

April 2018

Benton County Approved VSP Work Plan Appendices B to N

Benton County VSP Work Group



Appendix B. Mapping Approach

The combined agricultural dataset uses Washington State Department of Agriculture (WSDA) field data as well as BCD data, and removes rangeland on Hanford, and agricultural land in city limits. Where the data overlap, WSDA field level data serves as the primary dataset; areas not covered by WSDA would represent the BCD dataset; followed by other federal and state rangeland datasets.

Under GMA, critical areas include fish and wildlife habitat conservation areas, wetlands, frequently flooded areas, geologically hazardous areas, and critical aquifer recharge areas used for potable water. Consistent with GMA, the Benton County regulates critical areas. General definitions are provided below. See the matrix below summarizing critical area designation and classification criteria in State laws and rules as well as the Benton County Code.

Map sets and individual layers are available with the Benton Conservation District.

Matrix of Mapping Definitions and Sources

Wellhead Pro State Departm dataset; down 2016. Five fea showing wellhe areas and den well Locations from April 20 6-24-2016. Alluvial Geolo NRCS Soil Ge	tection Areas: nent of Health loaded 6-24- ature classes ead protection ived migration. s: Ecology dataset l 6; downloaded gy: Derived from odatabase.
	DNS. (5) "Critical Aquifer ge Areas" means those aquifer e areas that have an effect on, or aquifers used for potable water in tems. Wellhead Pro State Departm dataset; down 2016. Five fea showing wellhe areas and der Well Locations from April 201 6-24-2016. Alluvial Geolo NRCS Soil Geo

State Definitions and Classification	County Definitions and Classification	Mapping Sources and Notes
groundwater, and by hydrogeologic conditions that do not facilitate degradation. Hydrological conditions may include those induced by limited recharge of an aquifer. Reduced aquifer recharge from effective impervious surfaces may result in higher concentrations of contaminants than would otherwise occur. ***		
(4) A classification strategy for aquifer recharge areas should be to maintain the quality, and if needed, the quantity of the groundwater, with particular attention to recharge areas of high susceptibility.		
(a) In recharge areas that are highly vulnerable, studies should be initiated to determine if groundwater contamination has occurred. Classification of these areas should include consideration of the degree to which the aquifer is used as a potable water source, feasibility of protective measures to preclude further degradation, availability of treatment measures to maintain potability, and availability of alternative potable water sources.		
(b) Examples of areas with a critical recharging effect on aquifers used for potable water may include:		
(i) Recharge areas for sole source aquifers designated pursuant to the Federal Safe Drinking Water Act;		
 (ii) Areas established for special protection pursuant to a groundwater management program, chapters 90.44, 90.48, and 90.54 RCW, and chapters 173-100 and 173-200 WAC; 		
(iii) Areas designated for wellhead protection pursuant to the Federal Safe Drinking Water Act;		
(iv) Areas near marine waters where aquifers may be subject to saltwater intrusion; and		
(v) Other areas meeting the definition of "areas with a critical recharging effect on aquifers used for potable water" in these guidelines.		
(c) Some aquifers may also have critical recharging effects on streams, lakes, and wetlands that provide		

State Definitions and Classification	County Definitions and Classification	Mapping Sources and Notes
critical fish and wildlife habitat. Protecting adequate recharge of these aquifers may provide additional benefits in maintaining fish and wildlife habitat conservation areas.		
Fish and Wildlife Habitat Conservation Areas		
 Fish and Wildlife Habitat Conservation Areas WAC 365-190-030 (6)(a) "Fish and wildlife habitat conservation areas" are 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. These areas may include, but are not limited to, rare or vulnerable ecological systems, communities, and habitat or habitat elements including seasonal ranges, breeding habitat, winter range, and movement corridors; and areas with high relative population density or species richness. Counties and cities may also designate locally important habitat conservation areas include those areas found to be locally important by counties and cities. (c) "Fish and wildlife habitat conservation areas" does not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of, and are maintained by, a port district or an irrigation district or company. WAC 365-190-130, Fish and wildlife habitat conservation" means land management for maintaining populations of species in 	Adopted: 15.08.070 (2) "Fish and Wildlife Conservation Areas" refer to the following: (i) Areas with which state or federally designated endangered, threatened, and sensitive species have a primary association; (ii) Habitats of local importance; (iii) Commercial and recreational shellfish areas; (iv) Kelp and eelgrass beds; (v) Herring and smelt spawning areas; (vi) Naturally occurring ponds under twenty (20) acres and their submerged aquatic beds that provide fish or wildlife habitat, including those artificial ponds intentionally created from dry areas in order to mitigate impacts to ponds; (vii) Waters of the state, including lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the State of Washington; (viii) Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity; (ix) State natural area preserves and natural resource conservation areas; and (x) Land essential for preserving connections between habitat blocks and open spaces. (xi) Fish and wildlife conservation areas does not include such artificial features or constructs as irrigation canals, or drainage ditches that lie within the boundaries of, and are maintained by, a port district or an irrigation district or company. Proposed:	Federally-identified Critical Habitat: USFWS dataset. State-identified Priority Habitats and Species: WDFW detailed PHS data obtained June 15, 2016. State-identified Priority Habitats and Species: WDFW publicly facing PHS data obtained June 15, 2016 Natural Heritage Program Rare Plants: Data will be developed with state Department of Natural Resources information, but cannot be shared in map form publicly. Hydrology datasets intend to distinguish natural and artificial features. Streams and lakes (USGS NHD data set, Ecology, 2016) Artificial drainage features Aqueducts (USGS NHD and
suitable habitats within their natural geographic distribution so that the habitat available is sufficient to support viable populations over the long term and	Similar but modified from above (33) "Fish and Wildlife Conservation Areas" refer to the following.	State Depatment of Natural Resources)
isolated subpopulations are not created. This does not mean maintaining all individuals of all species at all times, but it does mean not degrading or reducing populations	(a) Areas identified on the Washington State Department of Fish and Wildlife (WDFW) Priority Habitats and	

State Definitions and Classification	County Definitions and Classification	Mapping Sources and Notes
or habitats so that they are no longer viable over the long term. Counties and cities should engage in cooperative	Species (PHS) Map within which a Priority Species is known to have a Primary Association;	
population viability.	(b) Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife	
Fish and wildlife habitat conservation areas contribute to the state's biodiversity and occur on both publicly and privately owned lands. Designating these areas is an important part of land use planning for appropriate development densities, urban growth area boundaries, open space corridors, and incentive-based land conservation and stewardship programs.	habitat. These do not include ponds deliberately designed and created from dry sites such as canals, detention facilities, wastewater treatment facilities, farm ponds, temporary construction ponds (of less than three years duration) and landscape amenities. However, naturally occurring ponds may include those artificial ponds intentionally created from dry areas in order to mitigate	
(2) Fish and wildlife habitat conservation areas that must be considered for classification and designation include:	authority;	
(a) Areas where endangered, threatened, and sensitive species have a primary association;	(c) Waters of the state, including lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the	
(b) Habitats and species of local importance, as determined locally:	jurisdiction of the State of Washington;	
(c) Commercial and recreational shellfish areas;	(d) Lakes, ponds, creeks and rivers planted with game tish by a governmental or tribal entity;	
(d) Kelp and eelgrass beds; herring, smelt, and other forage fish spawning areas;	(e) Washington State Natural Area Preserves and Natural Resource Conservation Areas as identified on Washington	
(e) Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife habitat;	Department of Natural Resources maps. (f) Land essential for preserving connections between habitat blocks and open spaces.	
(f) Waters of the state;	Fish and wildlife conservation areas does not include such	
(g) Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity; and	artificial teatures or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of, and	
(h) State natural area preserves, natural resource conservation areas, and state wildlife areas.	are maintained by, a port district or an irrigation district or company.	
(3) When classifying and designating these areas, counties and cities must include the best available science, as described in chapter 365-195 WAC.		

State Definitions and Classification	County Definitions and Classification	Mapping Sources and Notes
Frequently Flooded Areas		
WAC 365-190-030 (8) "Frequently flooded areas" are lands in the flood plain subject to at least a one percent or greater chance of flooding in any given year, or within areas subject to flooding due to high groundwater. These areas include, but are not limited to, streams, rivers, lakes, coastal areas, wetlands, and areas where high groundwater forms ponds on the ground surface. WAC 365-190-110 Frequently flooded areas.	Adopted: (3) "Frequently Flooded Areas" means those areas of Benton County subject to inundation by a base flood (100-Year Flood) and and those lands that provide important flood storage, conveyance, and attenuation functions, as determined by the Planning Administrator. Proposed (same)	FEMA; downloaded 3-5-2012 from Ecology
Frequently flooded areas. Flood plains and other areas subject to flooding perform important hydrologic functions and may present a risk to persons and property.		
(1) Classifications of frequently flooded areas should include, at a minimum, the 100-year flood plain designations of the Federal Emergency Management Agency and the National Flood Insurance Program.		
(2) Counties and cities should consider the following when designating and classifying frequently flooded areas: (a) Effects of flooding on human health and safety, and to public facilities and services; (b) Available documentation including federal, state, and local laws, regulations, and programs, local studies and maps, and federal flood insurance programs, including the provisions for urban growth areas in RCW 36.70A.110; (c) The future flow flood plain, defined as the channel of the stream and that portion of the adjoining flood plain that is necessary to contain and discharge the base flood flow at build out; (d) The potential effects of tsunami, high tides with strong winds, sea level rise, and extreme weather events, including those potentially resulting from global climate change; (e) Greater surface runoff caused by increasing impervious surfaces.		

State Definitions and Classification	County Definitions and Classification	Mapping Sources and Notes
Geologic Hazards	-	
Geologic Hazards WAC 365-190-030 (9) "Geologically hazardous areas" are areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to siting commercial, residential, or industrial development consistent with public health or safety concerns. (5) "Erosion hazard areas" are those areas containing soils which, according to the United States Department of Agriculture Natural Resources Conservation Service Soil Survey Program, may experience significant erosion. Erosion hazard areas also include coastal erosion-prone areas and channel migration zones. (10) "Landslide hazard areas" are areas at risk of mass movement due to a combination of geologic, topographic, and hydrologic factors. (18) "Seismic hazard areas" are areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, debris flows, lahars, or tsunamis. (21) "Volcanic hazard areas" shall include areas subject to pyroclastic flows, lava flows, and inundation by debris flows, lahars, mudflows, or related flooding resulting from volcanic activity. WAC 365-190-120 (3) Areas that are susceptible to one or more of the following types of hazards shall be classified as a geologically hazardous area: (a) Erosion hazard; (b) Landslide hazard;	Adopted: 15.08.450 Geologically hazardous areas are designated as those areas that are susceptible to one or more of the following types of hazards: (a) Erosion Hazard Areas. Slopes between 15 percent and 39 percent; (2) Slopes 40 percent or greater; or (3) Slopes 15 percent or greater that contain soils or soils complexes identified by the U.S. Department of Agriculture's Natural Resource Conservation Service or the Soil Survey for Benton County as having, "severe" or "very severe" erosion hazard potential. (b) Landslide Hazard Areas. (1) Slopes 15 percent or greater that have a relatively permeable geologic unit overlying a relatively impermeable unit and have springs or ground water seeps; (2) Slopes 40 percent or greater with a vertical relief of 10 or more feet except areas composed of competent rock and properly engineered slopes designed and approved by a geotechnical engineer licensed in the state of Washington and experienced with the site; (3) Potentially unstable slopes resulting from rapid river or stream incision, river or stream bank erosion, or undercutting by wave action. These include slopes exceeding 10 feet in height adjacent to streams, lakes and coastal shorelines and with more than a 35 percent gradient; (4) Areas that have shown evidence of historic failure or instability, including, but not limited to, back-rotated benches on slopes; areas with structures that exhibit structural damage such as settling and racking of building foundations; and areas that have	Slopes > 15%: DEM for Eastern Washington, downloaded from University of Washington in 2013 Documented Landslides: DNR Geology Division datasets Documented Earthquakes: DNR Geology Division datasets, 6- 24-2016 (not included in overlay maps since less applicable to VSP) Liquefaction: DNR Geology Division datasets, 6-24-2016 Seismic Design Site Class: DNR Geology Division datasets, 6- 24-2016 (not included in overlay maps since less applicable to VSP) Potential Land Hazards: DNR Geology Division datasets, 6- 24-2016 Erodible Soils: NRCS Soil Geodatabase Channel Migration Zone: Derived by TWC and Al Wald during Benton Co 2012 SMP
 (c) Seismic hazard; or (d) Areas subject to other geological events such as coal mine hazards and volcanic hazards including: Mass 	toppling, leaning, or bowed trees caused by ground surface movement; (5) Slopes having gradients steeper than 80 percent subject to rock fall during seismic shaking; (6) Areas that are at risk of mass wasting due to seismic forces; or (7) Areas of historical landslide movement.	

State Definitions and Classification	County Definitions and Classification	Mapping Sources and Notes
wasting, debris flows, rock falls, and differential settlement.	(c) Seismic hazard areas shall include areas subject to a severe risk of earthquake damage as a result of seismically induced ground shaking, differential settlement, slope failure, settlement, lateral spreading,	
(6) Landslide hazard areas include areas subject to landslides based on a combination of geologic, topographic, and hydrologic factors. They include any areas susceptible to landslide because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors, and include, at a minimum, the following:	 mass wasting, surface faulting or soil liquefaction. (d) Other Hazard Areas. Geologically hazard areas shall include those areas subject to severe risk of damage as a result of other geological events including mass wasting, debris flows, rock falls and differential settlement. Proposed: (same as above) 	
(a) Areas of historic failures, such as:		
(i) Those areas delineated by the United States Department of Agriculture Natural Resources Conservation Service as having a significant limitation for building site development;		
(ii) Those coastal areas mapped as class u (unstable), uos (unstable old slides), and urs (unstable recent slides) in the department of ecology Washington coastal atlas; or		
(iii) Areas designated as quaternary slumps, earthflows, mudflows, lahars, or landslides on maps published by the United States Geological Survey or Washington department of natural resources.		
(b) Areas with all three of the following characteristics:		
(i) Slopes steeper than fifteen percent;		
(ii) Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and		
(iii) Springs or groundwater seepage.		
(c) Areas that have shown movement during the holocene epoch (from ten thousand years ago to the present) or which are underlain or covered by mass wastage debris of this epoch;		

State Definitions and Classification	County Definitions and Classification	Mapping Sources and Notes
(d) Slopes that are parallel or subparallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials;		
 (e) Slopes having gradients steeper than eighty percent subject to rockfall during seismic shaking; 		
(f) Areas potentially unstable as a result of rapid stream incision, stream bank erosion, and undercutting by wave action, including stream channel migration zones;		
(g) Areas that show evidence of, or are at risk from snow avalanches;		
(h) Areas located in a canyon or on an active alluvial fan, presently or potentially subject to inundation by debris flows or catastrophic flooding; and		
(i) Any area with a slope of forty percent or steeper and with a vertical relief of ten or more feet except areas composed of bedrock. A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least ten feet of vertical relief.		
Wetlands		
RCW 36.70A.030 (21) "Wetland" or "wetlands" means areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands	Adopted: 15.08.070 DEFINITIONS. (3) "Wetlands" mean those areas of Benton County that are inundated or saturated by ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of	National Wetland Inventory, USFWS-documented wetlands; downloaded 05-24-2016. Though recently downloaded generally represents older data.

State Definitions and Classification	County Definitions and Classification	Mapping Sources and Notes
intentionally created from nonwetland areas created to mitigate conversion of wetlands.	the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas to mitigate the conversion of wetlands Proposed: (same as above)	

HABITAT MAPS

The consultant team has reviewed a document prepared by the Washington Department of Fish and Wildlife (WDFW) prepared in 2010 identifying connected habitat across the state: Washington Connected Landscapes Project: Statewide Analysis, December 2010, available: rwdfw.wa.gov/publications/01324/. There were additional studies in 2012 and 2013 specifically for the Columbia Plateau, available here: http://waconnected.org/columbia-plateau-ecoregion/.

An online map was created (<u>https://databasin.org/datasets/524447042cd8463aa3c97cca4a0deba4</u> -click on 'open in map'). The map shows key habitat concentration areas and pinch points (potential areas to focus protection) and barriers (potential areas to focus restoration).

Key terms are included below:

01 Habitat Concentration Areas Cumulative Rating: Habitat concentration areas (HCAs) are defined as significant habitat areas that are expected or known to be important for focal species based on survey data or habitat association modeling. HCAs provide locations from which to model linkages. This raster layer was generated from a composite analysis of 11 focal species HCA centrality maps.

02 Linkage Centrality Cumulative Rating: Linkage centrality is a measure of how important particular linkages are for keeping a network connected. Areas with high composite linkage centrality are places on the landscape that are part of highly central linkages for multiple focal species or areas that are part of moderate to highly central linkages for multiple focal species.

03 Pinch Point Cumulative Constraint: Pinch-points are "bottlenecks" where wildlife movement is funneled within linkages. Pinch-point modeling methods are based on electrical circuit theory. Locations where current is very strong are constrictions within linkages and represent areas most vulnerable to being severed (see more at http://www.circuitscape.org /linkagemapper). Pinch-points can be the result of both natural and human-made landscape features. This raster layer is a composite of linkage pinch-point scores (i.e., current flow values) summed across 11 focal species. The composite linkage pinch-point map highlights areas that either act as strong pinch-points for a few focal species, or moderate to strong pinch-points for several species.

04 Pinch-Point Number of Species: Pinch-points are "bottlenecks" where wildlife movement is funneled within linkages. Pinch-point modeling

methods are based on electrical circuit theory. Locations where current is very strong are constrictions within linkages and represent areas most vulnerable to being severed (see more at <u>http://www.circuitscape.org</u> /linkagemapper). Pinch-points can be the result of both natural and human-made landscape features. For this map the composite of linkage pinch-points was developed by counting the number of focal species that had pinch-point scores in the top 50 percent of the species' values at each location.

05 Barrier Impact/Restoration Improvement Score: Barriers are areas where landscape features impede wildlife movement between habitat concentration areas (HCAs). Least-cost modeling methods (see more at<u>http://www.circuitscape.org/linkagemapper</u>) identify and rank barriers by their impact and quantify the extent to which restoration may improve connectivity. Barriers may be partial or complete, and they may be natural (e.g., rivers, cliffs) or human-made (e.g., urban areas, highways, some types of agriculture). Not all barriers are restorable. This map shows the sum of barrier impact/restoration scores across species. Each score reflects the percent reduction in corridor resistance per hectare restored. For example, restoring 1 hectare across a barrier with a score of 1.0 would make a linkage 1% shorter measured in terms of total corridor resistance.

06 Barrier Impact/Number of Species at the Barrier: Barriers are areas where landscape features impede wildlife movement between habitat concentration areas (HCAs). Least-cost modeling methods (see more at http://www.circuitscape.org/linkagemapper) identify and rank barriers by their impact and quantify the extent to which restoration may improve connectivity. Barriers may be partial or complete, and they may be natural (e.g., rivers, cliffs) or human-made (e.g., urban areas, highways, some types of agriculture). Not all barriers are restorable. This raster layer is a composite of 11 focal species barrier layers. The cell value represented in this map is the number of focal species for the particular cell location.

Benton County Voluntary Stewardship Program

Appendix C- Background Information, Other Plans, and Regulations | April 2018

INTRODUCTION & PURPOSE

The work plan must include several items, including applicable existing water quality, watershed management, farmland protection, and species recovery data and plans. These plans are a source of potential objectives and strategies that can be incorporated into the VSP Plan and the individual VSP "stewardship checklists" to be produced.

This document provides a high-level summary of issues and strategies, intending to focus on those relevant to critical areas, agriculture, and general watershed issues. For complete context and details on the strategies, each plan should be consulted. This document is intended as a working document, which will benefit from review and contributions of the VSP working group.

Benton County includes portions of three Water Resource Inventory Areas (WRIAs), Rock-Glade (WRIA 31), Lower Yakima (WRIA 37), and Alkali-Squilchuck (WRIA 40). Agricultural uses are mapped as occurring in each of those WRIAs; however, agricultural activities in WRIA 40 occur primarily within the City of Richland. Those agricultural activities in unincorporated Benton County in WRIA 40 are located in the far northwestern portion of the county, near Priest Rapids Dam.

The key functions associated with critical areas can be broken into four primary categories. These include: water quantity, including flow and storage; water quality, which is defined by factors including sediment, nutrients, temperature, bacteria, and other contaminants such as metals and chemicals; habitat; and physical safety. Table 1 identifies which functions relate to each type of critical area. Critical areas that may occur in the county, but which do not intersect with agriculture are not included in the table below. In the subsequent tables of related plans (Tables 2 through 5), the relationship between actions and key critical area functions are identified.

Table 1.Relationship between critical areas that intersect agriculture and key functions. Shaded
areas represent functions associated with each critical area.

