



# Planning Riparian Buffer Practices in FY16

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NRCS West Area Biologist

# Today's Objectives

- Discuss NRCS goal to provide quality conservation plans
- Announce what has changed for FY16 planning
- Explain revised TN-14 (Wildlife Habitat Evaluation Guide)
- Explain SVAP2-Stream Visual Assessment Protocol
- Introduce a new planning tool to assist with buffer alternative development
- Walk through example buffer planning process

# Conservation Planning-NRCS Foundation

The NRCS objective in conservation planning is to help the client manage resources for sustained use and productivity while considering economic and social needs.



# Planning is complex and dynamic

The planner strives to balance natural resource issues with economic and social needs of our farmers and ranchers through the development of the conservation plan.

Modified natural channel

Concerned Neighbor



Beginning Farmer

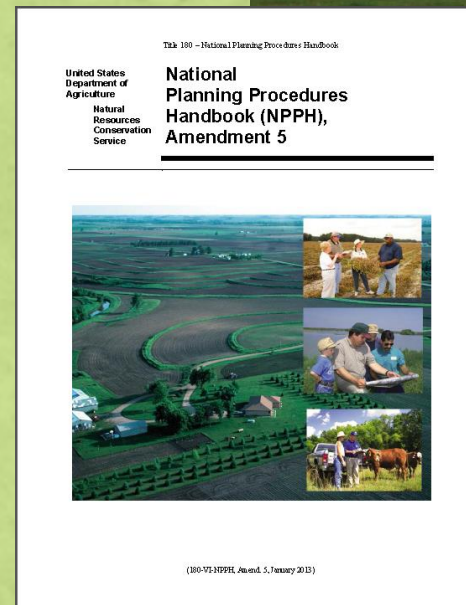
Old fence infrastructure

"Best" hayland is adjacent to stream

# Resource Management Alternative (RMS)

## Our Job is to:

- Identify ALL resource concerns on the planning unit
- Provide conservation practice alternatives to improve all resource concerns
- Discuss the alternatives with the landowner
- Document the discussion and clients decisions in case file



# What has changed?

Biology Tech Note 14  
(1999) has been revised

<b>TECHNICAL NOTE</b>	
U.S. Department of Agriculture Biology - 14 (revised November 2015)	Natural Resources Conservation Service Spokane, Washington November 20, 2015
<b>Wildlife Habitat Evaluation Guide (WHEG)</b>	
<p>This Habitat Evaluation Guide is designed to provide the NRCS planner with a relatively simple and objective method of determining the value of aquatic and terrestrial habitat in an agricultural Evaluation Area. This guide can be used on land where wildlife is a primary objective, or on land (such as forestland) where wildlife is considered to be a secondary objective. This guide can be used to evaluate habitat on different land uses including, cropland &amp; hayland, rangeland, pastureland, upland woodland, riparian areas, and wetlands.</p>	
<p>Use this evaluation when providing a Resource Management System (RMS) alternative, or for general assessment of habitat which supports multiple species. If an Evaluation Area is to be intensively managed for one species such as pollinators or an at-risk fish or wildlife species, use a species-specific habitat assessment.</p>	
<p><b>USE WA SYAP2</b> for evaluating the overall condition of a wadable stream and its habitat elements.</p>	
<p>Evaluate current conditions and, if appropriate, conditions to be expected after applying a management plan (Planned A and Planned B). Management may include conservation practices that will raise the general habitat quality of the area, convert one habitat type to another, change livestock grazing pressure, or alter timber management objectives, etc.</p>	
<b>PROCEDURE:</b>	
<p>1) Identify all areas in the Evaluation Area as cropland, woodland, rangeland, pasture, hayland, riparian, stream or wetland. If a field contains areas of more than one habitat type, evaluate each area within the field according to the criteria appropriate for the habitat type being assessed. For example, a strip of trees along cropland would be scored in the upland woodland section.</p>	
<p>2) If the Evaluation Area has only one field in a landuse, or all fields of same landuse are similar, select one field at random to represent that landuse. If the Evaluation Area has fields of the same habitat type which are managed differently, inventory each field and compute a weighted average score.</p>	
<p>3) Complete this habitat assessment in the field and compute the score for each landuse (habitat type). Interpolate between levels as needed. If values for all habitat elements (i.e. questions on the inventory form) of a habitat type are at or above Planning Criteria (PC) level, the habitat score is the sum of the value of each habitat element divided by the sum of highest value possible for each element. If the value for any element of a habitat type are less than PC level, the habitat score is the lowest value achieved for that element, divided by the highest possible value for that element.</p>	
Enter Data in cells shaded Yellow.	

