many farmers and ranchers in the County are already conducting conservation practices that promote agricultural viability while also providing protections to critical area functions.

Help keep critical areas protection voluntary.
Working together, farmers and ranchers can use voluntary efforts to avoid additional regulatory controls.

This VSP checklist intends to:

- Identify and document existing stewardship strategies or practices you have implemented since 2011 (effective date of VSP), either through existing publicly funded programs or voluntarily implemented through producer-funded practices.
- Identify opportunities to:
  - Maintain or improve existing conservation practices
  - Implement additional conservation practices on your land and connect you with technical service providers for implementing these practices
- Encourage high producer participation, through implementation of voluntary stewardship strategies and practices to help ensure the success of VSP. Failure of the County to meet protection and associated participation goals will trigger the traditional regulatory approach to critical area protection under the County's Critical Areas Ordinance process.

Conservation Practices on Your Farm or Ranch

Conservation practices are broadly defined as any practice that, when implemented, further protects critical areas directly or indirectly, and maintains or improves agricultural viability, whether or not they meet a Natural Resources Conservation Service conservation practice or other standard. Conservation practices may fall under multiple categories; please include each implemented practice **only once**.

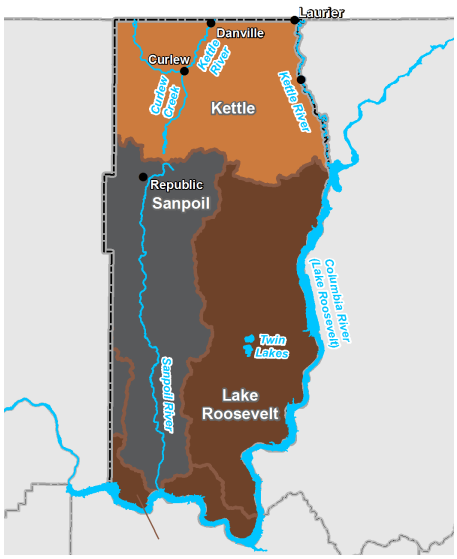
Privacy Note:
Information collected by producers using this checklist will be used to quantify, **at the County-level**, stewardship measures that have been implemented, as well as associated critical area protections and enhancements, and agricultural viability benefits. VSP Checklists can also assist producers in developing an "individual stewardship plan" in coordination with Ferry Conservation District. "Individual stewardship plans" that a conservation district helps a producer develop are confidential and exempt from disclosure, similar to farm plans developed by conservation districts. Conservation practices information shared by producers with the Ferry Conservation District will be reported for VSP at the watershed and County scales.

For more information about VSP, please visit:
https://www.ferrycd.org/voluntary-stewardship
Or email:
lloyd.odell@conservewa.net

General Location (Voluntary information)

If you are inclined to share, what area is your farm or ranch located within?

- ☐ Kettle
- ☐ Lake Roosevelt
- ☐ Sanpoil



Land Management and Agricultural Viability

What types of land management or agricultural viability concerns do you have on your property?	
☐ Forest understory management	☐ Erosion/landslide risks
☐ Wildfire risk	☐ Flooding
☐ Weed and pest management	☐ Other(s) - please list:

Weed Management

Noxious weed management efforts are being conducted with Weed Board funds that are available throughout the County in coordination with the Ferry Conservation District re-seeding efforts.

Forest Understory Management

Forest understory management is a key practice for maintaining grazing access and conditions in forested rangelands while also reducing wildfire hazards, improving soil composition, and providing habitat and forage access to wildlife.

What conservation practices are being implemented on your farm or ranch?

Example Conservation Practices	I do this	I'm interested in this	Does not apply	Not interested	Average units/year (acres/feet/other)
Livestock/Range Management					
Reseeding Mixed-Use Pasture Land	○	○	○	○	
Prescribed Grazing	○	○	○	○	
Heavy Use Protection	○	○	○	○	
Pumping Plant	○	○	○	○	
Spring Development and Watering Facilities	○	○	○	○	
Other(s): _____	○	○	○	○	
Forest Understory Management					
Woody Residue/Forest Slash Treatment	○	○	○	○	
Tree/Shrub Pruning	○	○	○	○	
Forest Stand Improvement	○	○	○	○	
Other(s): _____	○	○	○	○	
Nutrient and Pest Management					
Pest Management	○	○	○	○	
Nutrient Management	○	○	○	○	
Other(s): _____	○	○	○	○	
Soil Management					
Deep Tillage	○	○	○	○	
Conservation Crop Rotation	○	○	○	○	
Cover Crop	○	○	○	○	
Other(s): _____	○	○	○	○	
Irrigation Management					
Irrigation System, Sprinkler or Microirrigation	○	○	○	○	
Irrigation Water Management	○	○	○	○	
Other(s): _____	○	○	○	○	
Habitat Management					
Riparian Forest Buffer	○	○	○	○	
Access Control	○	○	○	○	
Tree/Shrub Site Preparation	○	○	○	○	
Structure for Water Control	○	○	○	○	
Tree/Shrub Establishment	○	○	○	○	
Upland Wildlife Habitat Management	○	○	○	○	
Fish and Wildlife Structure	○	○	○	○	
Streambank and Shoreline Protection	○	○	○	○	
Other(s): _____	○	○	○	○	

Additional Information and Assistance

If you have questions or would like more information on how to get involved, contact the VSP Coordinator or visit the Ferry County VSP website at https://www.ferrycd.org/voluntary-stewardship. Critical areas exist throughout the County. You can direct questions about the presence of critical areas on your property to the Ferry County VSP Coordinator by using the contact information below. You can also visit the VSP website for critical area maps for Ferry County.

Ferry County Conservation District Technical Assistance Provider:

Lloyd Odell, District Manager and VSP Coordinator
lloyd.odell@conservewa.net
(509) 775-3473 ext. 104
84 E. Delaware Ave.
Republic, Washington 99166

Other Resources:

- Ferry County: http://www.ferry-county.com/
- Washington State Farm Bureau: https://wsfb.com/
- Washington Cattlemen's Association: http://www.washingtoncattlemen.org/
- USDA Natural Resources Conservation Service: https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/
- Washington State University Extension: http://extension.wsu.edu/