USDA Natural Resources Conservation Service
Science and Technology

2015 Webinars

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Date	2015 Conservation Webinars Topics	
5/13/15	Design of Dairy Flush Systems and Sand Setting Lanes	
5/21/15	Vernal Pools	
6/10/15	CNTSC – Economics of Conservation	
6/16/15	Pumps and Waste Transfer and Evaluating System Pressures	
7/8/15	CNTSC – Forage Management for Livestock Production	
8/12/15	Water Quality Basics	
More…	See Planned Conservation Webinars at conservationwebinars.net	

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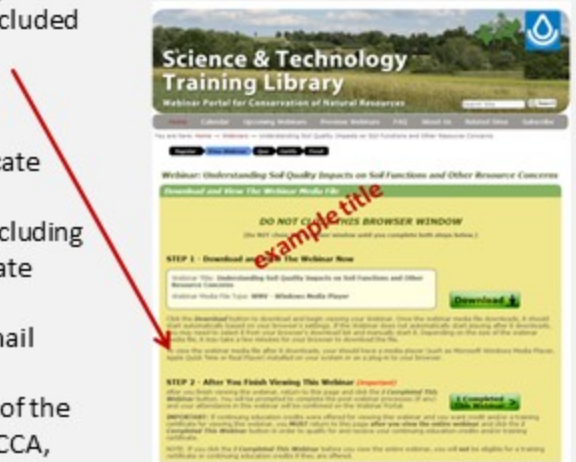

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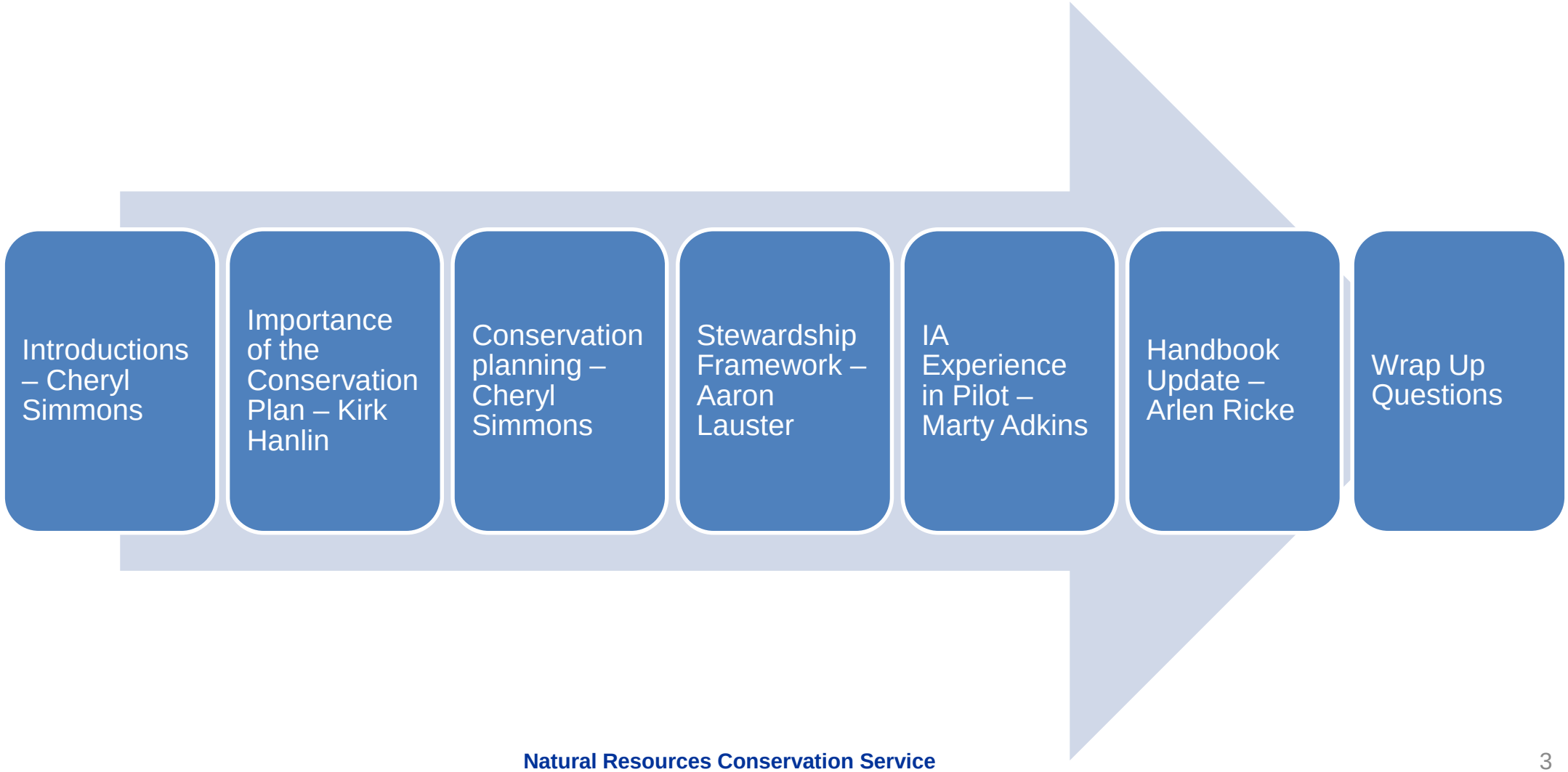
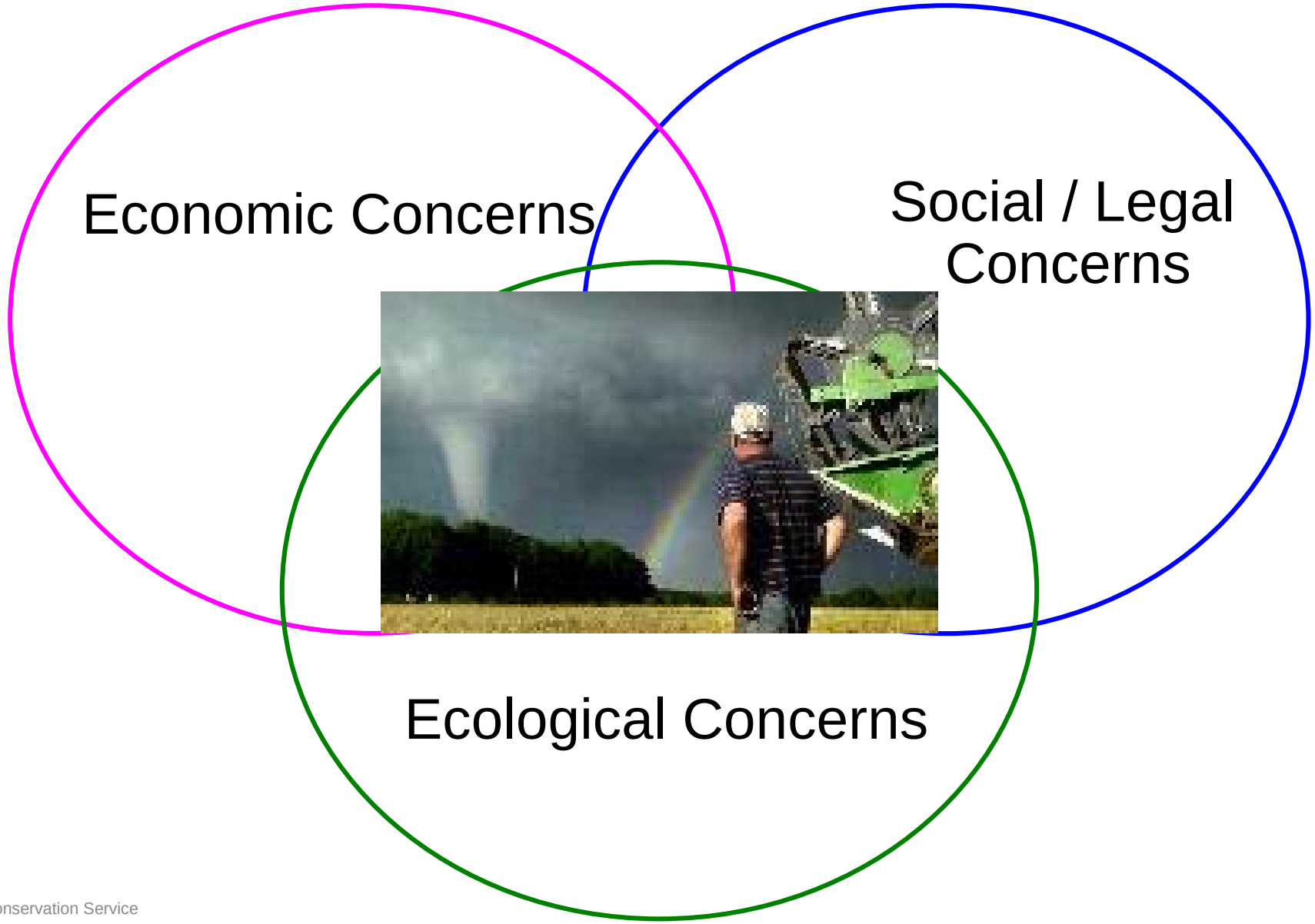
SREF