	Wa Quai	ter ntity	Water Quality			Habitat	Physical Safety		
	Flow	Storage	Sediment	Nutrients	Temperature	Bacteria	Contaminants		
Fish and Wildlife Habitat Conservation Ar	eas								
Streams									
Bald eagle									
Shrub Steppe Habitat									
 Greater sage grouse 									
Ferruginous hawk									
Wetlands									
Geohazards									
Critical Aquifer Recharge Areas									
Frequently Flooded Areas									

WRIA 31- ROCK/GLADE WATERSHED

WATERSHED PLANS AND ASSOCIATED REPORTS

- Lower Mid-Columbia Sub-Basin Plan (2004)
- Rock/Glade Water Resource Inventory Area Watershed Management Plan (2008)
- Level 1 Watershed Assessment WRIA 31 (2004)
- Columbia River Shoreline Project Identification: Mainstem Columbia River- Klickitat Lead Entity Area, WA (2013)
- Middle Columbia River Steelhead Distinct Population Segment ESA Recovery Plan (2009)
- Klickitat Lead Entity Region Salmon Recovery Strategy (2012)

Water Quantity Physical Safety Water Quality Ag Viability Habitat Actions Mon Issue SURFACE AND GROUNDWATER Water Storage- Identify current and future water demands (both instream and out-of-stream) Ecology moni and assess the feasibility of prospective storage projects to meet those demands in wells Х Х Reactivate flo Water Rights- Educate water rights holders Х Х Glade Creek Water Rights- Evaluate and establish water exchange . Х Х Monitor grou Conservation- Develop voluntary regional agreements and/or water trusts Х Х coordination **Reliable Water Supply** Conservation- Develop incentives for water conservation . Х Х Conservation- Work with agencies to evaluate and develop policies that facilitate shifting existing water rights to new areas that would support production of high value crops Х Х Groundwater- Investigate potential alternative groundwater sources to the Wanapum Aquifer Groundwater- Expand well monitoring program Х Х Consider designation as a groundwater management area under RCW 90.44.400 Х Х Inventory nitr concentratio water sources Groundwater and Surface Water Quality Develop a GI manage avai quality data Х Х

Table 2. Watershed Plans for WRIA 31 Rock/Glade

itoring	Implementation Status
itors water levels	
Jw gauges on	
indwater levels in	
with Ecology	
rate ns in all drinking	 Public water systems test for nitrate regularly
S	 Pesticide contamination
S database to	evaluation (1992-93)
able groundwater	 Groundwater quality characterization (1995)

Issue	Actions				Physical Safety	Ag Viability	Mon
	Columbia River						
	Creation of shallow water habitat			Х			
	 Enhancement of shoreline complexity and vegetation 	Х		Х			 Assess poter
Instream habitat	 Improved fish passage and hydrologic connectivity to backwaters 			Х			and producti
	 Enhancement of backwater form and function 			Х			River tributa
	 Improved tributary fish passage and hydrologic connectivity 	Х		Х			
	Restoration of tributary delta form and function			Х			
WILDLIFE HABITAT							
SHRUB STEPPE/INTERIOR GR	ASSLANDS						
	Limit expansion of invasive non-native plants and reduce occurrence			х			
Displacement of Native	Restore native plant communities			Х			
Vegetation with Non-Native Vegetation	 Reduce sources of introduction of nonnative seed 			х			
	 Continue and enhance shrub steppe/grassland weed control programs 			Х			
Reduction in Age Class, or	 Restore more natural fire cycles to increase mean age class of shrub steppe and restore areas of complete shrub loss where it has been altered by fire 			х			
Complete Loss, of Shrub Steppe Vegetation	 Suppress fire by fighting wildfires 			х			 Inventory ex potential hal
	 Reduce amounts of cheatgrass 			х			species
	 In areas of inappropriate grazing, improve vegetation and microbiotic crusts 			х			
Loss of Habitat Quality	 Encourage and support Coordinated Resource Management Programs (e.g., CRP; BiOp RMS) 			х		х	
	 Avoid inappropriate grazing of livestock through rotational grazing regimes 			х		х	
	 Use proper grazing to reduce sagebrush cover to natural levels 			Х		Х	
Loss of Ephemeral Wetlands	 Maintain current ephemeral wetlands in natural condition and where possible restore disturbed areas to natural function 	х	х	х			 Inventory his locations of wetlands
	 Augment or support conservation oriented farm programs 	Х	Х	Х		Х	
Loss of Grassland Habitat Quality	Create habitats that provide the functional attributes of grasslands			Х			

itoring	Implementation Status
tial habitat use vity in Columbia ies	

y existing and habitat for priority	
/ historical and current of ephemeral	

WRIA 37- LOWER YAKIMA WATERSHED

WATERSHED PLANS AND ASSOCIATED REPORTS REVIEWED

- Assessment of the Lower Yakima River in Benton County, Washington (2011)
- Yakima River Basin Integrated Water Resource Management Plan- Final programmatic Environmental Impact Statement, Benton, Kittitas, Klickitat, and Yakima Counties (2012)
- Detailed Implementation Plan Yakima River Basin (2007)
- Yakima River Basin Study Mainstem Floodplain Restoration Technical Memorandum (2011)
- Yakima Steelhead Recovery (2009)
- Yakima Subbasin Plan (Northwest Power and Conservation Council 2004)
- Yakima Bull Trout Action Plan (2012)
- Lower Yakima River Suspended Sediment TMDL (1998)
- Lower Yakima River Suspended Sediment Total Maximum Daily Load: Effectiveness Monitoring Report (2006)
- Yakima River Pesticides and PCBs Total Maximum Daily Load: Volume 1. Water Quality Study Findings (2010)

Table 3.Watershed Plans for Lower Yakima (WRIA 37)

Issue			_	_			Monitoring	Implementation Status
	Actions	Water Quantity	Water Quality	Habitat	Physical Safety	Ag Viability		
SURFACE WATER								
Altered Flow Conditions and Need for Reliable Water Source	 Structural and operational changes to reservoirs New surface water storage Conservation- Increase irrigation efficiency Conservation- Increase irrigation water delivery efficiency Purchase land and/or water rights from willing sellers Utilize Trust Water Rights Program to improve instream flows Investigate feasibility of and facilitate water transfers Move irrigation diversions downstream where feasible Use fish-friendly water level control structures (grade control devices, spillways, etc.) to mimic normative conditions in regulated streams Construct re-regulation reservoirs in irrigation distribution systems to reduce spill and rapid changes in diversion rates Shallow aquifer recharge in late winter/early spring to reduce dry season withdrawals Improve flows below Parker through irrigation system improvements Improve hydrograph through artificial storage and/or Columbia River water transfer Construct pilot projects to evaluate recharging shallow aquifers via groundwater infiltration; full-scale implementation may follow. 	X X X X X X X X X X X X X				x x x x x x x x x	 Model tradeoffs between improvements in distribution system efficiency, on-farm management, and management of diversions themselves to reduce flow fluctuations Conduct feasibility study for Columbia River transfer and periodically evaluate need for additional supplies 	Irrigation efficiencies

Issue							Monitoring
	Actions	Water Quantity	Water Quality	Habitat	Physical Safety	Ag Viability	
Intact Habitat Subject to Development Pressure	 Purchase, easement, and land-use agreements to protect intact floodplain habitats and to secure lands for restoration 	х	х	Х			 Monito areas to benefit: Monito product and life restora
 Degraded Watershed, Instream, and Riparian Conditions Altered sediment transport and bed/bank stability Habitat conditions support predation on salmonids 	 Install in-channel LWD and pass wood captured at the Prosser Dam downstream Restore riparian vegetation Road closure, relocation, and revegetation in forested and riparian areas Improve road drainage structures, inslope and/or outslope roads to reduce energy and sediment routing. Close or relocate key roads. Provide technical assistance to private landowners. Manage streamside grazing to reduce impacts on riparian vegetation; may include constructing off channel watering structures and/or fencing Construct crossing structures for cattle Improve sediment transport capacity by modifying, replacing, and/or removing irrigation dams 		x x x x x	X X X X		x x x x	 Manage monito restora that the function benefit Monito sedime Monito fencing
Disconnected Floodalain	 and consolidating diversions at upstream diversion points Redesign bypass outfalls and/or alter pool structure to reduce predation susceptibility Protect and restore mainstem and floodplain habitats below Sunnyside Dam 			X X X			
Disconnected Floodplain Function and Simplified Channels	 Restore beaver populations Improve recruitment of cottonwoods Reduce constrictions through road relocation. Locate new roads away from streams. Where hydrology of riparian zones and wetlands is altered by irrigation conveyance or return, separate the irrigation system from the watercourse Maximize natural retention of flow in basin by restoring hydrologic/hyporheic connectivity and increasing floodplain area where it has been artificially reduced Restore and protect side channels through water stargrass removal or scouring with large woody debris (LWD) Enhance flow to off-channel habits and promote scour Protect island and floodplain habitats through easements or acquisitions 	x x	X X	x x x x x x x x x			
Fish Passage Barriers and Entrainment	 Improve fish screening at intake structures to minimize potential entrainment. Improve efficiency of irrigation distribution systems and on farm use to reduce false attraction flows Continue long-term restoration and removal of obstructions to spawning habitat, side channels, and lower ends of tributaries. 	x		x x x		x	 Monito screeni

	Implementation Status
ring of protection o ensure that habitat s are maintained r population tivity, abundance, history and habitat tion	
ement and ring activities on tion areas to ensure e ecological ns and habitat s are maintained r streambed nt composition r cattle exclusion and compliance	
r effectiveness of ng	 Screening of agricultural diversions Irrigation efficiencies

Issue							Monitoring
	Actions	Water Quantity	Water Quality	Habitat	Physical Safety	Ag Viability	
	Culvert and bridge replacement (multiple sites)			Х			
	 Design irrigation diversions that will remain stable and functioning over long periods Subordinate neuron at the Chandler Device Plant to support solver a submitted to the support of the sup	X		v		Х	
	 Subordinate power at the Chandler Power Plant to support samon outmigration Reconfigure the Chandler bypass outfall to be more diffuse, and/or install bird deterrents or other form of recovery areas for juvenile salmonids. Other potential bypass reaches and predation hotspots that should be assessed include Wanawish (Horn Rapids) Dam. 	X		X			
Water Quality Impairments	 Reduce nutrients in areas of eutrophication Continue efforts to remove water stargrass, particularly in historic Chinook spawning areas and 		Х				 Benton District
 Eutrophication and invasive 	side channels	Х	Х	Х			profile
aquatic vegetation	 Increase nutrient source control and management 		Х				Yakima
 Elevated instream 	 Continue on-farm irrigation and soil erosion BMPs to reduce sediment input to the drain 						 Ecology quality
 Elevated Fine Sediment 	network; install sediment traps and grade controls; and manage spill		X			Х	
Load	 Improve quality of irrigation return flows Provide technical assistance and incentives to irrigation districts and growers 	v	X			v	(cooler
Other contaminants	 Provide technical assistance and incentives to impation districts and growers 	X	X			X	the Low which t
							 Explore installin turbidit Yakima
							 Periodio Yakima dieldrin toxapho dioxin
WILDLIFE HABITAT	SLANDS						

Habitat Loss/Fragmentation	 Purchase easements or fee title from interested landowners to maintain and enhance landscape connectivity between large shrub steppe lands Provide economic and other incentives to maintain and enhance landscape connectivity between 	Х		 Conduct suitabili sage gro 		
	 large shrub steppe lands Protect key locations of intact microbiotic crust through fencing and protection from off-road vehicle use 	x x	Х			
Invasive Species	 Implement restoration techniques to control existing and prevent future invasive species 	X				
	encroachment	Х	х			

Conservation (BCD) thermal study of the Lower in 2008 and 2009 r monitored water in 2007 and 2008 r thermal refugia locations) within ver Yakima River, in o focus restoration e the possibility of ng a continuous cy monitor in the River at Kiona cally monitor lower River fish for DDE, n, chlordane, ene, PCBs, andBCD has worked on projects to remove water stargrass since 2007 Lower Yakima Total Maximum Daily Load (TMDL)•BCD has worked on projects to remove water stargrass since 2007 • Lower Yakima Total Maximum Daily Load (TMDL)•Water quality policy, water quality monitoring program, and financing on- farm irrigation upgrades significantly reduced suspended sediment and DDT loading to the Yakima River		Implementation Status	
 Conservation (BCD) thermal BCD has worked on projects to remove water stargrass since 2007 Lower Yakima Total Maximum Daily Load (TMDL) Water quality policy, water quality monitoring program, and financing on- farm irrigation upgrades significantly reduced suspended sediment and DDT loading to the Yakima River at Kiona BCD has worked on projects to remove water stargrass since 2007 Lower Yakima Total Maximum Daily Load (TMDL) Water quality policy, water quality monitoring program, and financing on- farm irrigation upgrades significantly reduced suspended sediment and DDT loading to the Yakima River 			
	Conservation (BCD) thermal study of the Lower in 2008 and 2009 y monitored water in 2007 and 2008 y thermal refugia locations) within ver Yakima River, in to focus restoration the possibility of a continuous ty monitor in the River at Kiona cally monitor lower River fish for DDE, a, chlordane, ene, PCBs, and	 BCD has worked on projects to remove water stargrass since 2007 Lower Yakima Total Maximum Daily Load (TMDL) Water quality policy, water quality monitoring program, and financing on- farm irrigation upgrades significantly reduced suspended sediment and DDT loading to the Yakima River 	

t/complete habitat ity assessments for ouse	

Issue							Monitoring	Implementation Status
	Actions	Water Quantity	Water Quality	Habitat	Physical Safety	Ag Viability		
Incompatible livestock grazing Provide economic and other incentives to implement livestock management strategies practices				Х		Х		
Limited spatial and genetic diversity of sage grouse populations	ted spatial and genetic rrsity of sage grouse• Translocate sage grouse individuals from healthy populations into areas where suitable habitat has been identifiedXulationsX							

WRIA 40- ALKALI SQUILCHUCK WATERSHED

WATERSHED PLANS AND ASSOCIATED REPORTS REVIEWED

- Hanford Reach National Monument Comprehensive Conservation Plan (2008)
- Lower Mid-Columbia Sub-Basin Plan (2004)

Table 4.Watershed Plans for Alkali-Squilchuck (WRIA 40)

Issue			_	_			Monitoring
	Actions	Water Quantity	Water Quality	Habitat	Physical Safety	Ag Viability	
SHRUB STEPPE/ INTERIOR GRAS	SLANDS						
Reduction in Age Class, or	 Protect high-quality/sensitive shrub-steppe plant communities 	Х					 Inventor
Complete Loss, of Shrub	 Minimize ground disturbing and management activities that disturb the soil surface. 			х			listed sp
Steppe vegetation	 Revegetate with native plant species materials in disturbed areas. 			х			
	 Protect Dense Sagebrush Areas, native perennial shortgrasses, native short grasslands, rare and unique habitats, rare plant populations, microbiotic crusts 			х			
	 In areas of inappropriate grazing, improve vegetation and microbiotic crusts 			х			
	 Encourage and support Coordinated Resource Management Programs (e.g., CRP; BiOp RMS) 			х			
	 Avoid inappropriate grazing of livestock through rotational grazing regimes 			х			
	 Use proper grazing to reduce sagebrush cover to natural levels 			х			
Displacement of Native	 Limit expansion of invasive non-native plants and reduce occurrence 			х			 Inventor
Vegetation with Non-Native	Restore native plant communities			х			species
vegetation	 Reduce sources of introduction of nonnative seed 			х			
	 Continue and enhance shrub steppe/grassland weed control programs 			х			
Impacts of Fire	 Restore more natural fire cycles to increase mean age class of shrub steppe and restore areas of complete shrub loss where it has been altered by fire 			х			 Inventor potentia
	 Suppress fire by fighting wildfires 			х			species
	 Reduce amounts of cheatgrass 			х			

Implementation Status

ry/ monitor federally recies	
ry/ monitor invasive	
ry existing and al habitat for priority	

Issue	Actions	Vater Quantity	Water Quality	Habitat	hysical Safety	Ag Viability	Monitoring	Implementation Status
WETLANDS AND RIPARIAN HABI	TATS	>	-					
Habitat Loss/Fragmentation	 Maintain current ephemeral wetlands in natural condition and where possible restore disturbed areas to natural function 	х	х	х			 Inventory rare plants and mature trees 	Management activities on Hanford Site
	 Augment or support conservation oriented farm programs Protect and enhance natural springs and seeps. 	Х	х	х		х	 Inventory historical and current locations of 	
	 Protect and restore riparian habitat along the Columbia River. 	Х	X X	x x			ephemeral wetlands	
	 In riparian zones highly affected by non-native species, treat non-natives and then restore/re- vegetate the area using native species characteristic of the Columbia River system. 			X				

UPLAND HABITATS THROUGHOUT BENTON COUNTY

ADDITIONAL REPORTS REVIEWED

- Arid Lands Initiative (2014)
- Washington Connected Landscapes (2010, 2012, 2013)
- Greater Sage Grouse Recovery Plan (2004)
- Wolf Conservation and Management Plan (2011)

Wildlife Habitat Plans in Benton County Table 5.

Issues	Actions	ater Quantity	ater Quality	abitat	nysical Safety	g Viability	Monitoring	Implementation Status
		3	3	Ĥ	P	Å		
Habitat	 Maintain and restore the integrity of existing large blocks of native habitat and the linkages that connect them 			Х				
Loss/Fragmentation	Restore and expand the complex linkages that transform bands of connected habitat into a comprehensive network spanning the			Х				
in Columbia Plateau	Columbia Plateau in Washington and beyond							
	 Restore and expand key linkages that may be degraded or unlikely to be resilient to environmental change 			Х				
	Test innovative approaches to simultaneously achieve production and conservation objectives, based on increased understanding			Х		Х		
	of the connectivity value of agricultural lands							
	Integrate conservation of connectivity for terrestrial vertebrates with conservation of aquatic systems			Х				
GREATER SAGE GRO	JSE							
Limited spatial and genetic diversity of sage grouse populations	Translocate sage grouse individuals from healthy populations into areas where suitable habitat has been identified			Х			 Conduct annual lek counts for greater sage grouse (WDFW) 	
Disturbance during	Avoid persistent disturbance activities within 2 km of leks between the hours of 1800 and 0900 during February-April			Х			Conduct surveys	
key life history periods	Protect nesting and brood rearing areas from disturbance between 1 March and 15 June			х			for new leks (WDFW)	
Habitat alterations	• Minimize proliferation of perch sites for avian predators (i.e. poles and fences) except where needed to maintain livestock			Х		Х	Collect and	
and incompatible	Minimize or eliminate exposure of sage-grouse to organophosphate insecticides			х			maintain data to	
land use practices	• Ensure compatibility of grazing management on public lands managed for sage-grouse (i.e. light grazing pressure, seasonally			Х			estimate sage	
	rotated, periodically deferred, and responsive to drought)						grouse population	
	 Work with interested landowners to protect the most important sage-grouse habitat on private land through easements and acquisitions 			Х		Х	size and trends (WDFW)	
	• Facilitate and promote the use of incentives, such as Farm Bill conservation programs, to benefit sage-grouse			Х		Х	Conduct/complete	
	 Facilitate management of agricultural and range lands that is compatible with the conservation of sage-grouse Promote the protection of remnant areas of native shrub-steppe 			Х			habitat suitability	

•	Conduct annual lek	
	counts for greater	
	sage grouse	
	(WDFW)	
•	Conduct surveys	
	for new leks	
	(WDFW)	
•	Collect and	
	maintain data to	
	estimate sage	
	grouse population	
	size and trends	
	(WDFW)	
•	Conduct/complete	
	habitat suitability	

Issues	Actions	Water Quantity	Water Quality	Habitat	Physical Safety	Ag Viability	
	 Work with interested range managers to retain residual perennial grass cover and associated forb and shrub communities; 						

discourage additional wells for livestock unless it will benefit sage grouse, discourage removal of sage brush within 3 km of leks, and establish grass banks for alternative range during droughts

• Promote agricultural practices that use fewer chemicals

FERRUGINOUS HAWK							
Habitat and species	•	Establish spatial and temporal buffers around ferruginous hawk nests		•		Monitor	
uistarbarice	•	Provide natural and artificial structures for nesting and perching				populations and	
	٠	Minimize and mitigate effects of converting land to agriculture				nest usage	
GRAY WOLF							
Wolf-livestock	٠	Develop and implement a comprehensive program to manage wolf-livestock conflicts in cooperation with livestock producers	Х	Х	•	Monitor	
interactions	٠	Maintain and restore habitat connectivity for wolves in Washington				depredation	
						actions	

Implementation Status

FARMLAND PRESERVATION

Table 4.

A 2004 Department of Community Trade and Economic Development Report reviewed threats and alternatives for agricultural preservation. It evaluated conditions in Chelan, Lewis, King, and Yakima Counties. Although the report pre-dates the development of VSP, the issues and many of the potential solutions remain relevant to farmland preservation today. Issues, recommendations, and implementation status (where known) that may be applicable to Benton County are included in Table 4, below.

Issue		Actions	Implementation Status		
•	Conversion of Agriculture Land to Other Uses Speculative Buying, Taking Land Out of Production Fragmentation of Agricultural Land Base	 Develop Program for Land Banking, Selling, and Leasing Farmland Enact or Continue Purchase of Development Rights Programs on County or State Basis Use Transfer of Development Rights, Density Bonuses, and Clustering Promote Development Within UGA Downzone Agricultural Lands Allow Accessory or Commercial Uses on Farms Provide Funding for Agriculture Infrastructure Fund Endowment to Support Research Grants Create or Support Training Programs for New Farmers Support WSU Extension Service Programs Financially 	Growth Management Act promotes development intensity in UGAs Benton County Code 11-18 establishes minimum lot sizes and allows accessory and commercial uses in GMA agricultural district		
•	Incompatible Adjacent Uses Lawsuits	 Adapt and Update Right-to-Farm Laws (protection from nuisance lawsuits) Transitional space between development adjacent to agriculture 	Benton County Code 11-18 establishes agricultural setbacks for livestock facilities to limit use conflicts		
•	Regulations	Employ alternatives to local regulationsProvide regulatory certainty	VSP under development		

Issues and actions associated with agricultural viability

lss	sue	Actions	Implementation Status				
•	Water Rights and irrigation	 See Tables 2 and 3 					
•	Operation costsoTaxesoFinancingoSeasonal worker housingoWagesoTransportation	 Address Appraisal Practices Expand Open Space Tax Incentive Programs to Agriculture Structures and Improvements; Provide Other Tax Incentives Fund Farm Ombudsman Position Address Need for Temporary Housing for Farm Workers 	 Agricultural Current Use Taxation Federal loan program to assist in infrastructure 				
•	Global Economy Changing International Markets Consolidation of Buyers Access to Markets	 Develop Coordinated Statewide Agriculture Economic Development Policy Encourage Consumer Support of Local Agriculture Develop Demonstration Farms for Testing New Products 					

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Benton County Voluntary Stewardship Program

Appendix D - Existing Regulations and Voluntary Programs | April 2018

FEDERAL REGULATIONS

CLEAN WATER ACT (CWA)

Section 303: Water Quality Standards and Implementation Plan

Section 303(d) of the Clean Water Act established a process to identify and clean up polluted waters. Under the authority of Section 303 of the Clean Water Act, states establish water quality standards, identify impaired waters, and develop total maximum daily loads (TMDLs). TMDLs can be used to address water quality impairments through regulatory (for point source) or non-regulatory (for non-point source) mechanisms.