# What has changed?

New buffer width requirement for treating Inadequate Fish & Wildlife Habitat resource concern

Riparian Forest (PC = 70%)			
Landowner/operator:	Sample Landowner	Tract #:	2345
		Field(s):	3,4
Evaluator:	R. Maggi	Left Bank Width:	12.0
		Right Bank Width:	20.0
		Length:	400.0
Date:	16-Nov-15	Acres:	0.11
			0.18

Left Bank	Right Bank
1	2
Present	Present
3	3
Planned A	Planned A
4	4
Planned E	Planned E

**Riparian Buffer Width**

4 = The average width of the riparian vegetation around or along the natural water source is greater than 100 feet or covers the entire active floodplain.

3 = The minimum width of the riparian vegetation around or along the water source is equal to or greater than 50 feet.

1 = Riparian vegetation around or along the water source is absent.

**Site Index Height** Soil Type: Alderwood

Tree Species: Douglas fir Height: 120 Feet

1	3
Present	Present
4	4
Planned A	Planned A
5	5
Planned E	Planned E

5 = Existing tree species have potential to reach 75-100% of the site index height for the soil type.

4 = Existing tree species have potential to reach 50-74% of the site index height for the soil type.

3 = Existing tree species have potential to reach 25-49% of the site index height for the soil type.

1 = Existing tree species have potential to reach less than 25% of the site index height for the soil type.

**Riparian Buffer Length**

Gaps are defined as linear portions of the buffer where the buffer width measures less than 50 feet.

3	3
Present	Present
4	4
Planned A	Planned A
5	5
Planned E	Planned E

5 = Natural plant community generally contiguous, gaps in the buffer do not exceed 10% on the planning unit.

4 = Gaps in the buffer are 30% or less along the entire planning unit.

3 = Gaps in the buffer exceed 30% along the entire planning unit.

1 = Natural riparian plant community is absent on the planning unit.

# Riparian Width Requirement

Minimum buffer width of 50 feet on 70% of the length of the planning unit





# What has changed?

Riparian length element added

Riparian Forest (PC = 70%)							
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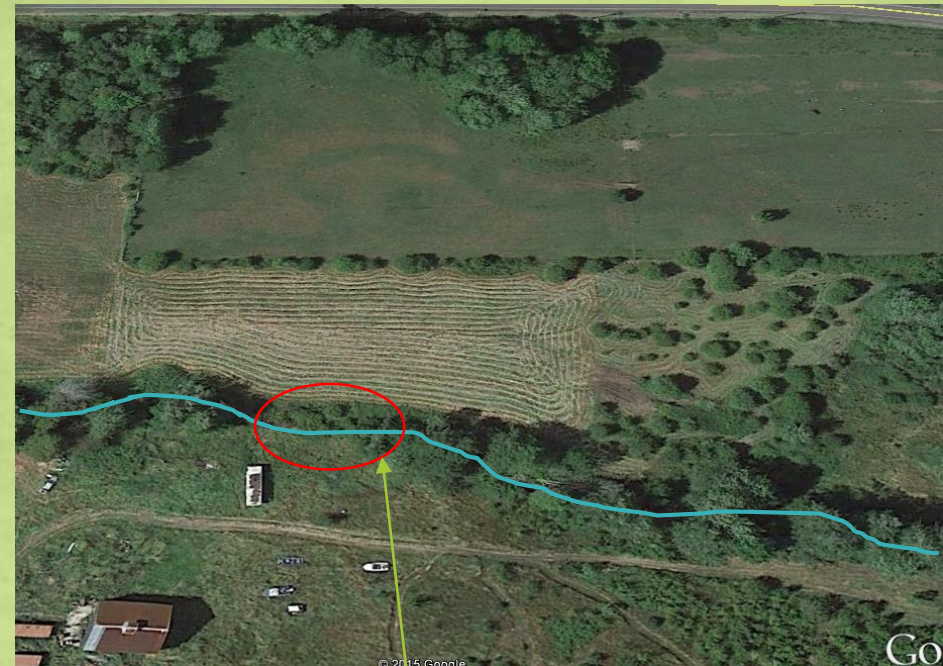
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# Riparian Buffer-Length Requirement