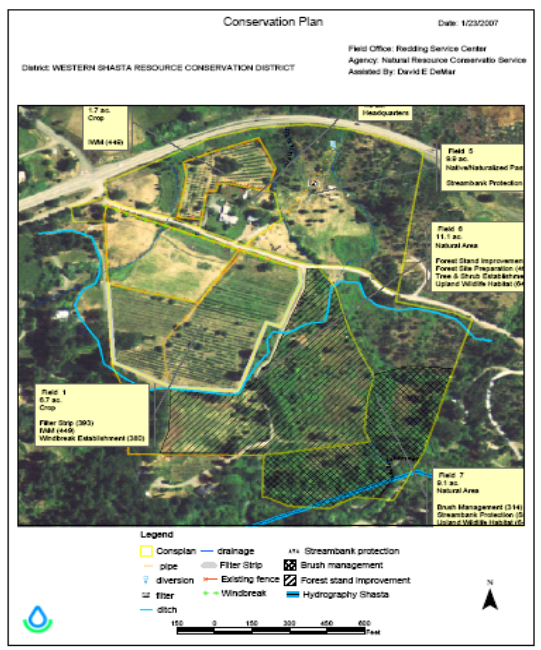
CONSERVATION PLANNING 2015

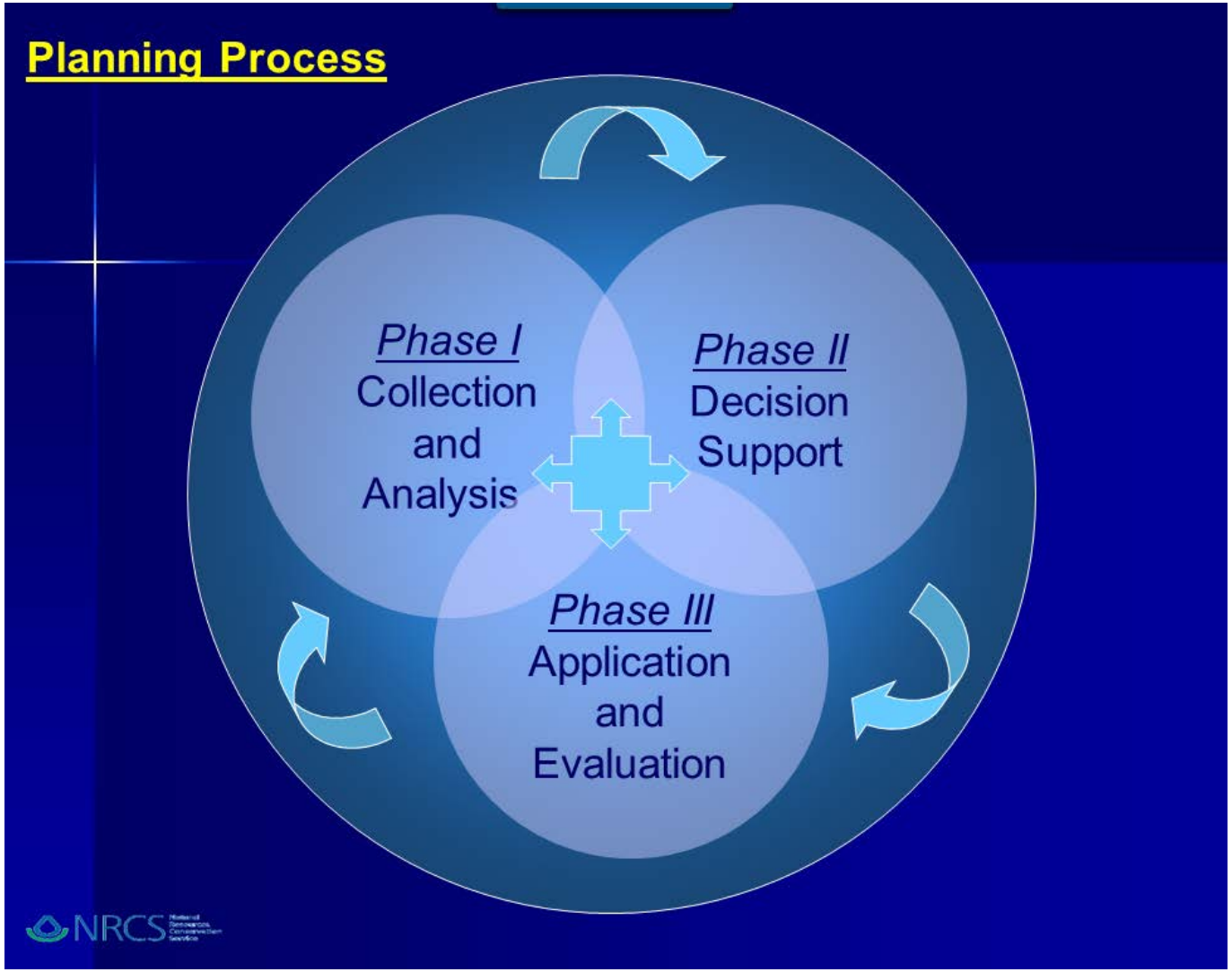
Introductions and Agenda




Economic Concerns
Social / Legal Concerns
Ecological Concerns

The conservation plan is the basis for determining the work needed to be done





Collection and Analysis

1. **Identify Problems**
2. **Determine Objectives**
3. **Inventory Resources**
4. **Analyze Resources**