Section 402: National Pollutant Discharge Elimination System (NPDES)

NPDES Permits are required to authorize point-source discharges of pollutants into a receiving body. Ecology is authorized by EPA to administer NPDES permits. NPDES permits are not required for most agricultural activities, as they are non-point sources of pollutants. Agricultural stormwater discharges and return flows from irrigated agriculture are specifically exempted from NPDES permit requirements. NPDES permits are required for concentrated animal feed operations (CAFOs). NPDES permits assure discharges comply with state water quality, sediment quality, and resource protection standards.

A 2011 federal general NPDES permit restricts pesticide application near waterbodies; a draft 2016 general permit for pesticide applications is under review.

A general NPDES permit for CAFOs was issued in 2006 and expired in 2011. A draft general NPDES permit for CAFOs is under development.

Section 404: Discharge of Dredged and Fill Material

Normal farming, silviculture, and ranching practices such as plowing, cultivating, minor drainage, and harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices are generally exempt from Section 404.

Activities that convert a wetland that has not been used for farming or forestry into such uses are not considered part of an established operation, and are not exempt. Additionally, activities that result in a "reduction in reach/impairment of flow or circulation" of waters of the United States are not exempt. Where direct impacts occur to wetlands from these non-exempt activities, compensatory mitigation is required.

Section 401- Water Quality Certification

Where a federal permit is required, a Section 401 water quality certification from Washington Department of Ecology is also required. Issuance of a 401 Certification means that Ecology has reasonable assurance that the applicant's project will comply with state water quality standards and other aquatic resources protection requirements under Ecology's authority.

Other provisions of the CWA

Other provisions of the Clean Water Act apply to the following, which may apply to some agricultural activities in Benton County:

- Underground injection
- Small Drinking Water Systems
- Oil Pollution Prevention
- Spill Prevention Control and countermeasures
- Facility response plan

RIVERS AND HARBORS ACT SECTION 10

Section 10 of the Rivers and Harbors Act requires that regulated activities conducted below the Ordinary High Water (OHW) elevation of navigable waters of the United States be permitted by the U.S. Army Corps of Engineers. Regulated activities include the placement/removal of structures, work involving dredging, disposal of dredged material, filling, excavation, or any other disturbance of soils/sediments or modification of a navigable waterway. In Benton County, the Columbia and Yakima Rivers are considered navigable waters.

ENDANGERED SPECIES ACT (ESA) SECTION 9 AND SECTION 7

ESA prohibits the "take" of species listed as threatened or endangered. For projects involving federal funding, action, or approval, consultation with the National Marine Fisheries Service and/or US Fish and Wildlife Service is required for projects with the potential to affect listed species.

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

FIFRA regulates pesticide usage, storage, and disposal in accordance with label use restrictions and registration requirements to prevent unreasonable risks to human health and the environment.

Under the authorization of this act, the EPA has banned the use of certain pesticides and limited the use of others. The EPA is currently studying the effects of the organophosphates chlorpyrifos, diazinon, and malathion on federally listed species.

The EPA recently proposed a plan to prohibit the use of pesticides that are toxic to bees when crops are in bloom and bees are under contract for pollination services. Risk assessments of three other neonicotinoid pesticides are due by the end of 2016. The plan also recommends that states and tribes develop pollinator protection plans and best management practices.

US DEPARTMENT OF AGRICULTURE (USDA) FARM BILL (SWAMPBUSTER)

Per the 2014 Farm Bill, in order to maintain eligibility for US Department of Agriculture funding programs, participants must certify that they have not produced crops on converted wetlands after December 23, 1985, and did not convert a wetland after November 28, 1990, to make agricultural production possible. Additionally, producers must certify that they will not Plant or produce an agricultural commodity on highly erodible land without following an NRCS approved conservation plan or system.

MIGRATORY BIRD TREATY ACT

This act makes it illegal for anyone to "take" any migratory bird, or the parts, nests, or eggs of such a bird, except under the terms of a valid permit.

WASHINGTON STATE REGULATIONS

AGRICULTURE AND MARKETING- RCW TITLE 15

Washington Pesticide Control Act (15.58.020 RCW)

Regulates the formulation, distribution, storage, transportation, and disposal of any pesticide and the dissemination of accurate scientific information as to the proper use, or nonuse, of any pesticide in the interest of maintaining a high level of public health and welfare both immediate and future.

Fertilizer Bulk Storage and Operational Area Containment Rules (16-201 WAC)

Regulates the primary and secondary containment of liquid bulk fertilizers; operational area containment of liquid bulk fertilizers; dry bulk fertilizer storage and handling; backflow prevention; fertilizer spills; maintenance, inspection and recordkeeping requirements; and spill response plan.

ANIMALS AND LIVESTOCK- RCW TITLE 16

Range areas (16.24)

Establishes rules for range areas, including county authority to establish restricted range areas.

Fences (16.60 RCW)

Regulates the type of fence, erection, removal, value, damages to and from fences.

WEEDS, RODENTS, AND PESTS- RCW TITLE 17

Noxious weeds- Control Boards (17.10 RCW)

Establishes state and regional noxious weed control board. Establishes owner's duty to eradicate all class A noxious weeds and to control and prevent the spread of all class B noxious weeds.

Washington Pesticide Application Act (17.21 RCW)

Regulates the use and application of pesticides for protection of public health and welfare. Chemigation and fertigation rules are found under WAC 16-202.

FISH AND WILDLIFE- RCW TITLE 77

Prevention and Suppression of Disease and Pests (77.12.455 RCW)

The Washington Fish and Wildlife Commission can prohibit any activity which may result in the transmission of a disease or pest that might affect fish.

Wildlife Damage (77.36 RCW)

Allows landowners and their representatives to trap or kill wildlife that is threatening human safety or causing property damage on that property subject to specific standards. This provision is implemented under 232-36 WAC.

Hydraulic Code (77.55 RCW)

The Hydraulic Code gives the Washington Department of Fish and Wildlife (WDFW) the authority to review, condition, and approve or deny "any construction activity that will use, divert, obstruct, or change the bed or flow of any of the salt or fresh waters of the State." These activities may include stream alteration, culvert installation or replacement, pier and bulkhead repair or construction, among others. In a permit called a Hydraulic Project Approval (HPA), WDFW can condition projects to avoid, minimize, restore, and compensate for adverse impacts.

77.55 RCW does not apply to wholly artificial waterways, so long as they were not historically constructed from natural wetlands or streams.

FLOOD CONTROL- RCW TITLE 86

Floodplain Management (86.16 RCW)

Statewide floodplain management regulation shall be exercised through: (1) Local governments' administration of the national flood insurance program (NFIP), (2) the establishment of minimum state requirements for floodplain management that equal the minimum federal requirements for the NFIP, and (3) the issuance of regulatory orders.

IRRIGATION- RCW TITLE 87

Establishes and regulates irrigation and districts.

WATER RIGHTS - ENVIRONMENT- RCW TITLE 90

Water Code (90.03 RCW)

Establishes water rights appropriation standards and procedures. Water use is subject to the "first in time, first in right" clause.

Regulation of Public Groundwaters (90.44 RCW)

The groundwater permit exemption allows the users of small quantities of groundwater to construct wells and develop their water supplies without first obtaining a water right permit from Ecology. Agricultural exceptions to the permit requirement for withdrawals of groundwater apply to:

- Providing water for livestock (no gallon per day limit).
- Providing water for industrial purposes, including irrigation (limited to 5,000 gallons per day but no acre limit).

A recent Washington State Supreme Court Ruling (Whatcom County, Hirst v: Western Washington Growth Management Hearings Board 2016) clarified that local government is responsible to ensure that the cumulative effect of exempt wells does not reduce flows below established minimum instream flow.

90.48 RCW Water Pollution Control

The federal CWA requires all states to restore their waters to be "fishable and swimmable." The state Water Pollution Control Act's policy statement sets the goal of maintaining "the highest possible standards to insure the purity of all waters of the state." The State standards implement portions of the CWA by specifying the designated and potential uses of water bodies. They set water quality criteria to protect those uses. The standards also contain policies to protect high quality waters (antidegradation) and in many cases, specify how criteria are to be implemented. State water pollution law prohibits the discharge of any polluting matter into the surface or groundwater of the state (including wetlands), and requires "the use of all known available and reasonable methods … to prevent and control the pollution of the waters of the state of Washington." Additionally, the water quality standards establish the basis for a water quality based approach to regulating waters that fail to meet water quality standards despite the use of effluent limitations and other pollution control requirements.

See: Ecology Publication Number 13-10-030 The Voluntary Stewardship Program and Clean Water at: https://fortress.wa.gov/ecy/publications/publications/1310030.pdf, and http://app.leg.wa.gov/rcw/default.aspx?cite=90.48.

Dairy Nutrient Management (90.64 RCW)

Requires all dairy producers, regardless of size to prepare and implement a dairy nutrient management plan, register with WSDA, and participate in a program of regular inspections and compliance. The Department of Ecology is responsible for developing and maintaining a standard protocol for water quality monitoring of the waters of the state within the vicinity of dairies and CAFOs.

Family Farm Water Act (90.66 RCW)

This act gives priority water right status to irrigation of family farms.

SHORELINE MANAGEMENT ACT (SMA) (RCW 90.58 AND WAC 173-18 THROUGH 173-27)

The SMA requires cities and counties to prepare Shoreline Master Programs (SMPs). Ongoing agricultural activities are not subject to the provisions of the SMP. SMP regulations apply to new or

expanded agricultural activities on non-agricultural land; conversion of agricultural land to other uses; and non-agricultural activities on agricultural land.

The SMP does not need to incorporate the VSP work plan. The SMP cannot limit or modify agricultural activities as defined in the SMA (essentially existing, ongoing agriculture). The VSP should apply wherever agriculture and critical areas exist inside or outside of shoreline jurisdiction.

COUNTY REGULATIONS

LIVESTOCK- BCC 2.16

Establishes stock restricted areas in Benton County.

FLOOD DAMAGE PREVENTION- BCC 3.26

This Section regulates building within the 100-year floodplain and the floodway. Fill within the floodway that would increase the base flood elevation is prohibited.

ZONING- TITLE 11 BCC

Title 11 provides zoning standards that direct uses, building bulk, scale, and location, and other design considerations.

RIGHT TO FARM- BCC 14.05

Consistent with 7.48 RCW, this provision protects agricultural activities conducted consistent with good agricultural practices and established prior to surrounding nonagricultural activities from nuisance lawsuits.

VOLUNTARY PROGRAMS

Agricultural producers participate in numerous voluntary industry programs that may contribute to the protection or enhancement of critical areas. It is important to note that these programs are dynamic and influenced by changing federal regulations, industry norms, and market conditions.

GLOBAL G.A.P. is a voluntary certification program for agricultural producers around the world. The program encourages use of safe and sustainable agricultural practices. Specific certification requirements include waste management protocols and the development of wildlife and habitat conservation plans, though the measures are broadly stated.

SAFE QUALITY FOOD INSTITUTE (SQF-I) provides certification in food safety and quality. The code includes requirements for several relevant good agricultural and livestock practices including water management, the storage of hazardous chemicals, soil management and use of fertilizers, and waste disposal.

PRIMUSLABS GAP provides tools and audit programs (checklists) to support good agricultural practices relating to site selection, adjacent land use, fertilizer usage, water sourcing and usage, pest control and pesticide monitoring, and harvesting practices.

USDA HARMONIZED PRODUCE GAPS consist of audit checklists to ensure food safety standards. Relevant topics include water quality and chemical use.

Appendix E. Shrub-Steppe and Habitat Maps




















Habitat Connectivity: 05 Barrier Impact/Restoration Improvement

Mesa

Rock - Glade

WALLA WALLA

Appendix F Table 1. Intersect of Agricultural Activities and Priority Habitats and Species in 2011

		Benton (ALL)			Alkali-Squilchuck			Lower Yakima			Rock-Glade				
			Coun	tywide			WRIA 40			WRIA 37			WRIA 31		
	units	Dryland	Irrigated	Rangeland	Total	Dryland	Irrigated	Rangeland	Dryland	Irrigated	Rangeland	Dryland	Irrigated	Rangeland	
Total Area of Agricultural Activities		323,548	279,371	92,271	695,190	776	289	860	93,202	72,229	63,313	229,570	206,853	28,099	
Upland Priority Species Regions (Ac)															
American White Pelican	acres			173	173									173	
Bald Eagle	acres			825	825									825	
Burrowing Owl	acres		122	16	139					122	16				
Chukar	acres	446	55	624	1,125	445	55	624	<1						
Elk	acres	57,982	6,288	44,144	108,413	40		14	57,942	6,288	44,130				
Loggerhead Shrike	acres		19		19					19					
Long-billed Curlew	acres														
Mule Deer	acres	678	514	6,692	7,884						1,127	678	514	5,565	
Sage Grouse	acres	5,162	45	784	5,991				5,162	45	784				
Sage Sparrow	acres		19		19					19					
Waterfowl Concentrations	acres		3,479	1,736	5,216					2,151	68		1,328	1,668	
Priority Habitat Regions (Ac)															
Cliffs/bluffs	acres	545	107	1,345	1,997	445	57	624	<1		69	98	50	651	
Islands	acres			43	43									43	
Sand Dunes	acres		31	9	40								31	9	
Shrub-steppe	acres	18,229	3,910	38,516	60,655	330		104	15,327	2,123	32,545	2,572	1,787	5,867	
Talus Slopes	acres		32		32					32					
Wetlands	acres		205	77	282					205	27			50	
Upland Priority Species Occurrence (Ac)															
Black-crowned night-heron	acres		<1		<1					<1					
Great blue heron	acres		2		2					2					
Townsend's Ground Squirrel - nancyae	acres	11	270	3	284				11	270	3				
Townsend's Ground Squirrel - townsendii	acres	43	62	120	225				22	52	70	21	10	50	
Upland Priority Species Occurrence															
American Badger	occur			1	1						1				
Big brown bat	occur		1		1								1		
Black-tailed jackrabbit	occur	2	7	6	15				1	6	5	1	1	1	
Burrowing owl	occur	8	26	5	39					11	5	8	15		
California myotis	occur		1		1								1		
Canyon Bat	occur		1		1								1		
Desert Nightsnake	occur	1			1				1						
Ferruginous hawk	occur	21	2	37	60				17		34	4	2	3	
Greater Sage-grouse	occur	5	1		6				5				1		
Jackrabbit	occur	2			2				2						

		Benton (ALL)			A	lkali-Squilcl	huck	Lower Yakima			Rock-Glade			
			Countywide				WRIA 40			WRIA 37			WRIA 31	
	units	Dryland	Irrigated	Rangeland	Total	Dryland	Irrigated	Rangeland	Dryland	Irrigated	Rangeland	Dryland	Irrigated	Rangeland
Loggerhead shrike	occur	4			4				3			1		
Long-billed curlew	occur		3	1	4					2			1	1
Northern goshawk	occur	1			1							1		
Peregrine falcon	occur			1	1			1						
Prairie falcon	occur	7		23	30			4	6		12	1		7
Racer	occur			1	1						1			
Sagebrush Sparrow	occur		3	3	6					2	1		1	2
Swainson's hawk	occur	10	7	3	20				2	5	1	8	2	2
Townsend's Ground Squirrel - townsendii	occur	2	1	2	5					1	1	2		1
Western small-footed myotis	occur		1		1								1	
Woodhouse's toad	occur			9	9									9
Priority Habitat Fish Species (Ft)														
Brown Trout	feet		340	357	697					340	357			
Bull Trout	feet		42,172	13,095	55,267					41,835	9,984		337	3,111
Chinook Salmon	feet		18,520	4,082	22,602					18,520	4,082			
Coho Salmon	feet		27,462	6,837	34,298					15,705	3,725		11,756	3,111
Largemouth Bass	feet		379	357	736					379	357			
Mountain Whitefish	feet		340	357	697					340	357			
Rainbow Trout	feet		44,026	5,118	49,145					44,026	5,118			
Smallmouth Bass	feet		379	357	736					379	357			
Steelhead Trout	feet		57,168	16,394	73,562					44,053	5,118		13,115	11,276
Walleye	feet		340	357	697					340	357			

		Benton (ALL)		Alkali-So	Juilchuck	Lower	Yakima	Rock-Glade		
		Count	ywide	WRI	A 40	WRI	A 37	WRI	A 31	
			Not		Not		Not		Not	
			Classified		Classified		Classified		Classified	
		Dryland to	to	Dryland to	to	Dryland to	to	Dryland to	to	
	units	Irrigated	Irrigated	Irrigated	Irrigated	Irrigated	Irrigated	Irrigated	Irrigated	
Upland Priority Species Regions (Ac)										
Burrowing Owl	acres		43				43			
Chukar	acres		2		2					
Elk	acres		268				267	1		
Mule Deer	acres		42					42		
Waterfowl Concentrations	acres		62				59		3	
Priority Habitat Regions (Ac)										
Shrub-steppe	acres	63	1,359			63	946		413	
Wetlands	acres		3				3			
Upland Priority Species Occurre	nce (Ac))								
Townsend's Ground Squirrel -										
nancyae	acres	3	1			3	1			
Townsend's Ground Squirrel -										
townsendii	acres		9				8		1	
Upland Priority Species Occurre	nce									
Black-tailed jackrabbit	occur		2				2			
Burrowing owl	occur		5				1	4		
Swainson's hawk	occur		2				2			

Appendix F Table 2. Change in Intersect of Agricultural Activities and Priority Habitats and Species from 2011 to 2016

HCA Ag Intersect					
Sum of Acres	Column Labels				
Row Labels	Low	Medium	High	Very High	Grand Total
Alkali - Squilchuck	868	375	658	24	1,924
Drylands	142	117	501	16	776
Irrigated	224	64			289
Rangelands	501	194	157	9	860
Lower Yakima	188,587	30,346	5,702	4,144	228,779
Drylands	77,127	12,046	1,766	2,277	93,216
Irrigated	71,865	297	71	8	72,240
Rangelands	39,595	18,003	3,865	1,859	63,323
Rock - Glade	456,424	8,128	9		464,560
Drylands	229,308	285			229,593
Irrigated	201,351	5,516			206,867
Rangelands	25,765	2,327	9		28,101
Grand Total	645,879	38,848	6,368	4,168	695,263

Appendix F Table 3. Agricultural Intersect with Habitat

LINK Ag Intersect

Sum of Acres	Column Labels				
Row Labels	Low	Medium	High	Very High	Grand Total
Alkali - Squilchuck	287	1,083	554		1,924
Drylands	72	409	294		776
Irrigated	43	113	133		289
Rangelands	172	561	126		860
Lower Yakima	171,128	36,606	14,496	6,548	228,779
Drylands	64,626	17,839	7,333	3,418	93,216
Irrigated	67,559	3,572	642	467	72,240
Rangelands	38,943	15,195	6,520	2,664	63,323
Rock - Glade	390,676	64,793	9,046	46	464,560
Drylands	207,667	17,207	4,705	13	229,593
Irrigated	167,215	36,125	3,527		206,867
Rangelands	15,794	11,460	814	33	28,101
Grand Total	562,092	102,482	24,096	6,594	695,263

Pinch Point Ag Intersect

Sum of Acres	Column Labels				
Row Labels	Low	Medium	High	Very High	Grand Total
Alkali - Squilchuck	1,741	173	9	0	1,924
Drylands	776				776
Irrigated	204	83	1		289
Rangelands	761	90	8	0	860
Lower Yakima	189,916	10,589	7,569	20,705	228,779
Drylands	73,687	6,291	4,806	8,431	93,216
Irrigated	68,502	1,314	647	1,777	72,240
Rangelands	47,726	2,985	2,115	10,496	63,323
Rock - Glade	400,481	29,393	14,915	19,771	464,560
Drylands	209,534	11,336	4,847	3,876	229,593
Irrigated	175,448	12,553	7,669	11,197	206,867
Rangelands	15,499	5,504	2,399	4,697	28,101
Grand Total	592,139	40,155	22,493	40,476	695,263

Appendix G-1. Short Form Checklist BENTON VOLUNTARY STEWARDSHIP PROGRAM Voluntary Participation & Practices Checklist

The Voluntary Stewardship Program (VSP) is an optional, incentive-based approach to protecting critical areas while promoting agriculture. This checklist serves as [(1) an introduction to conservation practices – you will be invited to discuss conservation practices with a technical provider who can describe practices and offer cost-share agreements OR 2) a self-certification VSP stewardship plan for producers with additional resources and experience] referenced in the VSP law to help each producer contribute to the goals and benchmarks of the Benton County VSP Work Plan. See WWW. XXX.XXX for more information.