Minimum buffer width of 50 feet on 70% of the length of the planning unit



Gap

# Gaps in the buffer

- Infrastructure near channels on agricultural operations is common
- Access roads, livestock lanes, pump stations, outbuildings, etc.
- 30% of a buffer can measure less than 50 feet in width and still meet planning criteria



# Using the results in Planning Process

<b>Upland Woodland (PC = 60%)</b>		<b>Present</b>	<b>P.C.*</b>	<b>Planned A</b>	<b>P.C.*</b>	<b>Planned B</b>	<b>P.C.*</b>
Forest diversity		33%	Below PC	33%	Below PC	67%	
Grazing system		100%		100%		100%	
Downed woody material		33%	Below PC	67%		100%	
Snags		25%	Below PC	50%	Below PC	75%	
Brush piles		67%		67%		67%	
Forest openings		17%	Below PC	67%		67%	
Wildlife drinking water		67%		67%		100%	
<b>Acres: 120.0</b>	<b>Score:</b>	<b>17%</b>	<b>Below PC</b>	<b>33%</b>	<b>Below PC</b>	<b>82%</b>	

Evaluation Summary

TN-14 formatted to point out the specific habitat elements that are in need of improvement.



# SVAP2 Revised for Washington

- Data Sheets formatted for use in the field
- Summary Section for instant results!
- Notes Section to remind you why you circled what you did

Landowner Name: \_\_\_\_\_ **WA SVAP 2 Field Reference Sheet (Ver 1)**

14. Aquatic Invertebrate Community				
Use macro community & dipteran pupae & emergent pupae to identify group. One or two species do not count.	Use macro community & well represented by Group I or II. One or two species do not count.	Use macro community & composed mainly of Group II and III. One or two species do not count.	Use macro community & composed mainly of Group II and III. One or two species do not count.	Use macro community & composed mainly of Group II and III. One or two species do not count.
10	9	8	7	6
5	4	3	2	1
Comments:				

15. Baffle Embeddeshness: Streambed Sediments				
Gravel or cobble & silt/clay are <10% embedded.	Gravel or cobble & silt/clay are 10-20% embedded.	Gravel or cobble & silt/clay are 21-30% embedded.	Gravel or cobble & silt/clay are 31-40% embedded.	Gravel or cobble & silt/clay are >40% embedded.
10	9	8	7	6
5	4	3	2	1
Comments:				

16. Salinity (Tappinizer)				
No visible, blacking, karfina or other signs of aquatic life.	No visible, blacking, karfina, or other signs of aquatic life.	Aquatic vegetation may show signs of wilting, blacking, karfina, or other signs of aquatic life.	Some visible, blacking, karfina, or other signs of aquatic life.	Only visible, blacking, karfina, or other signs of aquatic life.
10	9	8	7	6
5	4	3	2	1
Comments:				

Element	Score	Element	Score
1. Channel Condition		14. Aquatic Invertebrate Community	
2. Hydrologic Alteration		15. Baffle Embeddeshness	
3. Bank Condition		16. Salinity	
4. Riparian Area Quantity		A. Sum of all elements scored	
5. Riparian Area Quality		B. Number of elements scored	
6. Canopy Cover			
7. Water Appearance		<b>Overall score: A/B</b> _____	
8. Nutrient Enrichment		1 to 2.0 Severely Degraded	
9. Manure or Human Waste		3 to 4.0 Poor	
10. Pools		5 to 6.0 Fair	
11. Barriers to Movement		7 to 8.0 Good	
12. Fish Habitat Complexity		9 to 10 Excellent	
13. Aquatic Invertebrate Habitat			

Suspected causes for SVAP scores (?): \_\_\_\_\_

Recommendations for further assessment or actions: \_\_\_\_\_

Additional information: \_\_\_\_\_

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# Planning Criteria for Aquatic Habitats