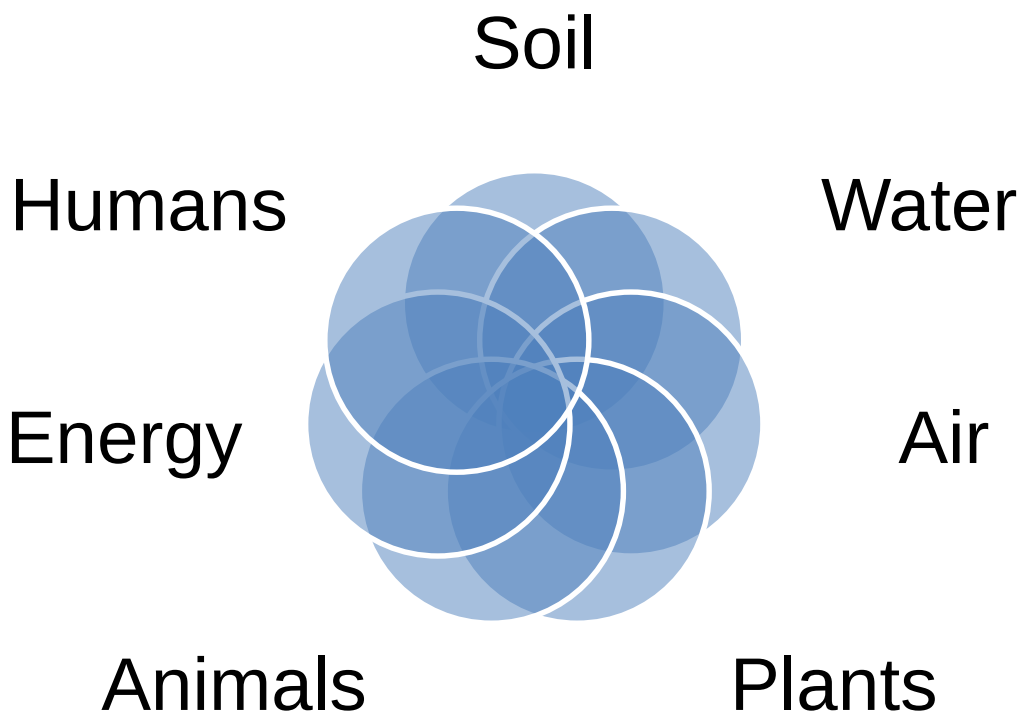
Decision Support

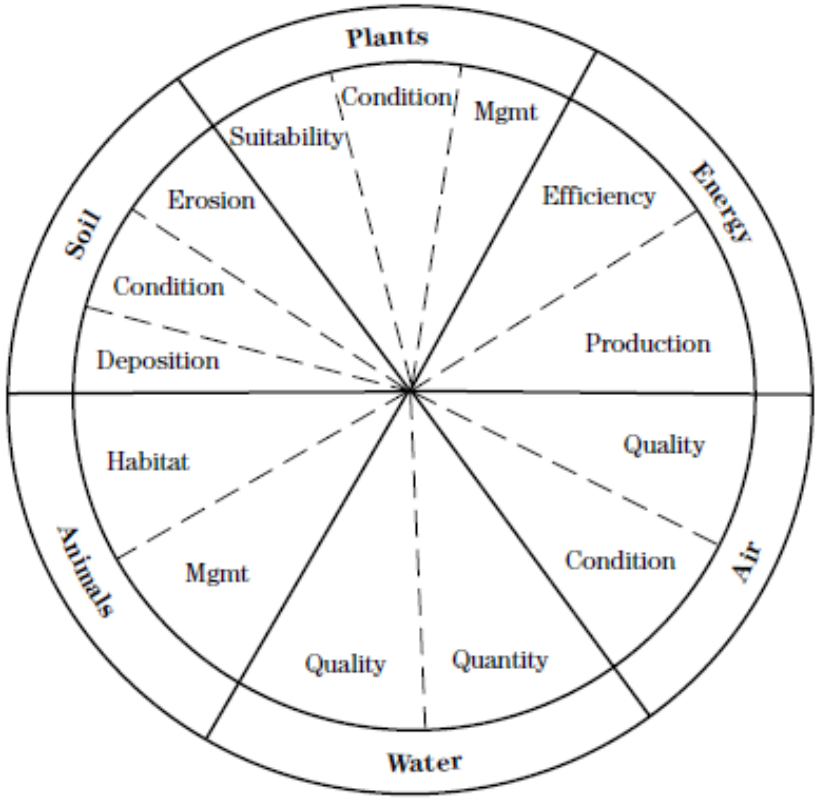
5. **Formulate Alternatives**
6. **Evaluate Alternatives**
7. **Make Decisions**

Application

8. **Implement Plan**
9. **Evaluate -** *monitor* **- Plan**

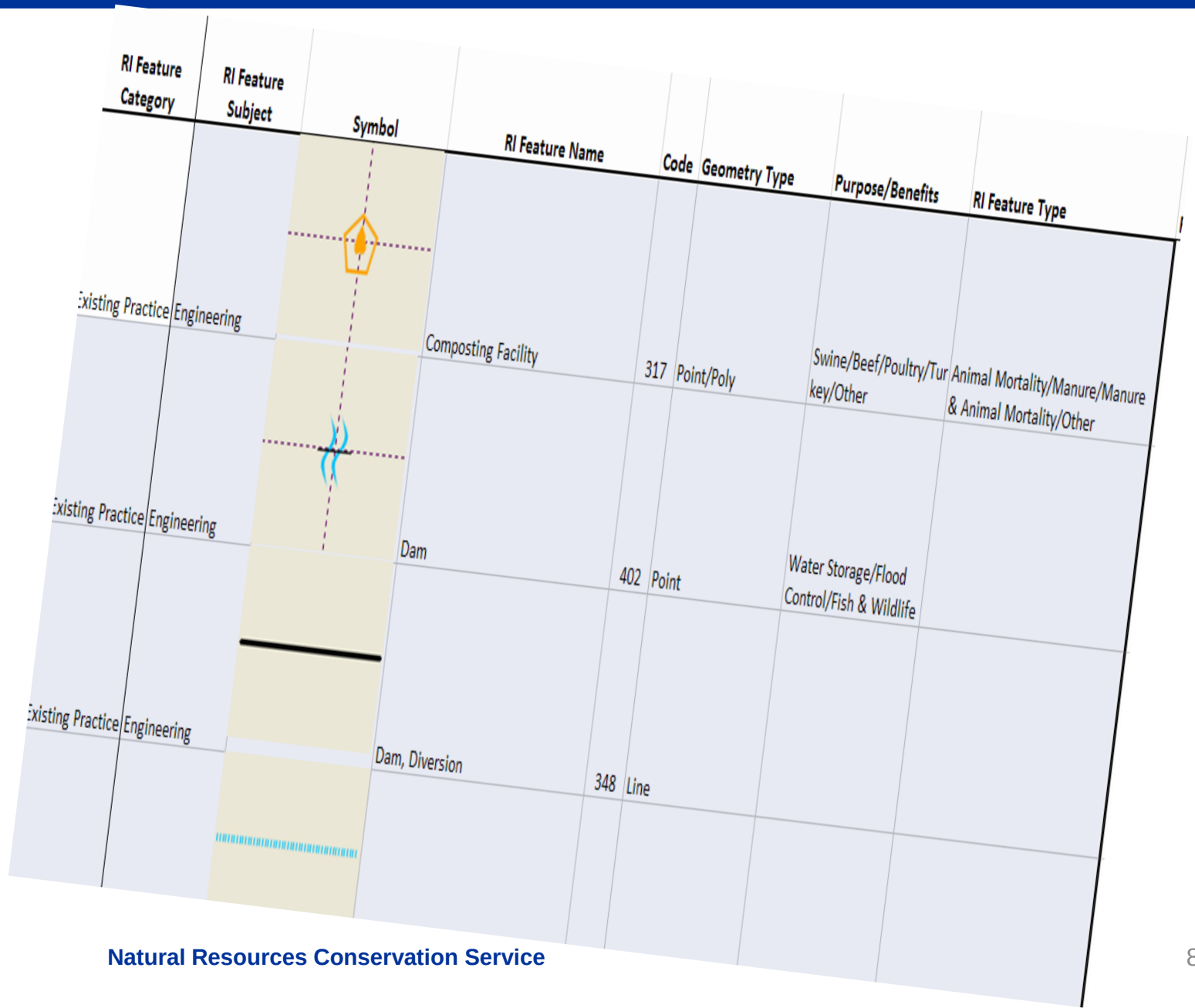
Planning for Protection of Natural Resources