1. Provide Location Information

3. Pinch Point Cumulative Constraint

Α.	BCD will prepare site-specific maps for each assist with that service, please provide the f information:	producer. To ollowing
ſ	Name:	
C	ontact Email:	
9	Site Address:	
В.	What basin is your agricultural property loca	ated within?
1. 2. 3. C.	Lower Yakima Rock Glade Alkali-Squilchuck What type of agricultural land use do you ha	D D ave?
4. 5. 6. D.	Irrigated Dryland Rangeland Identify potential critical areas on, or near, p	□ □ □ property:
1. 2. 3. 4. 5.	Fish and wildlife habitat conservation areas Wetlands Frequently flooded areas Geologically hazardous areas Critical aquifer recharge areas a) Groundwater management area? Yes	□ □ □ □ No
E.	If there are fish and wildlife habitat conserve one or more of the following mapped:	ation areas are
1. 2.	Habitat Concentration Areas Linkage Centrality Cumulative Rating	

2. Do you participate in any of the following conservation programs?

a. Global Gap: <u>www.scsglobalservices.com/globalgap-</u> certification	e. Safe Quality Food Institute: <u>www.sqfi.com</u>	
b. WSDA Organic System Plan: <u>http://agr.wa.gov/FoodAnimal/Organic/</u>	f. Vinewise: <u>http://www.vinewise.org/eval/</u>	
c. NRCS Conservation Plan: https://www.nrcs.usda.gov/wps/portal/nrcs/	g. Other:	
d. LIVE Certification: <u>https://livecertified.org/standards</u>		

If you checked any of the above conservation programs, please describe what kinds of activities you may have implemented since July 2011 that are related to conservation and protection of critical areas.

Conservation Practices

Conservation practices are practical methods of agricultural land management or improvements designed to protect or enhance natural resources - soils, water, air, energy, habitat - while allowing efficient and productive use of the land. Listed in following pages (and illustrated at right) are types of conservation practices you may have implemented or may be interested in applying to your operation. These are just a few ideas – some may be applicable and others not. We are interested in the types of conservation measures you have applied and your thoughts on how they are working for you. There is no right or wrong answer. Each operation is unique and changes over time.

The VSP statute identifies a baseline year of July 22, 2011. Some of the questions ask how much of the measures you've implemented since 2011. Please fill that in if you know those amounts. In addition, for any conservation practices you put in place prior to 2011, please let us know if you do more or less of the practice today.

We would like to ensure that our Work Plan continues to show positive results across our watersheds and that we are credited for all the good things producers do to have a viable agricultural operation, protect critical areas, and steward their land.

VSP offers technical assistance and

1 2 4 5 6 1. CREP: protect highly erodible soils along salmonbearing streams 2. Fish screen 3. Irrigation efficiencies 4. Grazing management 5. Field borders 6. Nutrient Management Photos: BCD.org

incentives for willing producers for conservation practices that protect and enhance critical areas. The conservation practices also are intended to improve agricultural viability by reducing producer costs and increasing yields and quality in many cases. See contact information for Technical Providers to get assistance, including cost-sharing for conservation practices on your property:

Lead Technical Assistance Providers:

Benton Conservation District http://www.bentoncd.org/

3. Water Efficiencies/Management Practices

Water Efficiencies and Management practices can help enhance on farm irrigation efficiency and distribution, conserve water, save energy, decrease producer's costs, and may improve crop yield and production.

Conservation Practice Examples	l do this	Amount Implemented (since 2011)	If implemented before 2011 do you do more or less of it now?	I'm interested in this	Does not apply
Irrigation water management or improvements such as micro-irrigation, drip, sprinkler, moisture monitoring, pond lining, center pivot low energy precise application, etc.		(ac)	moreless		
Soil and plant moisture monitoring		(ac)	moreless		
Water trust agreement or other water exchange or transfer		(amt)	moreless		
Water Well for livestock, fire control, wildlife, and other agricultural uses		(no)	moreless		
Well Water Testing		(no)	moreless		

Are there other Water Efficiencies/Management practices you are implementing? What are they?

Why did you implement these practices?

Have you seen changes from these practices?

Are you doing more or less Water Efficiencies/Management measures since 2011?

4. Land Management and Habitat

Land Management and Habitat practices can promote crop pollination, breakdown of organic matter to provide nutrients for crops, provide contaminant degradation, allow for agricultural pest control, reduce invasive species, and reduce the risk of wildfire. Additionally, practices can reduce erosion and improve water quality.

For example, by fencing off streams and providing off-stream watering, producers can increase drinking water quality, pasture quality, stream bank stability, biodiversity, and wildlife habitats, while reducing disease incidents, water pollution, and erosion.

Conservation Practice Examples	l do this	Amount Implemented (since 2011)	lf i 201	implemented before L1 do you do more or less of it now?	I'm interested in this	Does not apply
Fish and fish habitat protection such as fish screens or fencing		(no)		more less		
Vegetation management, such as herbaceous weed control or integrated pest management		(ac)		more less		
Prescribed grazing, including to reduce noxious weeds or invasive plants, manage fuel loads, and address erosion		(ac)		more less		
Riparian protection and enhancement, such as herbaceous cover, riparian forest buffer, streambank protection		(ac / ft)		more less		
Structures for wildlife: Raptor and bat nesting box for predator patrol		(ac)		more less		
Tree and shrub establishment		(ac / ft)		more less		
Watering facility for livestock or wildlife		(no)		more less		
Wildlife and pollinator habitat planting		(ac)		more less		

Are there other Land Management and Habitat practices you are implementing?

Why did you implement these practices?

Have you seen changes from these practices?

Are you doing more or less Land Management and Habitat measures since 2011?

5. Soil Health and Erosion Control

Soil Health and Erosion Control practices help maintain agricultural viability for producers through improving soil health and water quality; avoiding soil loss, crusting, high summer temperatures, and moisture loss; and maintaining the land base for agricultural purposes.

Conservation Practice Examples	l do this	Amount Implemented (since 2011)	lf iı do	mplemented before 2011 you do more or less of it now?	l'm interested in this	Does not apply
Conservation cover or cover crop, for permanent or seasonal cover, and to reduce soil erosion		(ac)		more less		
Fire wise: wildfire protection to maintain cover/ reduce soil loss				more less		
Nutrient management to conserve nutrients, minimize pollution		(ac)		more less		
Mulching to control erosion and conserve soil moisture		(ac)		more less		
Prescribed grazing, including to reduce erosion and manage fuel loads		(ac)		more less		
Residue and tillage management		(ac)		more less		
Vegetative barrier or windbreak, to reduce erosion		(ft)		more less		

Are there other Soil Health and Erosion Control practices you are implementing?

Why did you implement these practices?

Have you seen changes from these practices?

Are you doing more or less Soil Health and Erosion Control measures since 2011?

BENTON COUNTY VOLUNTARY STEWARDSHIP PROGRAM Technical Provider Stewardship Checklist

Promoting Agriculture Viability and Protecting Critical Areas

The Voluntary Stewardship Program (VSP) is an optional, incentive-based approach to protecting critical areas while promoting agriculture. This checklist serves as an individual stewardship plan referenced in the VSP law to help each producer contribute to the goals and benchmarks of the Benton County VSP work plan. See www.co.benton.wa.us/ pview.aspx?id=10933&catid=0 for more information.

Step 1: General Information

Provide Location Information

a Namo

nton County VSP work plan. See <u>www.co.benton.wa.us/</u>	Alleria - Squilchuck
 4. Potential critical areas intersecting with agriculture : a. fish and wildlife habitat conservation areas b. wetlands c. frequently flooded areas d. geologically hazardous areas e. critical aquifer recharge areas Groundwater management area? Yes _ No_ 	Rock - Glade
 5. If there are fish and wildlife habitat conservation areas are one or more of the following mapped: a. Habitat Concentration Areas b. Linkage Centrality Cumulative Rating c. Pinch Point Cumulative Constraint 	Hermiston

1. BCD will prepare site-specific maps for each producer. To assist with that service, please provide the following information:

 b. Contact Email: c. Site Address: 2. What basin is your agricult a. Lower Yakima b. Rock Glade 	tural property located within?	 b. wetlands c. frequently floo d. geologically had e. critical aquifer Grounds 5. If there are fish a
 c. Alkali-Squilchuck 3. What type of agricultural l a. Irrigated b. Dryland c. Rangeland 	and use do you have?	as are one or more a. Habitat Conc b. Linkage Cent c. Pinch Point C

Do you participate in any of the following conservation plans?									
a. Global Gap: www.scsglobalservices.com/globalgap-certification		e. Safe Quality Food Institute: <u>www.sqfi.com</u>							
b. WSDA Organic System Plan: <u>http://agr.wa.gov/FoodAnimal/Organic/</u>		f. Vinewise: <u>http://www.vinewise.org/eval/</u>							
c. NRCS Conservation Plan: <u>https://www.nrcs.usda.gov/wps/portal/</u>		g. Other:							
d. LIVE Certification: <u>https://livecertified.org/standards</u>									

Note: Federal and state laws regarding the use and storage of pesticides and standards for water quality continue to apply.

Consult Technical Providers

Contact Technical Advisors for general advice, or to apply for funding to establish conservation practices. Lead Technical Assistance Provider: Benton Conservation District, http://www.bentoncd.org/

Supporting Technical Assistance Providers:

- USDA Natural Resources Conservation Service <u>http://www.usda.gov/wps/portal/usda/usdahome</u>
- Washington State University Extension <u>http://extension.wsu.edu/benton-franklin/agriculture/</u>
- Washington Department of Ecology: <u>http://www.ecy.wa.gov</u>

Benton County: http://www.co.benton.wa.us/ (VSP Program Administration)

Background: Critical Areas

Definitions

"Critical areas" include the following areas and ecosystems: (a) Wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas; (d) frequently flooded areas; and (e) geologically hazardous areas. "Fish and wildlife habitat conservation areas" does not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company. RCW 36.70A.030(5)

Fish and Wildlife Habitat Conservation Areas

Land management for maintaining populations of species in suitable habitats within their natural geographic distribution so that the habitat available is sufficient to support viable populations over the long term and isolated subpopulations are not created. This does not mean maintaining all individuals of all species at all times, but it does mean not degrading or reducing populations or habitats so that they are no longer viable over the long term. (WAC 365-190-130(1)) Fish and wildlife habitat conservation areas that must be considered for classification and designation include: Areas where endangered, threatened, and sensitive species have a primary association; Habitats and species of local importance, as determined locally; Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife habitat; Waters of the state; Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity; and State natural area preserves, natural resource conservation areas, and state wildlife areas.

2 Wetlands

(WAC 365-190-130 (2))

Areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. However, wetlands may include those artificial wetlands specifically intentionally created from non-wetland areas to mitigate conversion of wetlands. (RCW 36.70A.030(21))

3 Geologically Hazardous Areas

Areas susceptible to erosion, sliding, earthquake, or other geological events, where development is not suitable due to public health or safety concerns. (RCW 36.70A.030 (9)) Per Benton County critical area regulations, geologically hazardous areas are characterized by steep slopes over 15 percent.

4 Frequently Flooded Areas

Lands in the flood plain subject to at least a one percent or greater chance of flooding in any given year, or within areas subject to flooding due to high groundwater. These areas include, but are not limited to, streams, rivers, lakes, coastal areas, wetlands, and areas where high groundwater forms ponds on the ground surface. (WAC 365-190-030 (8))

5 Critical Aquifer Recharge Areas

Areas with a critical recharging effect on aquifers used for potable water, including areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water, or is susceptible to reduced recharge. (WAC 365-190-030(3))

Background: Critical Area & Agricultural Viability

Goals & Example Conservation Practices

Critical Area Goals

In areas of critical area intersect with agricultural activities, and at the watershed level:

- Consistent with the Yakima Basin Integrated Water Resource Management Plan (YBIWRMP), ensure flows necessary to protect salmonids in applicable basins.
- Protect surface water quality in streams, wetlands, and agricultural drains in hydrologic study areas.
- Protect the functions and values of wetlands in areas of agricultural intersect.
- Protect natural floodplain functions.
- Protect groundwater recharge in areas of declining water tables or where recharge can help maintain base flows for rivers and streams.
- Protect groundwater quality in areas of agricultural intersect.
- Protect shrub-steppe habitat and connectivity without restricting ongoing or new agricultural activities.
- Maintain native plant community diversity in shrub-steppe habitats in areas of agricultural intersect.
- Protect the integrity of steep slopes associated with agricultural production.

Photos: BCD.org

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6

Step 2: Voluntary Practices to Enhance Agriculture Viability and Protect Critical Areas

In this section, examine the conservation practice examples. For each practice, check off if you already do it, are interested in the practice, or it doesn't apply. Practices are listed in three categories: A) Water Efficiencies/Management, B) Habitat, and C) Soil Health and Erosion Control.

Conservation Practice Examples	NRCS #	Global Gap	SQF	LIVE Cert.	Vine- Wise	Farm Type*	Priority	l do this	Amount implemented since 2011	l'm interested in this	Does not apply
A) Water Efficiencies and Management	Code #	Section	Module	Ch.	Торіс						
Irrigation Canal or Lateral	320	CB 5	7, 8	7	Water	Irr		0	(ft)	0	0
Irrigation Pipeline	430	CB 5	7, 8	7	Water	Irr		0	(ft)	0	0
Irrigation System, Microirrigation	441	CB 5	7,8	7	Water	Irr		0	(ac)	0	0
Irrigation System, Sprinkler	442	CB 5	7, 8	7	Water	Irr		0	(ac)	0	Ο
Irrigation Water Management	449	CB 5	7, 8	7	Water	Irr		ο	(ac)	ο	Ο
Pond Lining - Irrigation	521	CB 5	7, 8	7	Water	Irr		O (no)		Ο	ο
Pumping Plant—Variable Frequency Drive	533	CB 5	7, 8	7	Water	Irr		0	(no)	Ο	0
Water Quantity Enhancements: Center Pivot low energy precise application (LEPA)	WQT 11	CB 5	7, 8	7	Water	Irr		0	(no)	0	0
Water Well for livestock, fire control, wildlife, and other agricultural uses	642	CB 5	7, 8	7	Water	All		0	(no)	0	ο
Well Water Testing	355	CB 5	7, 8		Water	All		ο	(no)	Ο	ο
Water trust agreement or other water ex- change or transfer	—	CB 5	7, 8		Water	All		0	amt	0	0
My idea to meet the goal								0	Amt	0	0

Are there other Water Efficiencies and Management practices you are using? Please describe your practice(s) including whether you've implemented it since 2011 and the amount you've implemented.

The VSP is intended to **promote agricultural viability while protecting critical areas**. Water Efficiencies and Management help maintain Agricultural Viability for producers through cost savings achieved by water reductions, lower energy use, potential increases in crop yield, as well as helping to improve stream functions. **Farm Type: Irr=Irrigated; Dry = Dryland; Range=Rangeland; All=All Farm Types*

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Benton Stewardship Checklist

Conservation Practice Examples	NRCS #	Global Gap	SQF	LIVE	Vine- Wise	Farm Type*	Priority	l do this	Amount implement- ed since 2011	l'm interested in this	Does not apply
B) Land Management & Habitat	Code #	Section	Module	Ch.	Торіс						
Access Control to exclude animals, people, vehicles, and/or equipment from an area	472	AF 7.1	5, 7	11	Whole- farm	All		0		0	ο
Access Road: position away from water bodies and water courses; locate and build to control or reduce erosion	560	AF 7.1, CB 3				All		0	(ft)	0	0
Brush Management to manage or remove woody plants that are invasive or noxious	314, BNCWB	AF 7.1	7	2	Soil	All		0	(ac)	0	0
Conservation Cover to provide vegetative cov- er, reduce soil erosion and sedimentation	327	AF 7.2, CB 3		2	Soil	All		0	(ac)	0	0
Conservation Reserve Enhancement Program	BCD	AF 7.2		2	Soil	All		0	(ac)	0	0
Fence (management of browsing animals or management of wildlife movement)	382	AF 7.1	5, 6, 9	11	Whole- farm	All		0	(ft)	0	0
Field Border to provide wildlife food and cover, protect soil and water quality.	386	AF 7.2		11	Whole- farm	All		0	(ft)	0	0
Fish Screen to protect fish from injury	700	AF 7.1	6	2	Water	Irr		0	(no)	0	0
Integrated Pest Management to control nox- ious weeds and invasive plants	595, BNCWB	AF 7.1	3-14	8	Whole- farm	All		0	(ac)	0	0
Livestock Pipeline to convey water for livestock or wildlife	516	CB 5	5	11	Whole- farm	All		0	(ft)	0	0
Prescribed Grazing, including to reduce noxious weeds or invasive plants, manage fuel loads, and address erosion	528, BNCWB	AF 7.1	5, 7	11		All		0	(ac)	0	0
Restoration and Management of Rare and De- clining Habitats	643	AF 7.2		2	Whole- farm	All		0	(ac)	0	0
Riparian Herbaceous Cover	390	AF 7.2	6			Irr		0	(ac)	0	0

B) is continued on following page.

*Farm Type: Irr=Irrigated; Dry = Dryland; Range=Rangeland; All=All Farm Types

BNCWB = Benton Noxious Weed Control Board

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Benton Stewardship Checklist

Conservation Practice Examples	NRCS #	Global Gap	SQF	LIVE Cert.	Vine-Wise	Farm Type*	Priority	l do this	Amount implemented since 2011	l'm interested in this	Does not apply
B) Land Management	Code #	Section	Module	Ch.	Topic						
& Habitat (continued)											
Riparian Forest Buffer	391	AF7.2	6					Ο	(ac)	ο	0
Seasonal high tunnel system for crops	798	CB 3			Water	Irr		0	(ft2)	ο	0
Spring Development	574	CB 3			Water	All		0	(no)	0	0
Streambank and Shoreline Protection	580	AF 7.1		2	Whole-farm	Irr		0	(ft)	0	0
Structures for wildlife: Raptor and bat nesting box for predator patrol	649	AF 7.1		2	Whole-farm	All		0	(no)	0	0
Tree/Shrub Site Preparation	490	AF 7.1		2, 5	Whole-farm	All		0	(ac)	0	0
Upland Wildlife Habitat Management	645	AF 7.1		2	Whole-farm	All		0	(ac)	0	0
Watering Facility for livestock or wild- life	614	AF 7.1		11	Whole-farm	All		0	(no)	0	0
Wetland Creation	658	AF 7.2		2	Whole-farm	Irr		0	(ac)	0	0
Wetland Enhancement	659	AF 7.1		2	Whole-farm	All		0	(ac)	0	0
Wetland Restoration	657	AF 7.2		2	Whole-farm	Irr		0	(ac)	0	0
Wetland Wildlife Habitat Manage- ment	644	AF 7.1		2	Whole-farm	All		0	(ac)	0	0
Wildlife and pollinator habitat planting	422	AF 7.2		2	Whole-farm	All		0	(ft)	0	0
Windbreak	380/ 650	AF 7.1			Whole-farm	All		ο	(ft)	ο	ο
My idea to meet the goal								0	amt	0	0

Are there other Land Management and Habitat practices you are using? Please describe your practice(s) including whether you've implemented it since 2011 and the amount you've implemented.

The VSP is intended to **promote agricultural viability while protecting critical areas**. Land Management and Habitat practices can promote crop pollination, breakdown of organic matter to provide nutrients for crops, provide contaminant degradation, allow for agricultural pest control, reduce invasive species, improve stream bank stability and wildlife habitats, and reduce erosion.

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Benton Stewardship Checklist

Conservation Practice Examples	NRCS	Global Gap	SQF	LIVE Cert.	Vince- Wise	Farm Type*	Prior- ity	l do this	Amount implemented since 2011	l'm interest- ed in this	Does not apply
C) Soil Health and Erosion Control	Code #	Section	Module	Ch.	Торіс						
Access Road: position away from water bodies and water courses; locate and build to control or reduce erosion	560	AF 7.1	3, 7	4	Soil	All		0	(ft)	0	0
Conservation Cover to provide permanent vegeta- tive cover, reduce soil erosion and sedimentation	327	AF 7.2, CB 3	3, 7	2	Soil	All		ο	(ac)	ο	ο
Cover Crop for seasonal cover and other purposes.	340	AF 7.1	7		Water	Irr, Dry		0	(ac)	0	0
Fire wise: wildfire protection to maintain cover/ reduce soil loss	BCD	AF 7.1	3, 5, 7		Soil	Dry, Range		0		0	0
Heavy use area protection to stabilize ground surface	561	CB 3	3, 5, 7		Soil	All		0	(ac)	0	0
Irrigation Water Management	449	CB 5	7	7	Water	Irr		0	(ac)	0	0
Nutrient Management to conserve nutrients, minimize pollution	590	CB 4		5, 6	Soil	All		0	(ac)	0	0
Mulching to control erosion and conserve soil moisture	484	CB 3		4	Soil	Irr, Dry		0	(ac)	0	0
Prescribed Grazing, including to reduce erosion and manage fuel loads	528	AF 7.1	5	4	Soil	All		0	(ac)	0	0
Residue and Tillage Management	329, 345	CB 3			Soil	Dry		0	(ac)	0	0
Seasonal High Tunnel System for crops and soil moisture	798	CB 3		7	Water	Irr		0	(ft)	0	0
Vegetative Barrier along contour of slopes or concentrated flow areas	601	AF 7.1, CB 3			Soil	All		0	(ft)	0	0
Windbreak to reduce soil erosion, protect plants	380/ 650	CB 3			Whole- farm	All		0	(ft)	0	0
My idea to meet the goal								0	amt	0	0
Are there other Soil Health and Erosion Control pract	tices vou a	re using? Pl	ease descrit	be vour pr	ractice(s) incl	luding wh	ether voi	ı've imp	Iemented it since	2011 and th	ne amount

you've implemented.

The VSP is intended to **promote agricultural viability while protecting critical areas**. Soil Health and Erosion Control help maintain agricultural viability for producers through improving soil health and water quality; avoiding soil loss, crusting, high summer temperatures, and moisture loss; and maintaining the land base for agricultural purposes.