Resource Concern	Screening Questions  No = Met Screening (Not a Resource Concern)  YES = Needs to be Assessed	YES or NO or NA (Not Applicable)	Assessment Tools (check all that were used)	Assessment Level Required to Meet Planning Criteria  YES = Meets Planning Criteria  NO = Resource Concern	YES or NO or NA (Not Applicable)
<b>WILDLIFE RESOURCES</b>					
22A. INADEQUATE HABITAT FOR FISH AND WILDLIFE- Habitat degradation (Aquatic)	Is Aquatic habitat present?		<input type="checkbox"/> Washington Biology Tech Note 14: Wildlife Habitat Evaluation Guide (WHEG)-Version FY 16 <input type="checkbox"/> WA SVAP2 Field Reference Sheets <input type="checkbox"/> Washington Water Quality Technical Note 1	Is the Wildlife Habitat Evaluation Guide (WHEG) rating for aquatic habitats greater than or equal to 0.7?  <b>AND when surface stream present</b>  SVAP2 Overall Score is Good (range of 7 to 8.9)  <b>AND/OR</b> All individual element scores are equal to or greater than a score of 7.	



# Riparian Buffer Conservation Strategy for Working Lands

- NRCS will Pilot in FY16
- Intended to provide planners with buffer alternatives to include in producer conservation plans
- Applies to all NATURAL channels, including streams modified to improve drainage
- NOT intended for planning buffer alternatives on constructed ditches (drainage or irrigation)

# Riparian Buffer Conservation Strategy for Working Lands




















- Strategy assumes natural channels have been modified in past (moved, straightened, dredged) and that channel maintenance will continue to facilitate active agriculture
- Tool identifies individual ecological functions provided by riparian buffers
- Allows planner to provide education to landowners regarding comprehensive list of ecological functions

# Riparian Buffer Conservation Strategy for Working Lands

- Provides criteria to show practice alternatives to treat different resource concerns and specific ecological functions at the individual agricultural operation

### FY 16 Riparian Buffer Conservation Strategy for Working Lands

**Introduction:** This buffer strategy applies to all natural channel types, including streams modified to improve drainage. This methodology is intended to provide planners with buffer alternatives to include in conservation plans. It is not intended for planning buffers on constructed ditches. The strategy assumes the majority of stream reaches on working lands have been modified (moved, straightened, dredged) and continue to be managed by the agricultural community to facilitate active farming.

STEP 1: Identify Resource Concern Inventory Tool Options: WA Biology TN-14, SVAP2, WA Water Quality TN-1, 303 (d) list								STEP 2: Select Desired Buffer Function(s)		STEP 3: Determine Minimum Required Minimum Buffer width (each side):				STEP 4: Select Conservation Practice Alternatives	STEP 5: Determine plant community & species selection <sup>1</sup>				
Resource Concern								Ecological Function		35 ft		50 ft		>100 ft. (Western WA)		>75 ft. (Eastern WA)		Options	Suggested plant materials****
SOIL BE	WQ Nut	WQ Pest	WQ Path	WQ Sed	WQ Temp	HAB Aq	HAB Up												
					X	X		Shade stream 60% to maintain water temperature and increase dissolved oxygen							390, 391, 422, 612	Deciduous trees, conifers, shrubs preferred; herbaceous vegetation in low precipitation areas or saturated soils			
X				X		X		Reduce bank erosion							390, 391, 422, 612	Woody species with deeper root systems that resprout from roots or from broken branches			
				X				Stabilize surface soil							390, 386, 393, 327, 342	Herbaceous plants with fibrous root systems			
				X		X		Trap sediment in surface runoff							386, 393, 327, 342	Stiff-stemmed grasses; high stem and debris density, tolerant of sediment build up			
	X					X		Trap nutrients in surface runoff							386, 393, 327, 342, 422, 601	Herbaceous plants with fibrous root systems			
		X				X		Trap pesticides in surface runoff							386, 393, 327, 342, 422, 601	Herbaceous plants with fibrous root systems			
			X			X		Trap bacteria and other pathogens in surface runoff							386, 393, 327	Herbaceous plants with fibrous; high stem and debris density			
				X				Slow water runoff and enhance infiltration							327, 342, 386, 390, 391, 393, 422, 612	Combination of deciduous trees, conifers, shrubs and herbaceous species			
							X	Habitat and travel corridor for small terrestrial wildlife (invertebrates, reptiles & amphibians, bird species nesting in edge habitat)							327, 390, 391, 393, 422, 612	Combination of deciduous trees, conifers, shrubs and herbaceous species			
							X	Habitat and travel corridor for medium to large terrestrial wildlife (bird species nesting in interior, small mammals, large mammals, large predatory mammals)							327, 390, 391, 393, 422, 612	Combination of deciduous trees, conifers, shrubs and herbaceous species			
						X		Facilitate stream channel migration (meandering)							327, 391, 612	Combination of deciduous trees, conifers, shrubs and herbaceous species			