RESOURCE INVENTORY

- Land Features
- Existing Practices
- Inventory includes geographic and human impacts on the land



RI Feature Category	RI Feature Subject	Symbol	RI Feature Name	Code	Geometry Type	Purpose/Benefits	RI Feature Type
Existing Practice	Engineering		Composting Facility	317	Point/Poly	Swine/Beef/Poultry/Turkey/Other	Animal Mortality/Manure/Manure & Animal Mortality/Other
Existing Practice	Engineering		Dam	402	Point	Water Storage/Flood Control/Fish & Wildlife	
Existing Practice	Engineering		Dam, Diversion	348	Line		

The Conservation Plan

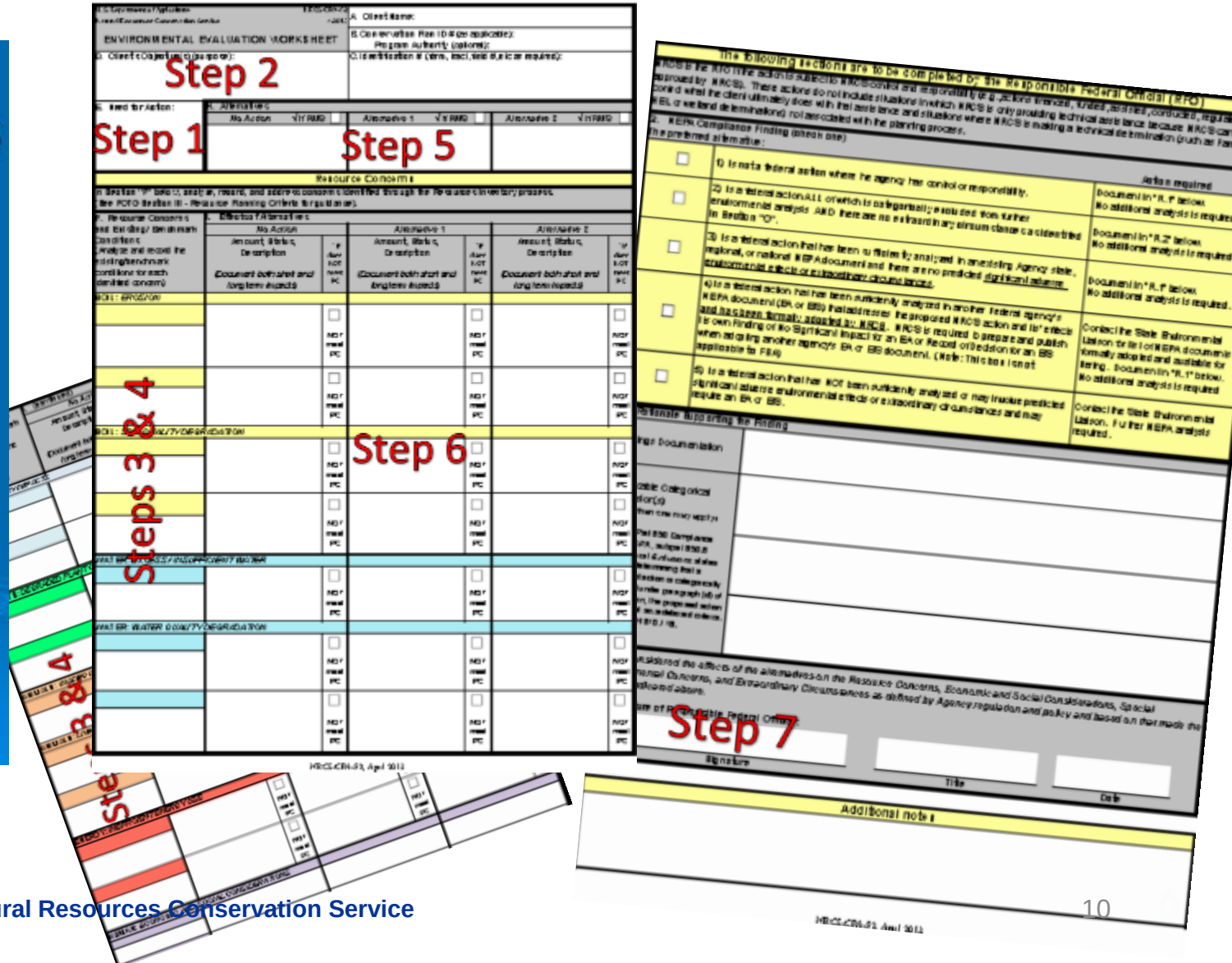
… One example for what planners may consider during the conservation plan development:

- Locations of sensitive resource areas
- ***Producers objectives and goals***
- Crops, production systems, results (as appropriate and available) like soil tests, tissue tests, microbiological tests, crop/forage quality testing
- Method and frequency of fertility management monitoring
- Methods of erosion control
- Related regulations
- Biodiversity - conservation plants, habitat for birds, pollinators, bats, beneficial insects, natural areas restored or protected, and wildlife friendly practices

Photo: Katharina Ullmann, Xerces Society

Environmental Evaluation and Special Resource Concerns

CPA-52 Content	Planning process
E. Need for Action	1. ID Problems
D. Objectives	2. Determine Objectives
F/I. Resource Concerns/ Benchmark Conditions	3. Inventory Resources
	4. Analyze Resources
G. Alternatives	5. Formulate Alternatives
H/J. Effects	6. Evaluate Alternatives
Q. Finding	7. Make Decisions
	8. Implement Plan
	9. Evaluate Plan



Resource Concerns

	Resource Concern	Description of Concern
SOIL EROSION	**SOIL EROSION – Sheet, rill, & wind erosion**	Detachment and transportation of soil particles caused by rainfall runoff/splash, irrigation runoff, or wind that degrades soil quality.
	SOIL EROSION – Concentrated flow erosion	Untreated classic gullies may enlarge progressively by head cutting and/or lateral widening. Ephemeral gullies occur in the same flow area and are obscured by tillage. This includes concentrated flow erosion caused by runoff from rainfall, snowmelt, or irrigation water.
	SOIL EROSION – Excessive bank erosion from streams, shorelines, or water conveyance channels	Sediment from banks or shorelines threatens to degrade water quality and limit use for intended purposes.