*Farm Type: Irr=Irrigated; Dry = Dryland; Range=Rangeland; All=All Farm Types

Step 3: Monitoring

A technical assistance provider, coordinated by the Benton Conservation District, will contact you annually about the conservation practices installed. To assist with monitoring, you may be asked to provide additional information. You may request a field visit to obtain advice on improving the effectiveness of the conservation practices.

Ideas for Agriculture Viability Incentives and Outcomes

The VSP is designed to promote the viability of agriculture over the long term and to avoid unnecessary local critical area regulations due to the prevalence of conservation practices undertaken by willing producers. Producers may find cost-matching programs with technical providers (see contact information on page 1).

What incentives could help you achieve your goals for your farm?

BENTON COUNTY

Voluntary Stewardship Program

Shrub-Steppe Conservation & Management

DRAFT

Goals

- Protect shrub-steppe habitat and connectivity without restricting ongoing or new agricultural activities.
- Maintain native plant community diversity in shrub-steppe habitats in areas of agricultural intersect.
- Encourage voluntary enhancement of shrub-steppe habitat and connectivity without restricting ongoing or new agricultural activities.
- Encourage voluntary enhancement of shrub-steppe habitat to improve resiliency to fire in areas of agricultural intersect.

Agricultural Viability Aims

- Protect agriculture from unmanaged fire.
- Support actions that protect and enhance soil health and land productivity.

Benchmarks	Example Conservation Practices
In areas of critical area intersect with agricultural activities: Maintain shrub steppe habitat through voluntary management and protection measures. Implementation focus will be in areas identified as having high or very high habitat concentration areas, linkage centrality areas or pinch points protected, or as directed by the Work Group.	 Timed/less intense grazing at appropriate times (NRCS #528). Native vegetation propagation (NRCS #342). Advanced fire protection strategies, including managed grazing and maintaining firebreaks (NRCS #394). Voluntary protection or set-asides (easements, acquisition, CREP, and other strategies).
In areas of critical area intersect with agricultural activities: Manage invasive species on agricultural lands and maintain native species diversity.	 Brush Management (NRCS #314). Integrated Pest Management (NRCS #595).
In areas of critical area intersect with agricultural activities: Promote voluntary measures to enhance shrub steppe habitat and shrub steppe corridors with the first priority as areas where the benchmark of shrub steppe protection of functions	 Areas having very high/high habitat concentration areas, linkage, or pinch point enhanced or restored.
and values is at risk of degrading compared to baseline. Enhancement opportunities should include first current blocks and currently utilized corridors and second historical or likely suitable corridors that could be established or renewed or other priorities as directed by the Work Group.	Pinch Point Very High High High Medium Low
In areas of critical area intersect with agricultural activities: Encourage diversity of native grasses in place of cheatgrass to promote resiliency.	 Prescribed grazing (NRCW #528) Plant native vegetation (NRCS #342). Integrated Pest Management (NRCS #595). Avoid disturbance of seedbank, stockpile removed soils to reapply following disturbance.

What is Shrub-Steppe?

Shrub-Steppe Conservation Areas

The Washington Department of Fish and Wildlife describes shrub-steppe habitat as follows: "A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs."

Shrub-steppe habitat is identified as a state-designated priority habitat, meaning that it is a habitat type with unique or significant value to a diverse assemblage of species. Shrub-steppe habitat is critical to supporting a number of priority species in the county, including, but not limited to elk, burrowing owl, chukar, mule deer, sagebrush sparrow, Townsend's ground squirrel, jackrabbit, black-tailed jackrabbit, desert nightsnake, prairie falcon, Swainson's hawk, breeding areas for state-threatened ferruginous hawk, and habitat for other sagebrush-obligate species. Shrub-steppe habitat areas also include several plant species and communities identified through the Department of Natural Resources Natural Heritage Program.

Examples of Conservation Practices

Right Bottom: Grazing

BENTON COUNTY

Voluntary Stewardship Program

Aquifers Conservation & Management

Goals

- Protect groundwater quality in areas of agricultural intersect.
- Encourage voluntary enhancement of groundwater recharge in areas of declining water tables or where recharge can help maintain base flows for rivers and streams.
- Encourage voluntary enhancement of groundwater quality in areas of agricultural intersect.

Agricultural Viability Aim

- Maintain and increase reliability and availability of irrigation water.
- Support actions that protect and enhance soil health and land productivity.

Benchmarks	Example Conservation Practices
In areas of critical area intersect with agricultural activities, and at the watershed level: Maintain practices that limit leaching of nitrogen and other contaminants into groundwater.	 Limit leaching of nutrients and pesticides (NRCS #521). Other measures per the Groundwater Plan.
In areas of critical area intersect with agricultural activities, and at the watershed level: Promote voluntary conservation practices that minimize leaching of nitrogen and other contaminants into groundwater. Support development and implementation of Benton County Groundwater Community Action Plan.	 On-farm irrigation efficiencies installed (acrefeet conserved) (NRCS #s 441, 442). Wetlands enhanced (NRCS #659)
At the watershed level: Promote voluntary on-farm water conservation practices, such as irrigation water management and efficient irrigation systems in areas with agricultural wells. At the watershed level: Encourage implementation of groundwater recharge by passive infiltration or direct injection.	 On-farm irrigation efficiencies installed (acrefeet conserved) (NRCS #s 441, 442). County Groundwater Plan implementation.

What are Aquifers?

Critical Aquifer Recharge Areas

Areas with a critical recharging effect on aquifers used for potable water, including areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water, or is susceptible to reduced recharge.

The Columbia River basalts of the Columbia Plateau provide a locally important aquifer system. In a Critical Aquifer Recharge Area there are some the following components:

- Wells (large, small, and public)
- Wellhead protection zones and potential zones
- Streams
- Aqueducts, canals, and siphons
- Waterbodies

Within the lower Yakima basin, from the western county border east to Horn Rapids, the mainstem channel of the river flows through a relatively narrow inner valley of basalt bedrock covered with an unknown thickness of coarse alluvium. Downstream from Horn Rapids, the river flows through broad alluvial fill of the Columbia River (Kinnison and Sceva 1963).

Within Benton County, the majority of wells and wellhead protection areas are concentrated along the Yakima River Valley and in the incorporated cities of Richland and Kennewick. Other class A wells are located near well-draining irrigated lands in the southern portion of the county near Paterson. Studies have found nitrate concentrations exceeding drinking water. quality standards in shallow wells in eastern and southern Benton County (Washington State Interagency Groundwater Committee 1996, Ecology 2016). Based on the number of wells and the percentage of wells exceeding 10 mg/L of nitrate, Ecology identified eastern Benton County as one of the top ten nitrate priority area candidates within Washington.

Examples of Conservation Practices

Left: Microirrigation, Prosser Middle: Barker Ranch, Wetland and Floodplain Conservation Right: Soil Testing

Sources: Benton County Conservation District, WSU, BERK

BENTON COUNTY

Voluntary Stewardship Program

Wetlands and Riparian Areas Conservation & Management

Goals

- Protect surface water quality in streams, wetlands, and agricultural drains in hydrologic study areas.
- Protect the functions and values of wetlands in areas of agricultural intersect.

Agricultural Viability Aim

• Maintain existing agricultural areas and accommodate future expansion of agriculture.

Benchmarks	Example Conservation Practices
At the watershed level: Maintain riparian vegetation to support biofiltration and bank stability in areas of agricultural intersect through voluntary practices.	 Access control (NRCS #472). Riparian cover (NRCS #390). Prescribed grazing (NRCS #528).
At the watershed level: Promote voluntary practices to enhance riparian vegetation to support biofiltration and bank stability in areas of agricultural intersect.	 Access control (NRCS #472). Riparian cover (NRCS #390). Riparian forest buffer (NRCS #391)
In areas of critical area intersect with agricultural activities, and at the watershed level: Maintain wetland functions and values, with a priority for protecting wetlands with high habitat functions and floodplain wetlands along the Yakima and Columbia Rivers.	 Wetland enhancement (NRCS #659). Wetland restoration (NRCS #657). Wetland wildlife habitat management (NRCS #644).
In areas of critical area intersect with agricultural activities, and at the watershed level: Manage invasive species in and around wetlands, an d maintain native species diversity.	 Integrated Pest Management (NRCS #595). Prescribed grazing (NRCS #528).
In areas of critical area intersect with agricultural activities, and at the watershed level: Promote voluntary practices to reduce invasive species in and around wetlands, and enhance native species diversity.	 Integrated Pest Management (NRCS #595). Plant native vegetation (NRCS #342).
In areas of critical area intersect with agricultural activities, and at the watershed level: Promote voluntary practices to enhance natural wetlands in the county, with a priority towards floodplain wetland functions along the Yakima and Columbia Rivers.	 Wetland restoration, enhancement, and creation projects (NRCS #s 658, 659, 657) Where irrigation efficiencies result in wetlands drying up, voluntary enhancement measures could be implemented to help maintain habitat features.

What are Wetlands?

Wetland Conservation Areas

Areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites.

Wetlands in Benton County are concentrated within the floodplain of the Yakima and Columbia rivers. Similar to stream flows, irrigation drainage may contribute to wetland conditions in some areas where wetland conditions did not historically occur. Many wetlands have formed adjacent to irrigation conveyance systems and in low-lying areas where irrigation occurs. A wetland is considered artificial, and not subject to state or local regulation as a wetland, only if it meets both of the following characteristics:

- a. It was intentionally created; and
- b. It is in a formerly non-wetland (upland) site.

Where irrigation efficiencies result in wetlands drying up, voluntary enhancement measures could be implemented to help maintain habitat features, although these voluntary enhancements would not be necessary to meet the wetland protection standard.

What are Riparian areas?

Riparian area refers to land next to streams, and includes vegetation that helps contribute to shade, cover, wood, and nutrients into the river system. Riparian areas are considered part of Fish and Wildlife Habiat Conservation Areas. Healthy riparian areas help cool water temperatures and provide cover and concealment to fish species. Anadromous fish migrate through, spawn, and breed in the Yakima and Columbia rivers, and anadromous salmon breeding is documented in the lowermost reaches of Spring Creek and Snipes Creek, tributaries to the Yakima River, and Glade Creek, a tributary to the Columbia River.

Examples of Conservation Practices

Left: Riparian Cover Middle: Fish Screen Right: Access Control

Sources: Benton County Conservation District

Appendix I. Benton County VSP Adaptive Management Matrix

Approved | April 2018

INTRODUCTION

This appendix provides an adaptive monitoring program consistent with RCW 36.70A.720(1)(j) and 2(a)(iii). The program includes tables addressing 1) protection goals, benchmarks, monitoring and adaptive management actions, 2) enhancement goals, benchmarks, monitoring and adaptive management actions, 3) participation goals, benchmarks, monitoring, and adaptive management action approaches, and 4) agricultural viability aims, incentives, and activities associated with critical area protection.

For the purposes of interpreting benchmarks in Work Plan Chapter 7 and this appendix, the following terms are described to aid in measurement of benchmark performance:

- Maintain means no net adverse change from the July 2011 baseline conditions of critical area functions and values and within the range of the adaptive management threshold in this appendix. Protect is interpreted similar to maintain for purposes of measuring benchmarks. For each performance metric, protection would be indicated by no change in the metric (e.g. conservation practices including irrigation efficiencies are maintained), and
- Enhance means to improve the processes, structure, and functions existing, as of July 22, 2011, of ecosystems and habitats associated with critical areas relative to the adaptive management threshold. Enhancement would be indicated by a positive change (improvement) in the metric (e.g. new irrigation efficiencies are installed).
- Extent, when indicated below, will be measured using the unit of measure prescribed for a given Conservation Practice by the Natural Resource Conservation District (NRCS).

Adaptive management thresholds are included in this appendix and would be used to detect if there is a substantial change in the performance metrics to determine whether the benchmark is met.

ADDITIONAL GOAL AND BENCHMARK CONTEXT

In developing goals and measurable benchmarks, the Work Group carefully weighed protection of critical area functions with considerations of agricultural viability, including the specific intent to allow for future expansion of irrigated agriculture. Some of the key considerations that contributed to the formulation of goals and benchmarks are described below.

Fish and Wildlife Habitat Conservation Areas:

Goals and measurable benchmarks for streams focus on measures to protect and enhance water quality, as well as riparian vegetation.

Given the extent of shrub-steppe habitat in areas of the County not already developed or in irrigated or dryland agriculture, there is an expectation that irrigated agriculture will likely expand into shrub-steppe habitat. Since shrub-steppe habitat cannot generally be created, the goals and benchmarks focus on a twofold approach to protecting shrub-steppe habitat functions. First, areas identified as very-high or high habitat centrality areas, linkages, or pinch points in the Washington Connected Landscapes Project¹ are prioritized as a focus for implementation. The adaptive management threshold for shrub-steppe area focuses on these habitat centrality areas, linkages, and pinch points as well (Appendix I). Where losses in shrub-steppe area occur, those will be balanced with measures to protect high quality shrub steppe and enhance degraded shrub-steppe communities.

Critical Aquifer Recharge Areas:

The Benton Groundwater Plan is presently under development. Rather than replicate the work of developing the Plan, this VSP will consider work products to identify measures for groundwater protection.

Wetlands:

> Wetlands are rare given the semi-arid climate of Benton County. Approximately half of the total wetland area intersecting agriculture in the County is already protected under conservation ownership or easements. The Work Group recognizes the challenge in accurately mapping and monitoring wetlands throughout the County, and it also recognizes that floodplain wetlands along the Yakima and Columbia River provide functions that are most significant for protecting habitat and water quality in the County. Therefore, wetland goals and benchmarks focus on floodplain wetlands along the Yakima and Columbia Rivers and other high functioning wetlands.

¹ Washington Wildlife Habitat Connectivity Working Group. 2012. Washington Connected Landscapes Project: Analysis of the Columbia Plateau Ecoregion

Geologically Hazardous Areas

Compared to other critical areas in the County, the concern regarding the potential impact of agricultural activities on geologically hazardous areas is relatively low. While goals and measurable benchmarks are established to address geologically hazardous areas, these critical areas are the lowest priority for implementation of conservation actions. If other critical areas are present along with geologically hazardous areas, the context and approach would match that of the non-geologically hazardous area.

ADDITIONAL MONITORING CONTEXT

All goals, benchmarks, and monitoring measures will be summarized by the Work Group at the watershed level relative to the baseline of July 22, 2011. The Work Plan is tested at the five-year mark as to whether protection and enhancement goals and benchmarks have been met. If protection is not met there must be adaptive management planning. If enhancement goals have not been met, additional voluntary actions would need to be identified. At the 10-year mark if protection goals and benchmarks are not met, the plan would fail and an alternative regulatory path would be required. Biennial reporting is required to report on progress apart from the testing at the five-year intervals. The Work Plan is a living document. Due to regular reporting, and adaptive management, the Work Group may adjust the Work Plan consistent with the VSP statute to ensure that the performance metric, monitoring approach, and adaptive management thresholds are reasonable and effective.

The Work Group will select appropriate experts to assist with data collection or analysis as needed. Monitoring is intended to focus only on the effects of agricultural activities. Where factors external to agriculture, such as other land use activities (e.g., development), natural events (e.g., fire or drought), and activities outside of the County, affect critical areas and/or performance metrics, those effects would be acknowledged; however, the resulting impacts would not be justification to require adaptive management or a course change for agriculture. Activities that do not fit within the VSP definition for "agricultural activities" or that are outside the scope and/or jurisdiction of the VSP will generally be excluded and will not be counted against the agricultural community for VSP monitoring and reporting purposes. Such non-agricultural activities include but are not limited to catastrophic fires, floods, natural disasters, GMA-regulated conversions, forestry activities regulated by the Forest Practices Act technical mapping corrections, mapping errors, changes beyond a producer's control, etc.). Similarly, data or reports on mixed resource metrics or parameters affected by both agricultural and non-agricultural activities will generally be excluded for purposes of determining compliance with VSP critical area baseline protection requirements or success in meeting critical area protection and enhancement goals and benchmarks unless the contribution of agricultural activities can be understood. Mixed-activity resources metrics may however be useful as trend indicators to help focus VSP enhancement efforts on high priority areas.

As a general approach, the monitoring methods may include collecting information on acres or lineal feet of a critical area within an intersect, however, the goals and benchmarks are evaluated based on whether a critical area function is protected or enhanced.

Implementation is typically measured by the area directly affected by conservation practices. However, implementation benchmarks may also to relate to more programmatic actions led by the working group or other members of the agricultural community. For example, coordinated fire management among agriculture and fire-fighting and resource management agencies is a high-priority programmatic action to reduce the frequency of fire affecting shrub-steppe habitat and rangelands. Outreach to federal, state, and local land managers and owners is identified as an implementation benchmark for enhancement.

Resource measures may be evaluated by the area of change, which is supplemented by the nature of the change to understand the effects on critical area functions, or by follow up monitoring of the effectiveness of conservation practices. The measurable extent of change may be detected through existing remote sensing information, an expert panel, or through follow-up monitoring by the technical service providers. Where computer models are used to assess changes in aerial imagery, the Work Group anticipates that the entire area of intersect will be evaluated. Alternatively, when expert panels or follow-up monitoring are used, a representative sample of intersect areas through the County may be evaluated. Sampling should consider agricultural activities of producers/entities both participating and not participating in VSP. Such sampling may incorporate information from voluntary reporting from participating producers/entities, such as irrigation districts.

Where implementation benchmarks evaluate the number and extent of conservation practices, follow up monitoring will be conducted to confirm that practices are being implemented as designed. To accomplish this, the BCD will follow up on at least five percent of the conservation measures completed through cost-share funding mechanisms in the preceding five years. During the follow-up visits, the BCD will evaluate whether conservation measures are generally consistent with the NRCS Conservation Practice standards and having the intended effect. The BCD may offer recommendations or technical assistance to the producer. Any different or additional stewardship practices identified by the BCD will be implemented by the agricultural producer on a voluntary basis only. If deviations from the NRCS standards are observed, BCD staff will work with the producer to modify the practice. The follow-up site visits will be used to assess the effectiveness of implemented conservation practices, and the number of conservation practices identify a trend that conservation practices are not implemented effectively.

Protection goals and benchmarks are monitored periodically, and if not met would trigger adaptive management per Chapter 8, and Appendix I. Failure to meet enhancement or restoration goals may not trigger adaptive management, as these goals are aspirational and voluntary. However, results of progress on goal attainment will be documented in monitoring reports (see Chapter 8 and Appendix L).

Goals and Benchmarks for <u>Maintaining</u> Critical Area Functions

Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
	High level goal of project. There are just a handful.	Specific environmental conditions desired from project	What will be measured to know if benchmark is achieved	The measured effect of actions on critical areas	How the performance metric will be measured	Project result that, if achieved, must be addressed with an action	Action that will be taken if threshold is reached (A No Action Alternative is implied as an option)	Person or organization responsible for benchmark monitoring	When monitoring will occur	Person or Organization responsible for implementing adaptive management action (contracting and fiscal responsibility) if threshold is reached.	Organization with funding available to assist technical provider or agricultural owner
1.	In areas of critical area intersect with agricultural activities, and at the watershed level: Protect surface water quality in streams, wetlands, and agricultural drains in hydrologic study areas. ²	In areas of critical area intersect with agricultural activities, and at the watershed level: Manage runoff and erosion associated with agricultural activities through voluntary maintenance of conservation practices. (See also water quality regulatory backstop for suspended sediment and toxics.)	Number and extent of conservation practices to limit runoff and erosion associated with agricultural activities (including irrigation efficiencies)	 Percentage of conservation practices functioning as designed to protect water quality. Trends in water quality directly attributable to agriculture. 	 Tracking tool: The number and extent of conservation practices that address runoff and erosion, irrigation, and water management. Water quality monitoring, as available from other sources and/or if resources allow, and directly attributable to agriculture. 	• Reduction in conservation practices addressing runoff, erosion, irrigation annually year to year. Cumulative review since 2011 baseline with available information.	 Review performance metric to ensure that it is feasible and effective. Seek willing landowners in areas of intersect to increase conservation practices. Increase educational outreach to floodplain landowners. 	BCD Type A BCD Type B BCD Type D	Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

² An assumption is that federal and state pesticide application requirements apply in any case, and, as a result we are not including as a specific performance measure.