## Site specific planning - Example



# Step #1 – Identify Resource Concerns



Run the tools

Benchmark Score:

- TN-14 Riparian Area (Right Bank)= 0.13
- SVAP<sub>2</sub>= 4.3 (Poor)
- 303d listed reach for Bacteria located ~1000 feet downstream

Step 1: Identify Resource Concerns Inventory Tools Used: WDOE 303d & SVAP2 & Bio TN-14 (FY16 version)	Resource Concern
Planning unit contains a stream reach that is labeled with a Bacteria parameter on the WDOE 303d list	WATER QUALITY DEGRADATION: Excess pathogens and chemicals from manure, bio solids or compost applications
SVAP2 shows the following elements with a score below 7: Element 9-Manure or Human Waste Presence Element 4-Riparian Area Quantity Element 5-Riparian Area Quality Element 12- Fish Habitat Complexity	INADEQUATE HABITAT FOR FISH AND WILDLIFE-Habitat degradation (Aquatic) INADEQUATE HABITAT FOR FISH AND WILDLIFE-Habitat degradation (Aquatic) INADEQUATE HABITAT FOR FISH AND WILDLIFE-Habitat degradation (Aquatic) INADEQUATE HABITAT FOR FISH AND WILDLIFE-Habitat degradation (Aquatic)
Bio TN-14 (FY16 version) Riparian Area Score = 0.13	INADEQUATE HABITAT FOR FISH AND WILDLIFE-Habitat degradation (Aquatic) INADEQUATE HABITAT FOR FISH AND WILDLIFE-Habitat degradation (Terrestrial)

Step 2: Select Desired Buffer Function(s)	Step 3: Minimum Buffer Width(eachside)	Step 4: Select Conservation Practice	Step 5: Determine plant community & species selection
Trap bacteria and other pathogens in surface runoff	35 ft. to treat Water Quality Resource Concern and 50 ft. to treat Habitat Degradation	422 and 382 to treat WQ Res Concern; 422, 393 and 382 to treat Habitat Degradation	Herbaceous vegetation with fibrous root systems OR Shrubs with filterstrip on landward edge
Overhanging vegetation	50 ft. to treat Habitat Degradation (Aquatic)	391 (50 ft. wide) and 382 to treat Habitat Degradation	Combination of deciduous trees and shrubs with conifers
Provide litter (leaves, twigs, branches, organic matter and roots) input to stream	50 ft. to treat Habitat Degradation (Aquatic)	391 (50 ft. wide) and 382 to treat Habitat Degradation	Combination of deciduous trees and shrubs with conifers
Root stability supporting undercut banks	50 ft. to treat Habitat Degradation (Aquatic)	391 (50 ft. wide) and 382 to treat Habitat Degradation	Combination of deciduous trees and shrubs with conifers
Provide source of large woody debris	100 ft. to treat Habitat Degradation (Aquatic)	391 (100 ft. wide) and 382 to treat Habitat Degradation	Combination of conifers and deciduous tree species
Crop pollinator habitat	35 ft to treat Habitat Degradation (Terrestrial)	422 (35 ft wide) or 327	Combination of conifers and deciduous tree species

This is the RMS  
Conservation  
Practice  
Alternative

# Landowner selected alternative

Step 2: Select Desired Buffer Function(s)	Step 3: Minimum Buffer Width(eachside)	Step 4: Select Conservation Practice	Step 5: Determine plant community & species selection
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Landowner selected planting a shrub buffer for pollinator enhancement

EQIP funding to treat Inadequate F/W Habitat-Degradation-Terrestrial



# Reminder...

- The new buffer width criteria is used when planning a buffer which will treat an Aquatic HABITAT resource concern
- Buffers to treat a WATER QUALITY resource concern are still going to be offered as an alternative during RMS planning



Photo Credit: Whatcom CD

# Questions?

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