Resource Assessment and Evaluation and Planning Criteria

Resource Concern	Description of Concern	Land Use	Planning Criteria		Measurement & Assessment
			Screening Level	Basic Assessment Level	
SOIL EROSION - Sheet, Rill, & Wind Erosion	Detachment and transportation of soil particles caused by rainfall runoff/splash or irrigation runoff or wind that degrades soil quality.	• Crop	• For irrigation induced erosion, application rate does not exceed soil infiltration rate. **OR** • Permanent ground cover ≥ 80% ***OR*** • Use national geographic filter for a GIS Layer to screen out wind or water erosion potential.	• WATER & WIND: Erosion rate from both wind and water does not exceed the Soil Loss Tolerance.	**Water Erosion Current Tool:** RUSLE II
				• WIND: Plant damage from wind erosion does not exceed Crop Damage Tolerance or other approved technology; or plant damage from wind erosion within client objectives.	**Wind Erosion Current Tool:** WEPS
		• Pasture	• Permanent ground cover ≥90%, OR • Pasture Condition Score of 4 or higher on Erosion category **OR** • Use a national geographic filter for a GIS Layer to screen out wind or water erosion potential.	• WATER & WIND: Erosion rate from both wind and water does not exceed the Soil Loss Tolerance.	**Water Erosion Current Tool:** RUSLE II **Wind Erosion Current Tool:** WEPS

Observation and client objectives are a part of each planning criteria measure and assessment

Conservation Planning Phases/Steps/Tools

Collection and Resource Assessment Phase

- **Identify Problems/Objectives**
  - **Client Input/Planner Observation**
- **Inventory**
  - **Visual Inspection**
  - **Field measurements/observation**
  - **Soil Survey**
  - **GIS/ARC GIS**

Tools Relative to Resource Concerns

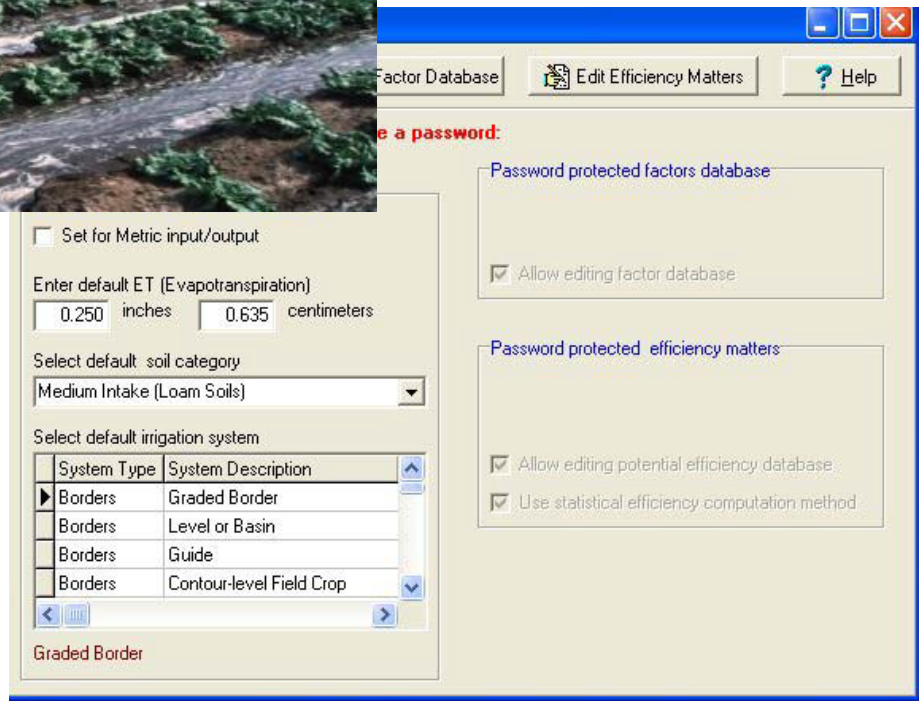
RUSLE2, WEPS - (Integrated Erosion Tool)	Soil Erosion – (Sheet-Rill and Wind)
SCI (RUSLE2)	Soil Quality/Soil Health – Organic Matter Depletion
Crop Tolerance Table (Wind Erosion)	Plants – Health and Productivity
Pasture Condition Score	Soil Erosion – Streambank Erosion Soil Quality – Compaction Soil Quality – Organic Matter Depletion Plants – Plant productivity and health Insufficient Water – Inefficient moisture management Water Quality – Sediment

Observation

Compaction is causing decreased rooting depth that reduces plant growth.

Use of soil probe can indicate the existence of hard pan or compaction layer.

State by State Farm Irrigation Rating Index (FIRI)



Start with a base value assigned to specific types of irrigation systems. The higher the irrigation efficiency the higher the value. Values are adjusted based on the level of management and the efficiency of the on-farm water delivery system. A bonus is given for runoff captured for reuse.

Wildlife Habitat Suitability Index

WILDLIFE HABITAT APPRAISAL GUIDE - December, 2006

Farmland Habitat: *1 Date Evaluator

[Owner/Operator]	Acres in Planning Unit	Field Number[s]	Tract Number[s]

1. Landowners Wildlife objectives

2. Wildlife species commonly found on this conservation planning unit and their seasons use:

3. Soils potential for farmland habitat elements: Are soils suitable or non-suitable for identified plant groups

	Irrigated	Nonirrigated	
Grain & Seed Crops			
Grasses & Forbs			
Deciduous Trees			
Conifers			
Shrubs			

The Farmland System

	Possible Score	Actual Score	
		Benchmark	Plan
4. Cropland Quantity: *2 Percent cropland in planning unit			
50-70%	5-10		
71-85%	7-8		
40-49%	5-6		
More than 85%	4		
Less than 40%	4		

Deduct 1 point for crops other than grain or seed production (e.g., sugarbeets, potatoes, etc.)

Deduct 1 point for use of herbicides and/or insecticides w/o pest management.