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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
2.	Same as Row 1.	 At the watershed level: Maintain riparian vegetation to support biofiltration and bank stability in areas of agricultural intersect through voluntary practices. Maintain interface between agriculturally- managed areas and existing riparian areas. Retain riparian vegetated conditions, except for noxious weeds. Recognize changes to riparian areas may occur due to erosion and natural events; allow riparian areas to reestablish. Where appropriate to the critical area function allow managed or flash grazing or other appropriate agricultural practices. The priority for agricultural and water resources is to improve efficiency of water use; the Work Group recognizes tradeoffs may occur as efficiencies may reduce riparian vegetation 	Number and extent of conservation practices to manage livestock access to streams and wetlands.	Area and cover of riparian vegetation in areas of agricultural intersect.	 Tracking tool: The number and extent of conservation practice addressing livestock management or exclusion. Imagery interpretation and site visits by technical assistance providers with participating landowners (see introduction). Alternative to imagery interpretation: Surrogates for imagery interpretation include periodic rapid watershed assessments by fish and stream habitat experts with a focus on relevant critical area functions and values and agricultural intersect. 	 Reduction in conservation practices within areas of shrub- steppe and agricultural intersect annually on a year to year basis. Cumulative review since 2011 baseline with available information. Loss of more than 5 % vegetation due to agricultural activities in areas of intersect. 	 Review performance metric to ensure that it is feasible and effective. Seek willing landowners in areas of intersect to implement new or different conservation practices. Increase educational outreach to floodplain landowners. 	BCD Type A BCD Type C BCD Type D BCD Type F	Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
3.	In areas of critical area intersect with agricultural activities, and at the countywide level ³ : Protect shrub-steppe habitat and connectivity without restricting ongoing or new agricultural activities	 In areas of critical area intersect with agricultural activities: Maintain shrub steppe habitat through voluntary management and protection measures. Examples include but are not limited to: Timed/less intense grazing at appropriate times. Native vegetation propagation. Advanced fire protection strategies, including managed grazing and maintaining firebreaks. Voluntary protection or set-asides (e.g. easements, acquisition, CREP, and other strategies). Implementation focus will be in areas identified as having high or very high habitat concentration areas, linkage centrality areas or pinch points⁴ protected, or as directed by the Work Group. 	Area of agricultural activities compatible with shrub-steppe (area of interface).	• Area of intact shrub steppe habitat in areas of agricultural intersect.	 Tracking tool: Shrub- steppe management practices. Mapped area high or very high habitat concentration areas, linkage centrality areas or pinch points. Imagery interpretation and site visits by technical assistance providers (see introduction). Alternative to imagery interpretation: Surrogates for imagery interpretation include periodic rapid watershed assessments by shrub steppe habitat experts with a focus on relevant critical area functions and values and agricultural intersect. 	 Reduction in conservation practices within areas of shrubsteppe and agricultural intersect annually on a year to year basis. Cumulative review since 2011 baseline with available information. 5% reduction in area of shrubsteppe habitat intersecting with agriculture will prompt review of whether habitat quality enhancements have offset loss. 2.5% reduction in high or very high habitat concentration areas, linkage centrality areas or pinch points⁴ that are identified as critical areas intersecting with agriculture 	 Review performance metric to ensure that it is feasible and effective. Review condition of area of shrub-steppe affected. Seek willing landowners in areas of intersect to alter management practices to allow shrub-steppe to reestablish Seek willing landowners to enhance habitat in high value areas per Work Plan priority areas. (See Appendix A, Map Folio with Potential Areas of Enhancement.) Review whether different conservation practices could be implemented to help achieve benchmarks. Increase educational outreach to floodplain landowners. 	BCD Type A BCD Type C BCD Type D BCD Type E BCD Type F	Type 1, except mapping, survey, and expert panel are Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

³ The goal and benchmark for shrub-steppe habitat is at the countywide level in recognition that wildlife habitats and corridors do not follow watershed basin boundaries and to enable the Work Group to focus on priorities for protection and enhancement.

⁴ As mapped by the Washington Wildlife Habitat Connectivity Working Group, 2012, Washington Connected Landscapes Project: Analyses of the Columbia Plateau Ecoregion

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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
4.	In areas of critical area intersect with agricultural activities, and at the countywide level: Maintain native plant community diversity in shrub-steppe habitats in areas of agricultural intersect.	In areas of critical area intersect with agricultural activities: Manage invasive species on agricultural lands and maintain native species diversity.	Number and extent of practices to maintain botanical diversity such as prescribed grazing, Integrated Pest Management and control of noxious weeds and invasive plants or other measures based on an annual/seasonal review of weather and growing conditions.	Change in native plant diversity, based on expert information (e.g. Noxious Weed Control Board).	 Tracking tool: The number and extent of conservation practices that address native species. Sample areas using site visits by technical assistance providers (e.g. BCD in relation to conservation practices or USDA spot checks). Consider reports by Noxious Weed Control Board or other experts. Consider 2016 WSDA countywide mapping of noxious weeds, with a focus on areas of intersect if data becomes available at that scale. 	 Reduction in conservation practices in areas of intersect annually on a year to year basis. Cumulative review since 2011 baseline with available information. Change in native or invasive plant diversity showing degradation, based on expert information (e.g. Noxious Weed Control Board). 	 Review performance metric to ensure that it is feasible and effective. Seek willing landowners in areas of intersect to increase conservation practices. Review whether different conservation practices could be implemented to help achieve benchmarks. Increasing application of noxious weed control methods on agricultural land per Benton Noxious Weed Control Board. Increase educational outreach to landowners. 	BCD Type A BCD Type B BCD Type F BCD Type F	Type 1, except survey and panel Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
5.	At the watershed level: Protect groundwater quality in areas of agricultural intersect.	In areas of critical area intersect with agricultural activities, and at the watershed level: Maintain practices that limit leaching of nitrogen and other contaminants into groundwater.	Number and extent of conservation practices that limit leaching of nutrients and pesticides. (Benton Groundwater Plan work products will be considered to identify conservation practices for groundwater protection).	• Trends in groundwater monitoring results (only measures reflecting agricultural practices since 2011) as collected per County Groundwater Plan as resources allow	 Tracking tool: The number and extent of conservation practices that protect groundwater Groundwater monitoring consistent with County Groundwater Plan. 	 Reduction in conservation practices in areas of intersect annually on a year to year basis. Cumulative review since 2011 baseline with available information. Additional thresholds may be considered based on County Groundwater Plan outcomes 	 Identify areas of concern and concentrate technical assistance in those areas Identify additional or different conservation practices that protect groundwater Seek willing landowners in areas of intersect to test for nitrates and implement appropriate practices. Increase educational outreach to floodplain landowners. 	BCD Type A BCD Type B BCD Type D	Type 1, except mapping Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
6.	At the watershed level: Protect the functions and values of wetlands in areas of agricultural intersect. ⁵	In areas of critical area intersect with agricultural activities, and at the watershed level: Maintain wetland functions and values, with a priority for protecting wetlands with high habitat functions and floodplain wetlands along the Yakima and Columbia Rivers.	 Area of floodplain wetland protected. Number and extent of conservation practices to manage livestock access to streams and wetlands. Recognize federal and state wetland regulatory backstop. 	Area of vegetation associated with wetlands in areas of agricultural intersect	 Tracking tool: The number and extent of conservation practices that protect floodplain wetlands. Imagery interpretation and/or site visits by technical assistance provider (see introduction). 	 Reduction of conservation practices in areas of intersect annually on a year to year basis. Cumulative review since 2011 baseline with available information. 5% reduction in vegetation associated with wetlands in the area of intersect 	 Evaluate context to understand if changes in wetland conditions reflect modifications to irrigation practices. Review performance metric to ensure it is feasible and effective. Seek willing landowners in areas of intersect to implement wetland conservation practices. Increase wetland enhancement or restoration projects with willing landowners. Increase educational outreach to floodplain landowners. 	BCD Type A BCD Type C BCD Type E BCD Type F	Type 1, except mapping and survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

⁵ See water quality goals and benchmarks for wetlands under streams and rivers

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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
7.	Same as Row 6.	In areas of critical area intersect with agricultural activities, and at the watershed level: Manage invasive species in and around wetlands, and maintain native species diversity.	Number and extent of Integrated Pest Management practices, prescribed grazing, or other measures designed to manage invasive species in agricultural intersect areas surrounding wetlands.	Qualitative change in native plant diversity showing degradation relative to baseline, based on expert information (e.g. Noxious Weed Control Board).	 Tracking tool: The number and extent of conservation practices that promote removal of invasive species. Sample areas with site visits by technical assistance provider; or address with expert panel or information (e.g. Noxious Weed Control Board). 	 Reduction in conservation practices in areas of intersect annually on a year to year basis. Cumulative review since 2011 baseline with available information; or Qualitative change in native plant diversity showing degradation relative to baseline, based on expert information (e.g. Noxious Weed Control Board). 	 Review performance metric to ensure that it is feasible and effective. Seek willing landowners in areas of intersect to implement wetland conservation practices. Review whether different conservation practices could be implemented to help achieve benchmarks. Increase educational outreach to floodplain landowners. 	BCD Type A BCD Type B BCD Type D BCD Type E BCD Type F	Type 1, except mapping and survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
8.	In areas of critical area intersect with agricultural activities, and at the watershed level: Protect natural floodplain functions.	At the watershed level: Maintain floodplain connectivity in areas of agricultural intersect.	Area of agricultural activities compatible with floodplain functions.	Area of floodplain wetlands and wetland areas with high habitat functions in area of intersect	Mapped area of connected floodplain in areas of intersect.	• 10% reduction in areas of connected floodplain due to agricultural activities.	 Evaluate if changed floodplain connectivity mapping is due to quality of mapping data or due to on-the- ground loss of floodplain connectivity due to agricultural activities. Seek willing landowners in areas of intersect to implement floodplain connection enhancement projects. Increase educational outreach to floodplain landowners. 	BCD Type A BCD Type B BCD Type C BCD (see Ch. 6 and 8 and Appx N) (Benton County Emergency Services?)	Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
9.	In areas of critical area intersect with agricultural activities, and at the watershed level: Protect the integrity of steep slopes associated with agricultural production.	 In areas of critical area intersect with agricultural activities, and at the watershed level: Maintain integrity of steep slopes in areas of agricultural intersect. through the following: Avoid increases in erosion. Avoid steep and unstable slopes or help to stabilize such slopes where practical. 	• Number and extent of conservation practices for slope stability (e.g. contour planting, retaining native vegetation, irrigation efficiencies).	• Area of natural vegetation retained along steep slopes adjacent to agricultural activities.	 Tracking tool: The number and extent of conservation practices that promote slope stability. Sample areas subject to erosion for vegetative cover using imagery interpretation (see introduction) and site visits by technical assistance providers. Surrogates for monitoring include conservation practice implementation tracking and imagery interpretation for indirect participation. 	 Reduction in conservation practices in areas of intersect annually on a year to year basis. Cumulative review since 2011 baseline with available information. Net loss of more than 10% vegetation in areas of intersect and steep slopes. 	 Implement conservation practices to reestablish lost vegetation with current and added VSP Participants. Where appropriate, conduct water quality assessments and identify control programs or improvement projects. Increase educational outreach to floodplain landowners. 	BCD Type A BCD Type B BCD Type C BCD Type D BCD Type E	Type 1, except mapping and survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

Goals and Benchmarks for Participation

Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
	High level goal of project. There are just a handful.	Specific conditions desired from project	What will be measured to know if benchmark is achieved	The measured effect of actions	How the performance metric will be measured	Project result that, if achieved, must be addressed with an action	Action that will be taken if threshold is reached (A No Action Alternative is implied as an option)	Person or organization responsible for benchmark monitoring	When monitoring will occur	Person or Organization responsible for implementing adaptive management action (contracting and fiscal responsibility) if threshold is reached.	Organization with funding available to assist technical provider or agricultural owner
1.	Promote education, volunteerism and stewardship of agricultural land and critical areas.	Launch VSP outreach program and promote education regarding VSP and conservation practices.	• Annually work group identifies priorities for outreach. Determine countywide and targeted outreach.	• Annual outreach to countywide and priority landowners.	 Number of targeted outreach events. Number/percentage of landowners contacted. Number of event attendees. Number of VSP participation signs and marketing materials distributed. Education opportunities provided. Survey of potential VSP participants regarding awareness and knowledge of VSP 	10% reduction in participation in VSP program, by WRIA basin.	 Increase outreach and education events. Identify who drops out and why to modify outreach or work plan. 	BCD Type A BCD Type B BCD Type E BCD Type G	Type 1, Except survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
2.	Same as 1.	Sufficient participation by commercial and non-commercial agricultural operators that achieves the protection of critical area functions and values across WRIA basins. • Contact 20% or more of producers annually. • Maintain average annual support to 30 producers. Increase average annual support if funding is sufficient. • Annually review priorities for implementation and outreach strategies with the Work Group. Determine priorities based on area of intersect and location, producer interest and need, available monitoring results, and available resources, or other factors developed by the Work Group and Technical Service providers.	 Technical assistance offered is maintained or increased. (Consider indirect participation by growers previously trained.) VSP participants in each WRIA basin by each biennium is maintained or increased. Track self- certification entries by VSP Participants as of first biennium, which is maintained or increased each biennium thereafter. 	• Not applicable	 Indicators of direct participation include the following options: Technical assistance provided (as tracked through meetings, calls, applications, and contracts with technical assistance providers). Number of farms, acres, conservation practices, etc. implemented. Number of applications submitted for conservation practice assistance (technical or financial). Checklists completed: See Appendix G for a checklist. 	10% reduction in participation in VSP program, by WRIA basin.	 Increase outreach and education events. Identify who drops out and why to modify outreach or work plan. 	BCD Type A BCD Type B BCD Type E BCD Type G	Type 1, Except survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
3.	Same as 1.	Indirect participation by commercial and non-commercial agricultural operators in VSP conservation practices is maintained or increased over 10 years on agricultural land.	 Acres of collective conservation practices is unchanged or increased. Survey demonstrates an increase in understanding of VSP in agricultural households. 	• Not applicable	Indirect participation in common stewardship practices may be tracked and reported using one or more methods: • Mapping and imagery interpretation with on-the- ground verification, as needed, of practices in place, and • Random sampling of farmers and ranchers in the field by technical assistance providers with willing landowners, or • Phone, mail, or online surveys, or • Census of agriculture or other broadly gathered and published information (only available periodically).	Reduction in acres where conservation practices are applied annually on a year to year basis. Cumulative review since 2011 baseline with available information. 10% reduction in awareness of VSP program.	 Review performance metric to ensure that it is feasible and effective. Seek willing landowners in areas of intersect to reestablish conservation practices. Increase outreach and education events. 	BCD Type C BCD Type E	Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

Goals, benchmarks, and monitoring approaches to voluntarily enhance critical area functions

Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
	High level goal of project. There are just a handful.	Specific environmental conditions desired from project	What will be measured to know if benchmark is achieved	The measured effect of actions on critical areas	How the performance metric will be measured	Project result that, if achieved, must be addressed with an action	Action that will be taken if threshold is reached (A No Action Alternative is implied as an option)	Person or organization responsible for benchmark monitoring	When monitoring will occur	Person or Organization responsible for implementing adaptive management action (contracting and fiscal responsibility) if threshold is reached.	Organization with funding available to assist technical provider or agricultural owner
1.	Support efforts of the Yakima Basin Integrated Water Resource Management Plan (YBIWRMP) to enhance flows necessary to protect salmonids.	In areas of critical area intersect with agricultural activities, and at the watershed level: Increase voluntary measures to enhance flow in Yakima River during critical periods. See also aquifer recharge.	 Number and extent of additional conservation practices installed that allow for water use efficiency. Number and extent of voluntary water exchanges, storage, transfers, voluntary regional agreements, and/or water trusts maintained or established related to agricultural use. 	 Percentage of conservation practices functioning as designed to protect water quality. Trends in water quality directly attributable to agriculture. 	 Tracking Tool: The number and extent of conservation practices implemented. Water conserved in trust for instream use. Water quality monitoring, as available from other sources and/or if resources allow, and directly attributable to agriculture. 	 No increase in conservation practices in areas of intersect. No increase in water conserved in trust. 	 Review performance metric to ensure that it is feasible and effective. Seek willing landowners to implement conservation practices or water agreements. Review whether different conservation practices could be implemented to help achieve benchmarks. 	BCD Type A BCD Type B BCD Type D	Type 1, except mapping Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
2.	At the watershed level: Encourage voluntary enhancement of surface water quality in streams, wetlands, and agricultural drains in hydrologic study areas. ⁶	At the watershed level: Increase voluntary implementation of conservation practices to enhance surface water quality conditions related to runoff and erosion associated with agricultural activities.	Number and extent of conservation practices to limit runoff and erosion due to agricultural activities and to manage livestock access to streams and wetlands.	Progress toward meeting Total Maximum Daily Load (TMDL) standards for suspended sediments and toxics where related to agricultural activities in Benton County.	 Tracking tool: The number and extent of conservation practices that address runoff and erosion, irrigation, and water management. Ecology water quality monitoring results. Ecology TMDL monitoring results. 	 No increase in conservation practices in areas of intersect. No improvement in progress to meet TMDL or other water quality parameters. 	 Review performance metric to ensure that it is feasible and effective. Seek willing landowners in areas of intersect to increase irrigation and water management practices. Review whether different conservation practices could be implemented to 	BCD Type A BCD Type B BCD Type C BCD Type D	Type 1	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

⁶ An assumption is that federal and state pesticide application requirements apply in any case, and, as a result, we are not including as a specific performance measure.

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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
							help achieve benchmarks.				
3.	Same as Row 2.	 At the watershed level: Promote voluntary practices to enhance riparian vegetation to support biofiltration and bank stability in areas of agricultural intersect. Improve partially functioning riparian areas with poor existing vegetative cover that has an ability to recover. Enhance impaired riparian vegetation where tree or shrub cover is lacking. Priority is given to basins where the benchmark of riparian area protection of functions and values is at risk of degrading compared to baseline and affects fish and wildlife species. Second priority is other areas of focus per county, state, regional, tribal priorities for enhancement. 	 Number and extent of conservation practices to manage livestock access to streams and wetlands. Number and extent of riparian planting/protection projects. 	• Area of riparian cover in areas of agricultural intersect.	 Tracking tool: The number and extent of conservation practices implemented. Imagery interpretation or site visits by technical assistance providers (see introduction). 	 No increase in conservation practices addressing livestock management. No increase in riparian planting or protection projects. No increase in riparian vegetation coverage intersecting areas of agricultural activity. 	 Review performance metric to ensure that it is feasible and effective. Seek willing landowners in areas of intersect to increase conservation practices. Seek willing landowners in priority locations to implement riparian planting or protection projects. Review whether different conservation practices could be implemented to help achieve benchmarks. 	BCD Type A BCD Type B BCD Type D BCD Type E	Type 1, except survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
4.	At the countywide ⁷ level: Encourage voluntary enhancement of shrub- steppe habitat and connectivity without restricting ongoing or new agricultural activities.	In areas of critical area intersect with agricultural activities: Promote voluntary measures to enhance shrub steppe habitat and shrub steppe corridors with the first priority as areas where the benchmark of shrub steppe protection of functions and values is at risk of degrading compared to baseline. Enhancement opportunities should include first current blocks and currently utilized corridors and second historical or likely suitable corridors that could be established or renewed or other	• Areas of shrub- steppe habitat enhanced with emphasis on high or very high habitat concentration areas, linkages, or pinch points. ⁸	 Area of intact shrub steppe habitat in areas of agricultural intersect. Area of high or very high habitat concentration areas, linkages, or pinch points⁹ in in critical areas and areas of agricultural intersect. 	 Tracking tool: The number and extent of shrub-steppe conservation practices. Mapped area high or very high habitat concentration areas, linkage centrality areas or pinch points⁹. Imagery interpretation and site visits by technical assistance providers (see introduction). Alternative to imagery interpretation: Surrogates for imagery interpretation 	 No increase in shrub-steppe habitat protected, enhanced, or restored in areas intersecting agricultural activity. No increase in critical areas protected, enhanced, or restored in habitat concentration areas, linkages, 	 Review performance metric to ensure that it is feasible and effective. Review condition of area of shrub- steppe affected. Seek willing landowners in areas of intersect to alter management practices to re- establish shrub- steppe. 	BCD Type A BCD Type B BCD Type C BCD Type D BCD Type E	Type 1, except mapping and survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

⁷ The goal and benchmark for shrub-steppe habitat is at the countywide level in recognition that wildlife habitats and corridors do not follow watershed basin boundaries and to enable the Work Group to focus on priorities for protection and enhancement.

⁸ As mapped by the Washington Wildlife Habitat Connectivity Working Group, 2012, Washington Connected Landscapes Project: Analyses of the Columbia Plateau Ecoregion

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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
		priorities as directed by the Work Group.			include conservation practice implementation (tracking tool) and periodic rapid watershed assessments by shrub steppe habitat experts with a focus on relevant critical area functions and values and agricultural intersect.	and pinch points ⁹ in areas intersecting agricultural activity.	• Seek willing landowners to enhance habitat in high value areas per Work Plan priority areas. See Appendix A, Map Folio with Potential Areas of Enhancement.)				
5.	At the countywide level: Encourage voluntary enhancement of shrub- steppe habitat to improve resiliency to fire in areas of agricultural intersect.	In areas of critical area intersect with agricultural activities: Encourage diversity of native grasses in place of cheatgrass to promote resiliency.	Number and extent of conservation practices implemented to control cheatgrass and encourage native grasses, such as: • Prescribed grazing, • Avoid disturbance of seedbank, or stockpile removed soils and reapply following disturbance, • Plant native grasses, • Integrated Pest Management (including managed grazing) to reduce noxious weeds and control invasive species, establishing desired vegetation, or • Other measures.	 Area of cheatgrass. Area of native grasses. Number of Work Group coordination efforts with fire response and emergency managers. 	 Tracking tool: The number and extent of conservation practices that address cheatgrass or other invasive species. Sample areas using site visits by technical assistance providers. 	 Qualitative increasing trend in cheatgrass. Qualitative decreasing trend in native grasses. 	 Review performance metric to ensure that it is feasible and effective. Seek willing landowners in areas of intersect to increase conservation practices. Promote implementation of native grass planting through enhancement or restoration. 	BCD Type A BCD Type B BCD Type F BCD Type F	Type 1, except survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
6.	At the watershed level: Encourage voluntary enhancement of native plant community diversity in shrub-steppe habitats in areas of agricultural intersect.	At the watershed level: Promote voluntary practices to reduce invasive species on agricultural lands and enhance native species diversity.	• Number and extent of measures to control invasive species and enhance native species diversity, including host plants for pollinators.	• Change in native species diversity in areas of agricultural intersect based on expert information (e.g. Noxious Weed Control Board).	 Tracking tool: The number and extent of conservation practices that address native species. Sample areas using site visits by technical assistance providers (e.g. BCD in relation to conservation practices or USDA spot checks). Consider reports by Noxious Weed Control Board. 	• Change in native plant diversity, including pollinator plants, , based on expert information (e.g. Noxious Weed Control Board).	• Promote implementation of native plant enhancement or restoration with willing landowners.	BCD Type A BCD Type B BCD Type D BCD Type E	Type 1, except survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
7.	In areas of critical area intersect with agricultural activities, and at the	• At the watershed level: Promote voluntary on-farm water conservation practices, such as irrigation water management and	• Number and extent of on-farm irrigation efficiencies installed (acre-feet conserved).	• Acre-feet recharged.	• Tracking Tool: The number and extent of on farm water conservation practices.	• Decrease in conservation practices	 Seek willing landowners in areas of intersect to implement 	BCD Type A BCD Type B	Туре 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
	watershed level: Encourage voluntary enhancement of groundwater recharge in areas of declining water tables or where recharge can help maintain base flows for rivers and streams.	 efficient irrigation systems in areas with agricultural wells. At the watershed level: Encourage implementation of groundwater recharge by passive infiltration or direct injection. 	 Number and extent of recharge projects implemented. Number and extent of other measures per Groundwater Plan. Progress toward implementing County Groundwater Plan implementation (per plan schedule). 			addressing water management.	groundwater recharge enhancement.	BCD Type C			
8.	At the watershed level: Encourage voluntary enhancement of groundwater quality in areas of agricultural intersect.	 In areas of critical area intersect with agricultural activities, and at the watershed level: Promote voluntary conservation practices that minimize leaching of nitrogen and other contaminants into groundwater. Support development and implementation of Benton County Groundwater Community Action Plan. 	 Number and extent of conservation practices (including irrigation efficiencies) to limit agricultural leaching of nutrients and pesticides. Area of wetlands enhanced. 	• Trends in groundwater monitoring results (only measures reflecting agricultural practices since 2011) as collected per County Groundwater Plan as resources allow.	 Tracking tool: The number and extent of conservation practices that promote water efficiencies and water quality. Mapped area of wetlands in areas of agricultural intersect. Review of Groundwater Plan implementation status. 	 No increase in conservation practices in areas of intersect. No increase in wetlands enhancement. Lack of progress implementing Groundwater Plan per schedule. 	• Seek willing landowners in areas of intersect to implement groundwater quality conservation practices, wetlands enhancement, or other strategies in Groundwater Plan.	BCD Type A BCD Type B BCD Type C BCD Type D	Type 1, except mapping Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
9.	At the watershed level: Encourage voluntary enhancement of the functions and values of wetlands in areas of agricultural intersect.	In areas of critical area intersect with agricultural activities, and at the watershed level: Promote voluntary practices to enhance natural wetlands in the county, with a priority towards floodplain wetland functions along the Yakima and Columbia Rivers.	Number and extent of wetland restoration, enhancement, and creation projects implemented in areas of intersect with a priority along the Yakima and Columbia Rivers. ⁹	Area of vegetation associated with wetlands in areas of agricultural intersect.	 Tracking tool: The number and extent of conservation practices that promote wetlands enhancement. Imagery interpretation and/or site visits by technical assistance provider (see introduction). 	 No increase in conservation practices in areas of intersect. No increase in areas of wetlands enhancement. No increase in vegetation associated with wetlands. 	• Seek willing landowners in areas of intersect to implement wetlands enhancement.	BCD Type A BCD Type B BCD Type C BCD Type E	Type 1, except mapping and survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
10.	See Row 9.	In areas of critical area intersect with agricultural activities, and at the watershed level: Promote voluntary practices to reduce invasive species in and around wetlands, and enhance native species diversity.	• Number and extent of Integrated Pest Management practices to reduce invasive species, prescribed grazing, or other measures.	 Distribution and abundance of invasive species. Distribution, abundance, and composition of native species. 	 Tracking tool: The number and extent of conservation practices implemented. Sample areas using site visits by technical assistance provider; or address with expert panel 	 No increase in conservation practices in areas of intersect. No decrease in invasive species or increase in native species. 	• Seek willing landowners in areas of intersect to implement invasive species removal and native species enhancement	BCD Type A BCD Type B BCD Type E	Type 1, except survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

⁹ Where irrigation efficiencies result in wetlands drying up, voluntary enhancement measures could be implemented to help maintain habitat features, although these voluntary enhancements would not be necessary to meet the wetland protection standard.

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Row #	Critical Area Goals	Critical Area Benchmark	Performance Metric (Implementation)	Performance Metric (Resource Measurement)	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
			• Number and extent of native planting projects.		or information (e.g. Noxious Weed Control Board).		conservation practices.				
11.	In areas of critical area intersect with agricultural activities, and at the watershed level: Encourage voluntary enhancement of natural floodplain functions.	In areas of critical area intersect with agricultural activities, and at the watershed level: Promote voluntary practices to enhance floodplain connectivity.	Number and extent of floodplain enhancement projects.	Area of floodplain wetlands in area of intersect	• Number and extent of floodplain areas enhanced of intersect.	• No increase in areas of connected floodplain due to agricultural activities.	• Seek willing landowners in areas of intersect to implement floodplain enhancement functions.	BCD (see Ch. 6 and 8 and Appx N) (Benton County Emergency Services?)	Туре 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
12.	At the watershed level: Encourage voluntary measures to reduce erosion of steep and unstable slopes associated with agricultural production.	At the watershed level: Promote voluntary conservation practices to reduce erosion of steep and unstable slopes associated with agricultural production.	Number and extent of conservation practices for slope stability (e.g. contour planting, retaining native vegetation, irrigation efficiencies).	Area of natural vegetation retained along steep slopes adjacent to agricultural activities.	 Tracking tool: The number and extent of conservation practices addressing slope stability and erosion. Imagery interpretation or site visits by technical assistance providers. 	 No increase in vegetation in areas of intersect and steep and unstable slopes. No improvement in water quality below State standards where results can be attributed to agricultural activities. 	 Implement conservation practices to reestablish lost vegetation with current and added VSP Participants. Where appropriate, conduct water quality assessments and identify control programs or improvement projects. 	BCD Type A BCD Type B BCD Type C BCD Type D BCD Type E	Type 1, except mapping and survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

Agricultural Viability Aims and Implementation

Suggested activities to improve agricultural viability are presented to encourage program goals of "maintaining and enhancing the viability of agriculture in the watershed" (RCW 36.70A.725). These are not formal measurable benchmarks, nor do they determine whether the plan meets compliance. Their purpose is to help Benton County do its planning for resource lands and to help the local agricultural economy.

Row #	Aims	Performance Metric (Implementation)	Implementation Activities to be Monitored	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
	High level AIM of project. There are just a handful.	What will be measured to know if AIM is achieved	How the performance metric will be implemented and monitored	Project result that, if achieved, must be addressed with an action	Action that will be taken if threshold is reached (A No Action Alternative is implied as an option)	Person or organization responsible for benchmark monitoring	When monitoring will occur	Person or Organization responsible for implementing adaptive management action (contracting and fiscal responsibility) if threshold is reached.	Organization with funding available to assist technical provider or agricultural owner
1.	Maintain existing agricultural areas and accommodate future expansion of agriculture.	Increased agricultural crop production and economic value annually. Designated agricultural land in Comprehensive Plan continues to be protected.	 Ensure that agricultural uses are not involuntarily restricted by surrounding landscape and that agricultural activities, including artificial irrigation facilities and drains, are not regulated as habitat. Maintain agricultural production areas free from residential encroachment. Identify lands that are likely to transition to agricultural use or move from grazing or dryland farming to irrigated farming as priority areas for agricultural expansion. 	 Reduction in production, value, or percent of acres of agricultural land designated for long- term protection. Increase in encroachment that leads to alteration of agricultural practices. 	 Determine if reductions in production, value or acres are due to natural causes or regulatory causes. If regulatory in nature, conduct study to determine how to protect land and improve production. Determine how to reduce encroachments through working with the County on policies and regulations and improved application of Right to Farm. 	BCD Type C BCD Type D	Туре 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
2.	Maintain and increase reliability and availability of irrigation water.	Water resources necessary for producers are available and reliable.	 Support implementation of Yakima Basin Integrated Water Resource Management Plan. Encourage use of water trusts. Develop flexible infrastructure (wells, storage, pumps) drawing from within and out of basin. Develop emergency irrigation allocation plan, which allows transfer of water during periods of drought (also known as water wheeling). Enhance on-farm irrigation efficiency with precision agriculture and other efficiency measures. Enhance efficiency of irrigation distribution. Develop and implement incentives for on-farm water conservation practices. 	• Reduced availability of water unforeseen in watershed, YBIWRMP plans or state rules.	• Encourage County amendment of watershed plans and local water availability policies and regulations to ensure water uses and resources.	BCD Type D	Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

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Row #	Aims	Performance Metric (Implementation)	Implementation Activities to be Monitored	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
			 Support modifying water rights laws to eliminate potential incentives to waste water. Support allocation of new water rights from the John Day/McNary pool (WAC 173-531A). 						
3.	Support actions that benefit both stream functions and agricultural viability.	Reduced erosion of productive land and improved water quality.	 Implement off-channel watering. Encourage programs that provide matching funds for conservation measures. Commodity buffers.¹⁰ Support implementation of the Benton County Groundwater Community Action Plan. 	 Loss of productive land to erosion. Decrease in water quality. 	• Encourage willing landowners to participate in conservation practices and incentive programs.	BCD Type A BCD Type B BCD Type E	Туре 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
4.	See Row 3.	Promote voluntary conservation practices to control water stargrass and other invasive plant abundance and prevent new populations.	• Conservation practices implemented to address stargrass and other invasive plants.	 No stargrass or other invasive plant reduction 	 Seek willing landowners in priority locations to implement stargrass and other invasive plant removal projects. 	BCD Type A BCD Type B BCD Type E	Type 1, except survey Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
5.	Protect agriculture from unmanaged fire.	Fire coordination and prevention activities are developed with grower participation.	 Support fire suppression and prevention in cooperation with rural fire districts, and state, tribal, and federal wildlife managers, with the first priority area being the Blackrock Area of Benton County. Establish other priority areas for fire suppression and prevention in cooperation with rural fire districts, and state, tribal, and federal wildfire managers. Firebreaks established along critical zones. Managed grazing and other measures to minimize fire risk. 	• No advancement in coordinated fire prevention activities.	• Work with local elected officials and state legislators to advance solution.	Work Group assigns leads to interface with elected and appointed officials or writes letters or Op Ed.	Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
6.	Support actions that protect and enhance soil health and land productivity.	See Row 1 and 3.	 Develop and implement long- term incentives for on-farm soil conservation and soil health practices. Support and develop programs providing new opportunities for soil conservation (i.e. cover crop and direct seed technologies). 	 Increase in soil loss or decrease in soil health. 	• Encourage willing landowners to participate in conservation practices and incentive programs.	BCD Type A BCD Type B BCD Type E	Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

¹⁰ http://www.capitalpress.com/Water/20160323/commodity-buffers-pay-farmers-same-as-crops

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Row #	Aims	Performance Metric (Implementation)	Implementation Activities to be Monitored	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
7.	Promote regulatory stability for producers in Benton County.	Producers have more regulatory stability in Benton County through continued application of VSP Program.	Continued applicability of VSP.	• County VSP Program is at risk of being discontinued.	 Conduct adaptive management regarding protection measures. Amend Work Plan. 	Work Group	Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
8.	Ensure adequate farm-to-market infrastructure including production and distribution.	On-farm and commercial storage, aggregation, and distribution services are available. Necessary supplies, equipment, and other farm inputs are accessible and available.	 Storage and Food Distribution Establishments serving the county, and volume of storage and distribution; Covered Employment and Businesses. Roads are maintained to ensure adequate access to markets. 	 Storage, food distribution, and access to markets is reduced. Freight routes are not maintained. 	 Work with County and production and distribution businesses on increasing access. Work with WSDOT to improve freight routes 	Work Group assigns leads to interface with elected and appointed officials.	Туре 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
9.	Increase community support, technical assistance, and public education about the agricultural economy, viability, and stewardship.	Higher education, economic development council, and local governments include programs, policies, and community engagement that support agricultural economy.	 Education offerings, economic development entities, commodity groups, and others that support agricultural economy at higher education such as recruitment. Recruitment of supporting sectors. 	 Training programs do not increase with demand Labor supply does not keep pace with demand Distance to supporting sectors limits production or profits Agricultural research does not keep pace with demand 	 Work with educational institutions to expand training programs Work with County to supporting sector businesses to reduce barriers to entry Coordinate with state elected officials to secure funding for research 	Work Group	Туре 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
10.	Reducing sources of agricultural damage.	Producers have access to farm business expertise, training, and practical research that advances farm profitability and conservation.	• Options for farmers to reduce potential for damage and to reduce their production expenses are disseminated by technical assistance providers. USDA Economic Research Service, Census of Agriculture, Department of Revenue, technical assistance services.	 Decrease in number of producers using business planning and technical assistance services. Decrease in use of practices that reduce inputs and associated costs. 	 Conduct outreach to increase awareness of available business planning and technical assistance. Identify and address cause of use of less efficient practices. 	Work Group	Туре 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)
11.	Promote new technology and research and development that benefits agricultural innovation, production, and energy conservation.	Same as above.	 Number of producers using business planning and technical assistance services. 	Same as above.	Same as above.	Work Group	Type 2	BCD (see Ch. 6 and 8 and Appx N)	BCD (see Ch. 6 and 8 and Appx N)

BENTON COUNTY VOLUNTARY STEWARDSHIP PROGRAM

Outreach Plan | April 2018

INTRODUCTION

Outreach for the Benton County Voluntary Stewardship Plan has three primary phases:

- 1. Outreach to stakeholders in establishing the VSP Work Group (completed during 2016).
- 2. Outreach to interested stakeholders and the public that a VSP work plan is being prepared (through June 2018).
- 3. Outreach during plan implementation (after VSP Plan completion in 2018).

Descriptions of each outreach phase, along with relevant goals, tactics, and metrics (if relevant) are described below.

PHASE 1: ESTABLISHING THE WORK GROUP

The legislation establishing the Voluntary Stewardship Program provides the following direction for appointing the VSP Watershed Work Group:

"RCW 36.70A.715 (3) The watershed group must include broad representation of key watershed stakeholders and, at a minimum, representatives of agricultural and environmental groups and tribes that agree to participate. The county should encourage existing lead entities, watershed planning units, or other integrating organizations to serve as the watershed group."

Phase 1 Outreach Goals

- Seek early participation by growers/producers in developing a work plan
- Seek participation in, and understanding of, work plan development by other stakeholders
- Gain responsibility and ownership of the Voluntary Stewardship Plan by the agricultural community
- Bridge the gap between agricultural producers and resource agencies

Phase 1 Outreach Tactics

Benton County staff established a list of potential participants and contacted them. The lists were inclusive of the major sectors of agriculture and other stakeholder groups operating in the County. Formal letters were sent inviting each person to be a Work Group member.

For agricultural groups, several agricultural organizations agreed to participate and are shown in the list of members. Invitations were also extended to:

- 1. Easterday Farms Called and left message 3/4/16; emailed 3/10/16
- 2. Kiona Vineyards Called and left message on 3/4/16
- 3. Roza Irrigation District declined invitation and suggested Kennewick Irrigation District

- 4. Boushey Vineyards Discussed on 3/8/16 and declined information due to lack of staff to do this
- 5. Wyckoff Farms contacted on 2/29/16 and 3/4/16, called back to decline invitation.

For tribal government, an invitation was extended to the Yakama Nation and the Confederated Tribes of the Umatilla The Yakama Nation accepted the invitation; the Umatilla Tribe did not respond. The Umatilla Tribe was contacted by on 3/4/16, and by e-mail on 3/10/16.

For environmental organizations, invitations were extended to several organizations. Participants are shown in the list of members. Organizations invited but declining to participate were Ducks Unlimited on 3/4/16 (declined the invitation due to staff resources) and Futurewise (returned call on 3/16/16 to decline invitation due to their staff resources). If an e-mail address was available, they were included on the distribution list to receive materials so they could track if they desired.

Specific state agencies with interest in VSP and expertise in related issues were asked to be part of the Work Group. This includes the Departments of Ecology, Agriculture, and Fish and Wildlife. The Department of Natural Resources said they were not able to participate in the work group but would like to be kept in the loop if issues which may affect DNR land arise.

During the original preparation of the Work Plan in 2016 and 2017, Zirkle Fruit participated and when the Work Group met again in 2018 declined to continue participation.

The final list of members (listed at the end of this appendix) shows the representatives of the stakeholder groups who are members of the watershed Work Group.

PHASE 2: OUTREACH DURING WORK PLAN PREPARATION

RCW 36.70A.720 sets out the general considerations for outreach during the development of the VSP work plan. Section 1 (b) requires the work group to "seek input from tribes, agencies, and stakeholders."

Phase 2 Outreach Goals

- 1. Seek early participation by growers/producers in developing a work plan
- 2. Seek participation in, and understanding of, work plan development by other stakeholders
- 3. Gain responsibility and ownership of the Voluntary Stewardship Plan by the agricultural community
- 4. Ensure that growers/producers know about the VSP work plan as we near adoption
- 5. Bridge the gap between agricultural producers and resource agencies

Phase 2 Outreach Tactics

The county hired a consulting team (Berk Team) to facilitate the Work Group and to prepare the draft Work Plan. The team established e-mail distribution lists for both Work Group members and those persons wanting to track the VSP Work Plan development effort. The county also established a website containing information about the VSP process:

http://www.co.benton.wa.us/pview.aspx?id=10933&catid=0

The Work Group had several discussions about specific stakeholders and outreach required to reach them. The following table lists proposed outreach activities, as discussed by Work Group members. This will be a living document, and added to as outreach activities occur:

Phase 2 Outreach Tactics, By Goal

Goal 1: Seek early participation by growers/producers in developing a work plan

Tactic	Audience	Performance Metrics	Timeline	Who
Create Frequently Asked Questions (FAQ) handout for Work Group members.	ProducersStakeholdersGeneral Public	Number of FAQs handed out	Draft: March 2017 Work Group meeting	Consultants and Work Group
General public workshops	ProducersStakeholdersGeneral Public	 Number of people who attend workshops 	June 2017	–County, Consultants, Work Group
Benton County Farm Bureau, Cattleman's Association	Producers	 Number of meetings attended Number of producers in attendance 	Spring 2017	County staff went two times with Cattleman's representative on the VSP Work Group

Goal 2: Seek participation in, and understanding of, work plan development by other stakeholders

Tactic	Audience	Performance Metrics	Timeline	Who
Create Frequently Asked Questions (FAQ) handout for Work Group members.	ProducersStakeholdersGeneral Public	Number of FAQs handed out	Draft: March 2017 Work Group meeting	Consultants and Work Group
General public workshops	ProducersStakeholdersGeneral Public	Number of people who attend workshops	June 2017	–County, Consultants, Work Group
Native Plant Society; Friends of Badger Mountain	Stakeholders	Number of organizational meetings attended	Spring 2017	Consultant attended with Audubon Representative
Attend meeting of Audubon Society and brief them on the Work Plan	Stakeholders		Spring 2017	Consultant attended with Audubon Representative

Goal 3: Gain responsibility and ownership of the Voluntary Stewardship Plan by the agricultural community

This goal would generally be accomplished through the outreach tactics listed under Goals 1, 2, and 4. Performance metrics could include continued participation in the Work Group by producer organizations and representatives.

Goal 4: Ensure that growers/producers know about the VSP work plan as we near adoption

Tactic	Audience	Performance Metrics	Timeline	Who
Create Frequently Asked Questions (FAQ) handout for Work Group members.	ProducersStakeholdersGeneral Public	Number of FAQs handed out	Draft: March 2017 Work Group meeting	Consultants and Work Group
Postcard mailing to landowners in critical area intersect about VSP and public workshop	Producers	 Number of postcards mailed Number of people who attend workshop 	May 2017	Consultants and County
General public workshops	ProducersStakeholdersGeneral Public	 Number of people who attend workshops 	June 2017	–County, Consultants, Work Group
Write article on Benton VSP for Work Group members to use with their constituents	 Producers Stakeholders	 Article is distributed to Work Group members Number of article placements with organizations 	Spring 2018	Consultants and Work Group

Goal 5: Bridge the gap between agricultural producers and resource agencies

This goal is a larger focus during Implementation in Phase 3. Tactics in Phase 2 to help accomplish this goal include the education and outreach tactics to producers listed above, all of which include education about services and assistance available from the Conservation District.

Global Effectiveness Measure:

- Determine public awareness through tools such as measuring unique visitors to VSP website (Google Analytics).
- Other: To be determined by Work Group.

PHASE 3: OUTREACH DURING VSP IMPLEMENTATION

The draft Benton County VSP Work Plan is expected to be complete by July 2018. For the purposes of this Outreach Plan, implementation outreach activities will be assumed to be begin at that time. Some outreach activities from Phase 2 may extend into Phase 3.

Because the VSP will be implemented through the voluntary participation of private agricultural producers, an important outreach goal is a high level of participation from producers located in areas of critical area intersect. Producer participation includes filling out checklists with technical providers and implementing new practices. Participation benchmarks and measurement are included in the Work Plan and Adaptive Management Matrix.

In addition, RCW 36.70A.720(1)(d) requires the Work Group to "ensure outreach and technical assistance is provided to agricultural operators in the watershed" once a work plan is approved.

Phase 3 Outreach Goals

- 1. Seek wide awareness of VSP work plan by producers
- 2. Gain participation in VSP activities by producers in target areas
- 3. Provide technical assistance to participating producers in target areas
- 4. Gain responsibility and ownership of the VSP by the agricultural community
- 5. Bridge the gap between agricultural producers and resource agencies
- 6. Seek understanding of the work plan and its implementation among stakeholders and the general public

Audiences

- Primary Audience: Agricultural producers in areas of critical area intersect
- Secondary Audiences:
 - o Interested stakeholders, including environmental organizations and tribes
 - The general public

Messaging

To Producers:

What the VSP is (non-regulatory, voluntary), how it can benefit you, and how to participate.