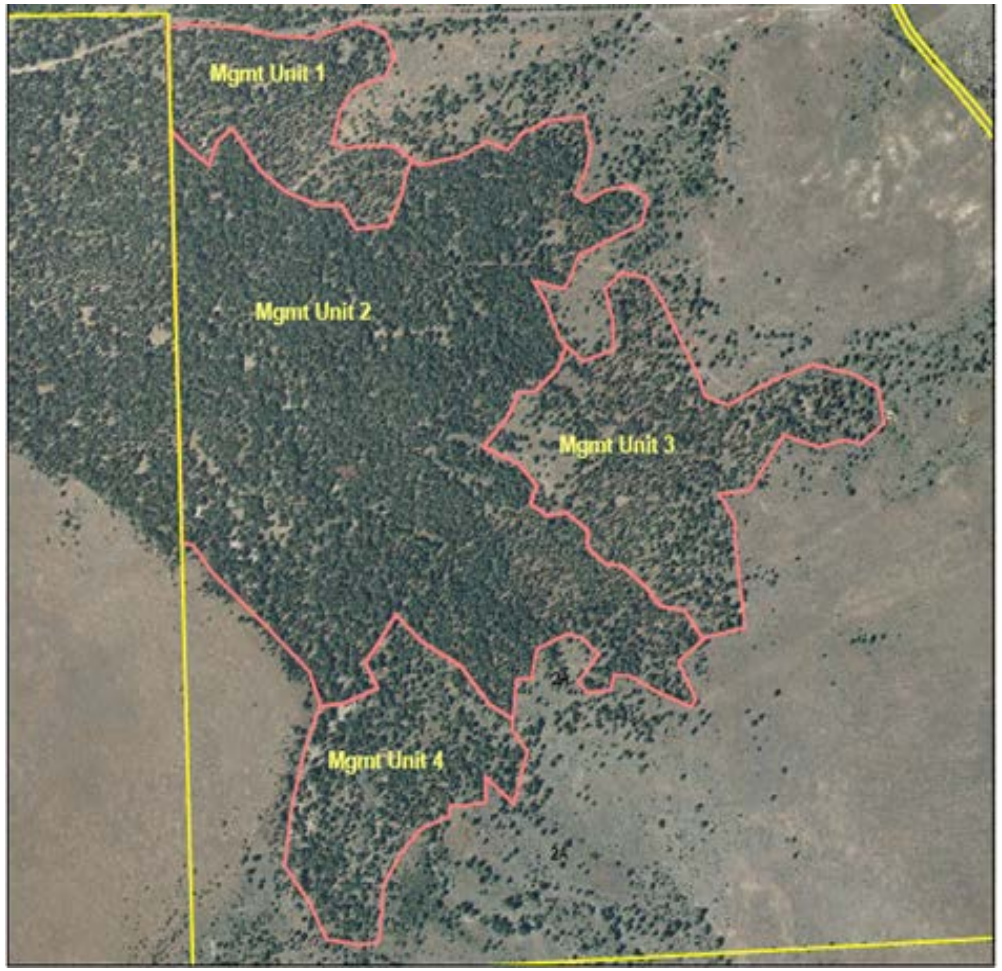
No score less that 1 if cropland is present in any quantity.

*1 Includes small grains, row crops, orchards, hay and pasture, etc.

*2 Refer to soil survey reports or Certified Soil Survey Data (found in the eFOTG) for soils/wildlife interpretations and soils potential for plant groups on the soils you are dealing with. Where soil surveys have not been conducted, use the best available information for the establishment of plants for wildlife.

*3 Cropland includes grains, corn, sugarbeets, oil seed crops, potatoes, orchards, etc.

Habitat Appraisal Guides provide the NRCS planner with a relatively simple and objective means of determining the value of wildlife habitat on any conservation planning unit. The guides can be used on land where managing for wildlife is landowner objective.



SVAP2

United States Department of Agriculture
Natural Resources Conservation Service

National Biology Handbook
Subpart B—Conservation Planning

Part 614 Stream Visual Assessment Protocol Version 2

(190-VI-NBH, Amend. 3, December 2009)

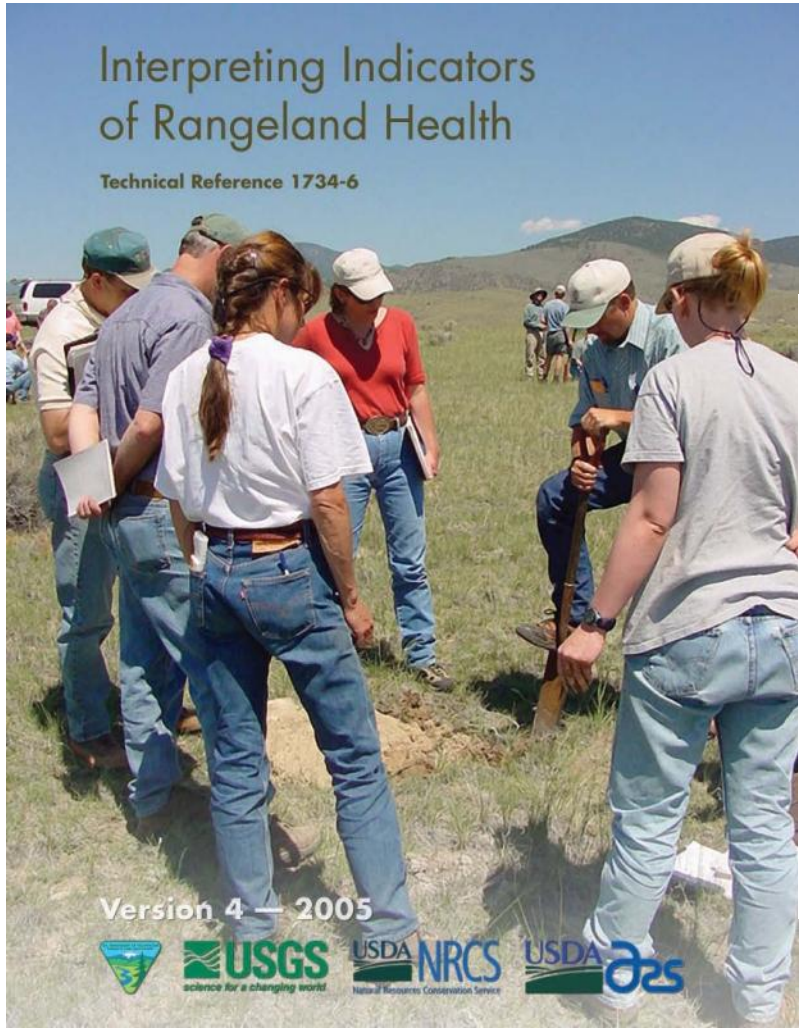
Studies have found that unstable streambanks can contribute as much as 85% of the total sediment yield in an entire watershed. Severely unstable streambanks can result in the loss of valuable farmland, force changes in water tables, and endanger transportation infrastructure and other flood plain features.

Element 3 Bank condition

Banks are stable; protected by roots of natural vegetation, wood, and rock 1/			Banks are moderately stable, protected by roots of natural vegetation, wood, or rock or a combination of materials			Banks are moderately unstable; very little protection of banks by roots of natural wood, vegetation, or rock			Banks are unstable; no bank protection with roots, wood, rock, or vegetation		
No fabricated structures present on bank			Limited number of structures present on bank			Fabricated structures cover more than half of reach or entire bank			Riprap and/or other structures dominate banks		
No excessive erosion or bank failures 2/ No recreational or livestock access			Evidence of erosion or bank failures, some with reestablishment of vegetation			Excessive bank erosion or active bank failures			Numerous active bank failures		
			Recreational use and/or grazing do not negatively impact bank condition			Recreational and/or livestock use are contributing to bank instability			Recreational and/or livestock use are contributing to bank instability		
Right bank	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Left bank	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**

1/ Natural wood and rock does not mean riprap, gabions, log cribs, or other fabricated revetments.
2/ Bank failure refers to a section of streambank that collapses and falls into the stream, usually because of slope instability.

Interpreting Indicators of Rangeland Health



			17		
	14	12	15	16	
	8	9	13	11	
E-T	**M-E**	**M**	**S-M**	**N-S**	

B (9 indicators): Biotic Integrity Rating: M

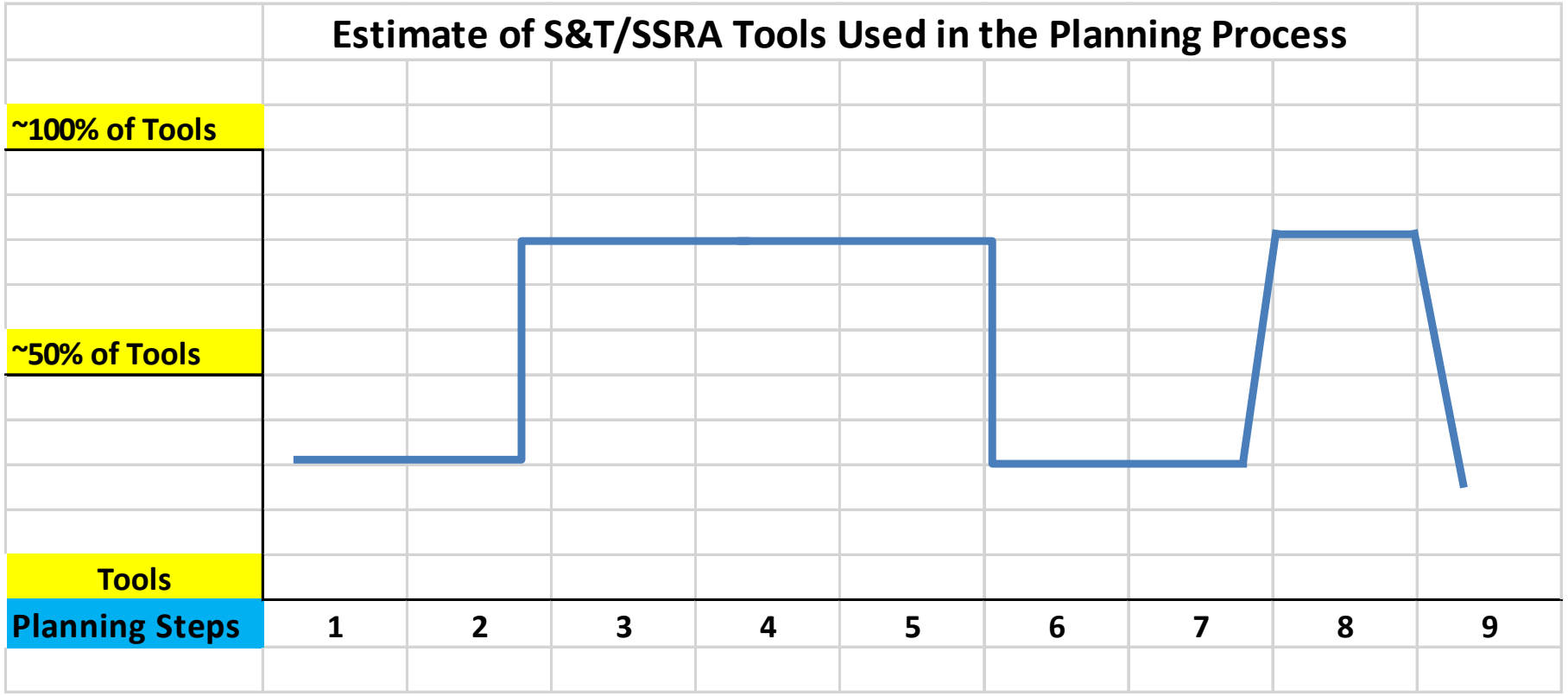
Attribute Rating Justification

Biotic Integrity:
Shift in functional structural groups is significant, justifying moderate rating.

The capacity of the biotic community to support ecological processes within the normal range of variability expected for the site, to resist a loss in the capacity to support these processes, and to recover this capacity when losses do occur. The biotic community includes plants, animals, and microorganisms occurring both above and below ground.

Each of these three attributes is summarized at the end of the Evaluation Sheet based upon a preponderance of evidence approach using the applicable indicators (Appendix 1). This assessment is preliminary and may be modified with the interpretation

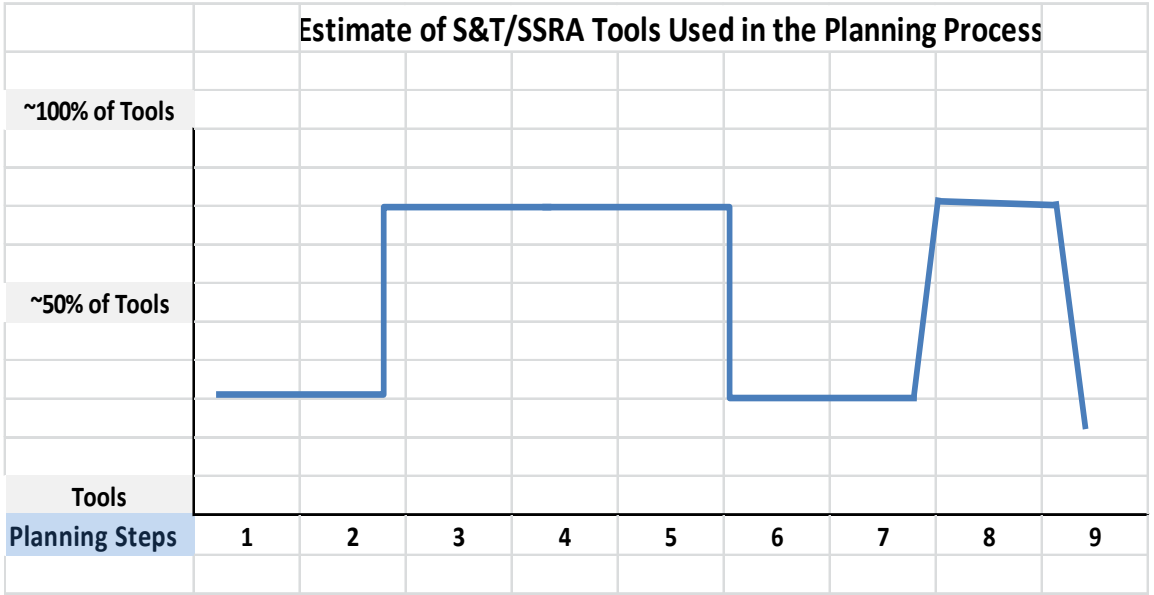
General Illustration of Science and Technology, Soils and Spatial Tools in Conservation Planning



General Illustration - S&T/SSRA Tools and Conservation Planning

Cheryl Simmons. Central National Technology Support Center, Fort Worth, Texas

Conservation Planning Phases/Steps/Tools		
Collection and Resource Assessment Phase	Identify Problems/Objectives	Client Input/Planner Observation
	Inventory	Visual Inspection
		Field measurements/observation
		Soil Survey
		GIS/ARC GIS
	Assess/Analyze Resources	RUSLE2
		WEPS
		FIRI
		SVAP2
		Soil Health/Soil diagnostic evaluations
		Nutrient Budget
		WinPST
		Rangeland Health Assessment
		Pasture Condition Scoresheet
		ESDs
		Forest Inventory/Transects
		Wildlife Habitat Indices
		Energy Estimator and Energy Audit
		EFH *light
Decision Support	Formulate Alternatives	Estimate Practice Extent
	Evaluate Alternatives	CPPE
		Economic Analysis/ T Chart
	Make Decisions	
Application/ Implementation	Implement Plan	EFT - Most Design and Construction Assist Tools
		Incuding EFH2, WinTR55, and WinTR20
	Evaluate /Monitor Resources	