To stakeholders and the general public:

How the VSP protects the environment and agricultural viability. Program oversight, schedule, and goals.

Phase 3 Outreach Tactics

Tactics for Phase 3 are listed below, by goal.

Goal 1: Seek wide awareness of VSP work plan by producers

Tactic	Audience	Performance Metrics	Timeline	Who
The Benton Conservation District (BCD) sends a letter to agricultural producers in areas of critical area intersect, introducing them to VSP and inviting them to participate.	 Producers in target areas 	 Number of producers in target areas contacted by BCD 	 Letter prepared: Spring 2017 Letter sent: after Work Plan adoption in 2018 	 Letter content: Consultant Develop list of producer names & addresses: BCD and County Mail letters: BCD
Prepare a newsletter discussing the draft work plan and its contents	 Stakeholders and general public 	 Newsletter article completed Number of article placements 	Spring 2018	Consultant
Yakima Valley Fair in Grandview – second weekend of August	ProducersStakeholdersGeneral Public	Number of FAQs handed out	Second weekend of August	BCD and Work Group volunteers
Benton-Franklin Fair – first weekend in September	ProducersStakeholdersGeneral Public	Number of FAQs handed out	September 2017	BCD and Work Group Volunteers

Goal 2: Gain participation in VSP activities by producers in target areas

Goal 3: Provide technical assistance to participating producers in target areas

Goal 4: Gain responsibility and ownership of the VSP by the agricultural community

Goal 5: Bridge t	the gap between	agricultural	producers and	resource agencies
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Tactic	Audience	Performance Metrics	Timeline	Who
The Benton Conservation District (BCD) sends a letter to agricultural producers in areas of critical area intersect, introducing them to VSP and inviting them to participate.	 Producers in target areas 	 Number of producers in target areas contacted by BCD Target area coverage considering: critical area type, area of intersect, and size of properties. See Appendix L. 	 Letter prepared: Spring 2017 Letter sent: after Work Plan adoption in 2018 	 Letter content: Consultant Develop list of producer names & addresses: BCD and County Mail letters: BCD
Producer fills out the short checklist. Details: Prior to interfacing with the Conservation District, the District could provide the short form to the producer to get some information ahead of a walk through. Or the short-form could serve as a self-certification form for larger producers where there are more staff resources and less need to interface with technical providers.	 Producers in target areas 	• Number of checklists filled out by producers	• After Work Plan adoption in 2018	• BCD/ Producer
Producer meets with Technical Service Provider. Technical providers fill in form based on a one-on-one discussion with the producer.	 Producers in target areas 	 Number of meetings between BCD and producers in target areas 	• After Work Plan adoption in 2018	BCD/ Producer

Tactic	Audience	Performance Metrics	Timeline	Who
Producer and Technical Service Provider develop cost-share agreement for relevant new conservation practices.	 Producers in target areas 	 Number of cost- share agreements 	After Work Plan adoption in 2018	BCD/ Producer

Goal 6: Seek understanding of the work plan and its implementation among stakeholders and the general public

Tactic	Audience	Performance Metrics	Timeline	Who
Informal work session for Board of County Commissioners	General public		Spring 2018	County staff and BCD
Yakima Valley Fair in Grandview – second weekend of August	ProducersStakeholdersGeneral Public	 Number of FAQs handed out 	Second weekend of August	BCD and Work Group volunteers
Benton-Franklin Fair – first weekend in September	ProducersStakeholdersGeneral Public	Number of FAQs handed out	September 2017	BCD and Work Group Volunteers

Global Effectiveness Metric:

• Determine public awareness through tools such as measuring unique visitors to VSP website (Google Analytics) and periodic survey of participants (phone survey is ideal; online is secondary method).

OUTREACH CHAPTER APPENDIX A: WORK GROUP INFORMATION

Watershed Work Group Meetings

The work group held its first meeting on June 2, 2016. Following meetings were held monthly in Prosser.

Watershed Work Group Members/Alternates

- Perry Beale, WA State Dept. of Agriculture
- Nicole Berg, Benton County Wheat Growers
- Debbie Berkowitz, Lower Columbia Basin Audubon Society
- Stuart Crane, Yakama Nation
- Michael Crower, Barker Ranch
- Seth Defoe, Kennewick Irrigation District
- Robin French, Benton County Farm Bureau
- Ron Harle, Hogue Ranches
- Gwen Hoheisel, WSU Extension
- Phil Hull, Zirkle Fruit 2016-2017
- Shane Johnson, Ag Association Management (represents 14 associations)
- Tom Mackay, AgriNorthwest

- John Marvin, Yakama Nation
- Zach Meyer, WA Dept. of Ecology
- Fred Muller, Benton County Cattlemen's Association
- Lori Nelson, Lower Columbia Basin Audubon Society
- Mark Nielson, Benton Conservation District
- Larry Pearson, Tapteil Winery
- John Raap, Olson Brothers Ranches Inc.
- Mike Ritter, WDFW
- Evan Sheffels, WA State Farm Bureau
- Karen Sowers, Tapteal Greenway
 Association
- Matt Vickery, AgriNorthwest

OUTREACH CHAPTER APPENDIX B: DRAFT VSP INVITATION LETTER

Dear Producer,

The Benton Conservation District invites your participation in a new voluntary program that protects critical environmental areas while promoting agriculture. It's called the **Voluntary Stewardship Program, or VSP**.

The VSP is a program under the Growth Management Act to avoid unnecessary regulation. Benton County has "opted in" to VSP and developed a VSP Work Plan. The Work Plan has been **locally prepared** and is monitored by local agricultural and environmental stakeholders. The VSP is voluntarily implemented by individual agricultural producers to protect critical areas and improve agricultural viability through conservation practices. Participating in the Benton VSP could benefit you in several ways:

- Work together with other farmers to promote volunteerism versus additional regulatory controls. This means more certainty and less regulations.
- Be recognized for the conservation and stewardship you already do.
- Find out about practices that make efficient use of natural resources and support greater yields and produce quality.
- Enhance the marketability of agricultural products.

The VSP recognizes other market-based programs you may already participate in such as GlobalGAP, and does not increase requirements.

The purpose of the VSP is to maintain critical area functions and values as they were as of July 2011. The success of our VSP program depends on recognizing the good work you are doing now to steward your land and improve your productivity.

Tell us a little about you:

- What kind of farm or ranch do you have? What is working well? What could be working better?
- What kinds of water efficiencies/management practices have you been implementing?
- What kind of livestock management practices have you implemented?
- What about land management and habitat practices?
- Have you had to address soil erosion or soil health measures?

As a technical service provider, we are here to meet your needs, including cost-sharing for implementation of conservation practices on your property. Please let us know if you would like to have an individual meeting with us. You can contact us at [phone, email]. We will be following up with a phone call within the next month. Please fill out the short form included to help identify potential or existing conservation practices. [if included]

Sincerely,

Name, Benton Conservation District, http://www.bentoncd.org/

Appendix K. Noxious Weeds in Benton County

This document identifies Class A, B and C noxious weeds in Benton County. The information is summarized from the Benton Noxious Weed Board website: <u>http://www.bentonweedboard.com/</u>. Maps have been compiled from the Washington Department of Agriculture and are in order of the list below.

For purposes of the Benton Voluntary Stewardship Program Work Plan, the Work Group may set an adaptive management threshold, e.g. no more than 1% increase in presence of Class A mapped in 2016 with 10-100 acres infested across the county, and Class B and C no more than 10% increase in areas with 100-1000 acres infested or greater (yellow shaded items meet these sample thresholds). Adaptive management actions could include increasing application of noxious weed control methods on agricultural land (<u>http://www.bentonweedboard.com/noxious-weeds/</u>). The amount of actual intersect within critical areas and agricultural land is unknown.

CLASS A

Non-native species whose distribution in Washington is still limited. Preventing new infestations and eradication are the highest priority. Eradication of all Class "A" plants is required by law.



flowering rush, Butomus umbellatus details

CLASS B

Non-native species presently limited to portions of Washington state. Species are designated for control in regions where they are not yet widespread. Preventing new infestations in these areas is a high priority.



camelthorn, Alhagi maurorum details



common reed, Phrag*m*ites australis <u>details</u>



Dalmatian toadflax, Linaria dalmatica ssp.



Eurasian watermilfoil, Myriophyllum

spicatum <u>details</u>



hairy willow-herb, Epilobium hirsutum details



houndstongue, Cynoglossum officinale details



indigobush, Amorpha fruticosa details



diffuse knapweed, Centaurea diffusa details



Russian knapweed, Acroptilon repens details



spotted knapweed, Centaurea stoebe details



Bohemian knotweed, Polygonum x bohemicum <u>details</u>



Japanese knotweed, Polygonum

cuspidatum details



kochia, Kochia scoparia details



purple loosestrife, Lythrum salicaria details



perennial pepperweed, Lepidium

<mark>latifolium <u>details</u></mark>



poison hemlock, Conium maculatum details



puncturevine, Tribulus terrestris details



rush skeletonweed, Chondrilla juncea details



saltcedar, Tamarix ramosissima details



myrtle spurge, Euphorbia myrsinites details



musk thistle, Carduus nutans details



Scotch thistle, Onopordum acanthium details



velvetleaf, Abutilon theophrasti details



white bryony, Bryonia alba details



yellow nutsedge, Cyperus esculentus details



yellow starthistle, Centaurea solstitialis details



Ravenna Grass, Saccharum ravennae details

CLASS C

Are selected by the County Board of Directors. These weeds which are already widespread in Washington state are of special interest to the state's agricultural industry.



baby's breath, Gypsophila paniculata details



buffalobur, Solanum rostratum details



<mark>cereal rye, Secale cereale <u>details</u></mark>



common St. Johnswort, Hypericum perforatum<u>details</u>



field bindweed, Convolvulus arvensis details



fragrant water lily, Nymphaea

odorata <u>details</u>



hairy whitetop, Lepidium appelianum details



hoary cress, Lepidium draba <u>details</u>



jointed goatgrass, Aegilops cylindrica details



longspine sandbur, Cenchrus longispinus <u>details</u>



pampas grass, Cortaderia selloana details



reed canarygrass, Phalaris

arundinacea <u>details</u>



spikeweed, Centromadia pungens details



bull thistle, Cirsium vulgare details



Canada thistle, Cirsium arvense details



yellow flag iris, Iris pseudacorus details








Appendices B to N | April 2018 | Page 108 of 147 Houndstongue (Cynoglossum officinale) Distribution 2016



Appendices B to N | April 2018 | Page 109 of 147 Eurasian watermilfoil (Myriophyllum spicatum) Distribution 2016

Updated: 8/27/2016

















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Updated: 4/22/2016

Rush Skeletonweed (Chondrilla juncea) Distribution 2016



























No data or insufficient data

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Appendices B to N | April 2018 | Page 129 of 147 Common St. Johnswort (Hypericum perforatum)





















No data or insufficient data









Appendix L.Ownership and Acreages in Intersect

Lower Yakima

			Priority								
		Geologic	Habitats and		Hydrologic	Total Parcel					
	CARA	Hazard Areas	Species	Shrub-Steppe	Study Areas	Acres					
All Agricultural Types	Acres of Intersect	Acres of Intersect by Critical Area Type and Parcel Size Acrea									
>40	19,287	38,015	113,050	35,954	3,508	186,497					
20-40	3,194	912	608	447	451	7,409					
<20	4,902	1,117	529	274	454	9,197					
All Agricultural Types	Count of Parcels in	Count of Parcels in Intersect by Critical Area Type and Parcel Size Parcel Count									
>40	331	364	212	152	200	447					
20-40	211	170	48	29	95	255					
<20	2,164	1,193	353	223	504	3,491					
Irrigated	Acres of Intersect by Critical Area Type and Parcel Size Acreage Sum										
>40	13,193	6,501	9,603	1,159	2,603	53,036					
20-40	2,834	413	105	19	354	5,587					
<20	4,198	776	152	59	359	7,054					
Irrigated	Count of Parcels in	Count of Parcels in Intersect by Critical Area Type and Parcel Size Parcel Count									
>40	249	197	77	31	154	267					
20-40	172	113	18	5	75	189					
<20	1,688	768	112	48	373	2,379					
Dryland	Acres of Intersect	by Critical Area Type	and Parcel Size			Acreage Sum					
>40	2,007	13,573	58,040	13,818	379	85,276					
20-40	144	103	52	32	6	794					
<20	499	90	94	5	24	1,476					
Dryland	Count of Parcels in	Count of Parcels in Intersect by Critical Area Type and Parcel Size Parcel Count									
>40	34	98	81	72	20	108					
20-40	14	25	8	6	5	30					
<20	259	168	69	45	41	664					
Rangeland	Acres of Intersect	Acres of Intersect by Critical Area Type and Parcel Size Acreage Sum									
>40	4,087	17,942	45,407	20,977	526	48,185					
20-40	217	396	450	396	91	1,029					
<20	205	252	282	210	71	667					
Rangeland	Count of Parcels in Intersect by Critical Area Type and Parcel Size Parcel Count										
>40	48	69	54	49	26	72					
20-40	25	32	22	18	15	36					
<20	217	257	172	130	90	448					

Note: Totals will differ from the overall intersect because this data only includes private ownership, and additionally, ownership data is recent 2016, not from 2011.

Rock - Glade

		Geologic Hazard	Priority Habitats		Hydrologic Study				
	CARA	Areas	and Species	Shrub-Steppe	Areas	Total Parcel Acres			
All Agricultural Types	Acres of Intersect by Critical Area Type and Parcel Size Acreage Sun								
>40	56,352	35,513	10,440	9,044	3,642	418,146			
20-40	886	234	134	134	97	1,925			
<20	1,827	250	21	17	107	2,802			
All Agricultural Types	Count of Parcels in Intersect by Critical Area Type and Parcel Size Parcel Count								
>40	206	297	66	56	108	330			
20-40	48	50	8	7	15	71			
<20	1,067	359	45	30	108	1,355			
Irrigated	Acrea of Intersect by Critical Area Type and Parcel Size Acreage Sur								
>40	48,759	11,465	2,756	2,193	2,606	187,122			
20-40	762	121	5	5	93	1,161			
<20	1,669	176	0	0	80	2,124			
Irrigated	Count of Parcels in Intersect by Critical Area Type and Parcel Size Parcel Count								
>40	88	89	10	6	56	102			
20-40	37	30	2	1	13	44			
<20	939	235	4	3	73	1,085			
Dryland	Acres of Intersect by Critical Area Type and Parcel Size Acreage Sur								
>40	4,734	18,103	2,562	2,467	460	214,157			
20-40	64	13	0	0	-	418			
<20	69	25	0	0	2	437			
Dryland	Count of Parcels in Interse	ect by Critical Area Type ar	nd Parcel Size			Parcel Count			
>40	77	156	29	28	23	175			
20-40	5	8	1	1	-	14			
<20	34	41	7	6	10	103			
Rangeland	Acres of Intersect by Critical Area Type and Parcel Size								
>40	2,859	5,945	5,122	4,384	577	16,868			
20-40	60	100	129	129	3	346			
<20	88	49	21	17	25	241			
Rangeland	Count of Parcels in Intersect by Critical Area Type and Parcel Size Parcel Count								
>40	41	52	27	22	29	53			
20-40	6	12	5	5	2	13			
<20	94	83	34	21	25	167			

Note: Totals will differ from the overall intersect because this data only includes private ownership, and additionally, ownership data is recent 2016, not from 2011.
Alkali - Squilchuck Acres of Intersect by Critical Area Type and Parcel Acres

	Agriculture		Geologic Hazard	Priority Habitats and	Shrub-	Hydrologic Study	Total Parcel
WRIA	Туре	CARA	Areas	Species	Steppe	Areas	Acres
Alkali - Squilchuck	Drylands	-	743.6	775.5	330.2	-	775.5
Alkali - Squilchuck	Rangelands	4.7	227.0	160.1	0.1	14.2	245.9
Alkali - Squilchuck	Irrigated	174.8	5.2	0.7	-	0.6	199.5
Alkali - Squilchuck	Irrigated	15.5	60.9	52.6	-	-	86.6
Alkali - Squilchuck	Rangelands	16.9	31.8	16.4	-	1.1	58.4

Note: Totals will differ from the overall intersect because this data only includes private ownership, and additionally, ownership data is recent 2016, not from 2011.

Appendix M. Preliminary Monitoring Report Outlines

Benton County Voluntary Stewardship Program | April 2018

Introduction

Biennially and every five years the Work Group must submit reports.

RCW 36.70A.720 Watershed group's duties—Work plan—Conditional priority funding.

(1) A watershed group designated by a county under RCW 36.70A.715 must develop a work plan to protect critical areas while maintaining the viability of agriculture in the watershed. The work plan must include goals and benchmarks for the protection and enhancement of critical areas. In developing and implementing the work plan, the watershed group must:

(j) Conduct periodic evaluations, institute adaptive management, and **provide a written report of the** status of plans and accomplishments to the county and to the commission within sixty days after the end of each biennium;

(c)(i) Not later than ten years after receipt of funding for a participating watershed, and every five years thereafter, the watershed group must report to the director and the county on whether it has met the protection and enhancement goals and benchmarks of the work plan.

(ii) If the watershed group determines the protection goals and benchmarks have been met, and the director concurs under RCW 36.70A.730, the watershed group shall continue to implement the work plan.

(iii) If the watershed group determines the protection goals and benchmarks have not been met, the watershed is subject to RCW 36.70A.735..

This document presents a preliminary outline of biennial and five-year reports under the Voluntary Stewardship Program. These outlines are flexible and may be modified by the Work Group to meet its needs to document how goals and benchmarks are being met. The report schedule is listed below.

Step	Activity	Date
1.	Receipt of funding	January 2016
2.	VSP Plan Approval	By July 12, 2018
3.	Biennial Report #1	August 31, 2019
4.	Five-Year Report #1 /Biennial Report #2	January 2021 (ahead of August 31, 2021)
5.	Biennial Report #3	August 31, 2023
6.	Five-Year Report #2 /Biennial Report #4	August 31, 2025 (ahead of January 2026)
7.	Biennial Report #5 et seq.	August 31, 2027, 2029 et seq.
8.	Five-Year Report #3 et seq.	January 2031, 2036, et seq.

Exhibit 1. Reporting Schedule

The biennial and five-year reports will benefit from year by year data tracking including conservation practices and annual technical service provider reports. In the biennial and five-year reports, together with conservation practice tracking, mapping and imagery interpretation, producer surveys, and expert panels would provide a broader perspective of whether the measurable goals and benchmarks are being met at the watershed scale. See Work Plan Chapter 7 and Appendix G for goals and benchmarks and performance metrics as well as Work Plan Chapter 8 for a description of monitoring.

Exhibit 2. Watershed Scale Monitoring Framework



Biennial Report Outline

- 1) Work Plan Implementation Status and Accomplishments
- 2) Critical Area Protection and Enhancement Monitoring Trends and Status
 - a) Participation
 - b) Annual Tracking Tool
 - c) Enhancement Projects with Willing Landowners
 - d) Other
- 3) Agricultural Viability Trends
- 4) Funding Goals and Status

5-Year Report Outline

- 1) Introduction and Purpose
- 2) Monitoring
 - a) Approach
 - b) Indicators
 - i) Participation: Goals and Benchmarks
 - ii) Critical Area Protection: Goals, Benchmarks, Performance Metrics, Adaptive Management Thresholds
 - iii) Critical Area Enhancement: Goals, Benchmarks, Performance Metrics, Adaptive Management Thresholds
 - iv) Agricultural Viability: Aims, Tracking Measures, and Incentives
 - c) Data Collection
 - i) Tracking Tool: Conservation Practices and Voluntary Enhancement Projects
 - ii) Mapping & Imagery Updates and Interpretation
 - iii) Producer Survey Results
 - iv) Expert Panels: Reports
 - v) Other Agency Reports:
 - (1) Ecology River and Stream Gauges,
 - (2) Yakima Basin Integrated Water Resource Management Plan (YBIWRMP) Implementation Reports,
 - (3) Benton Groundwater Management Plan Implementation Reports,
 - (4) Water Trusts,
 - (5) State Water Quality Monitoring,
 - (6) Noxious Weed Board,
 - (7) Other
- 3) Evaluation
 - a) Baseline Inventory
 - i) Baseline 2011
 - ii) Baseline Updated with Corrected or Updated Information
 - b) Participation Goals and Benchmarks
 - c) Protection Goals and Benchmark Status
 - d) Enhancement Goals and Benchmark Status
 - e) Agricultural Viability Aims and Tracking Status
- 4) Adaptive Management Decision Process, Responses, and Timeline

Task	Activities	Who	Biennium Budgets ¹
Education, Outreach, Technical Assistance, Cost- share	 Conduct outreach and develop education materials Assist producers in developing stewardship plans Facilitate Self-Assessment Checklist reporting Identify and implement cost-share projects 	VSP Coordinator with help from technical assistance providers	\$190,000
Monitoring, Reporting, and Adaptive Management	 Annual monitoring and tracking Develop adaptive management as needed Prepare 2-year status reports Prepare 5-year progress reports 	VSP Coordinator with help from technical assistance providers or contract services	\$25,000 ²
Work Group Coordination	 Attend quarterly meetings Coordinate report and adaptive management review and approvals 	VSP Coordinator with help from technical assistance providers	\$5,000
	\$220,000		

Appendix N. Draft Implementation Budget

Notes:

1. Assumes State funding for VSP is continued at a level of \$220,000 each biennium for the County.

2. Costs will be more in reporting years to support data assimilation and report preparation.