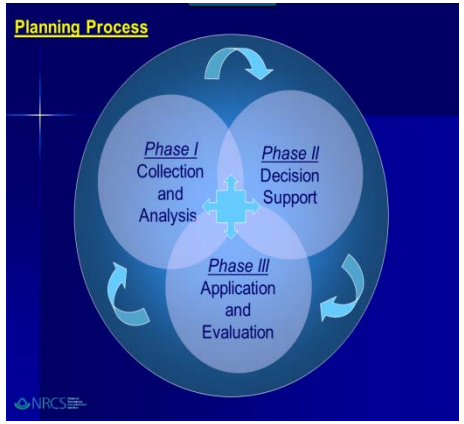
CONSERVATION PLANNING

Phases

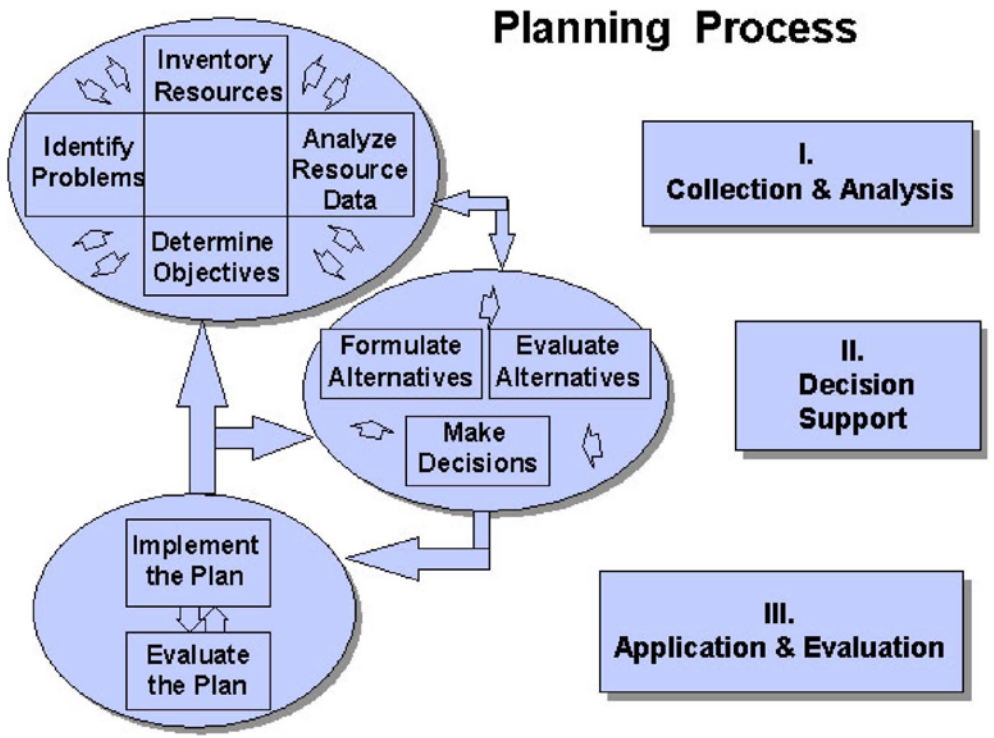
Collection and Analysis
1. Identify Problems
2. Determine Objectives
3. Inventory Resources
4. Analyze Resources

Decision Support
5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions

Application
8. Implement Plan
9. Evaluate Plan



NRCS provides Conservation Plans to clients as the basic tool for clients to manage their natural resources.



NRCS provides Conservation Plans to clients as the basic tool for clients to manage their natural resources.

Which is the most important phase or step in conservation planning?

Which is the most important phase or step in conservation planning?

Collection and Analysis – Environment Evaluation

1. Identify Problems
2. Determine Objectives
3. Inventory Resources
4. Analyze Resources

Decision Support

5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions

Application

8. Implement Plan
9. Evaluate Plan - *Monitor*

NRCS provides Conservation Plans to clients as the basic tool for clients to manage their natural resources.

Collection and Analysis

1. **Identify Problems**
2. **Determine Objectives**
3. **Inventory Resources**
4. **Analyze Resources**

Decision Support

5. **Formulate Alternatives**
6. **Evaluate Alternatives**
7. **Make Decisions**

Application

8. **Implement Plan**
9. **Evaluate Plan** - *Monitor*

Trick Question.
All are critical steps and phases.
Application and implementation of the plan depend on the completeness of steps 1 – 6.

Some adjustment in site assessment can happen with final practice designs.

Key Points in Conservation Planning;

In the field

- In the field; with the producer;
- In the field; with the producer; with preparation.

Record keeping and Goals

- Important conservation tools to help producers decide
- Important conservation tools to help producers change

Conservation planners and the landowner work together

- The producer's objectives
- The producer is the decision maker
- Improve environmental performance

Professionally Trained Conservation Planners (Technical Assistance) Saves Money

- By investing in professional technical assistance (conservation planners) money is saved in having the right practices planned properly and planned in the right place.
- Landowners who adopt conservation and move forward (with adequate technical assistance but without practice payments) results in more technical expert assistance and engineering hours spent helping more farmers and ranchers.
- Conservation Planners can help landowners understand the costs involved in implementing the plan, but one must start with a plan and the farmer makes the final decision.

Re-looking At How We Talk About Conservation

- Planning criteria, treating a resource concern, treating but at what level of environmental performance, practices, practice considerations, implementation requirements, conservation activities, job approval authority-skills matrix, planner certification, and expanded use of webservices for landscape map layers.
- The National Planning Procedures Handbook (NPPH) outlines the steps to follow in conservation planning. Experience and science based planning includes professionally trained conservation planners working with knowledgeable farmers and ranchers to implement conservation on the land.

Conservation planning with farmers has been at the core of Natural Resources Conservation Service (NRCS) operations for many decades.

CONSERVATION PLANNING 2015

Aaron Lauster

Natural Resources Conservation Service

A Conservation Planning Framework

Objectives

- To **better align and use our technical tools** to enhance our conservation planning capabilities
- To **utilize transparent and uniform stewardship metrics** for farmers and ranchers
- To **better estimate the benefits of conservation** stewardship

Resource Stewardship Planning Framework

Includes a **Resource Stewardship Evaluation (RSE)** and a **Resource Stewardship Plan (RSP)** to assist producers in achieving a sustainable level of conservation and better communicate the stewardship benefits of conservation planning and science-based conservation program implementation.

The RSE pairs key indicators and evaluation tools to a defined subset of the critical resource concerns used in the NRCS Resource Management System (RMS) planning process.

Key Concepts

- Stewardship not sustainability
- Science-based evaluation
- Resource management systems (RMS)
- Management on the land
- Planning thresholds

What's Excluded

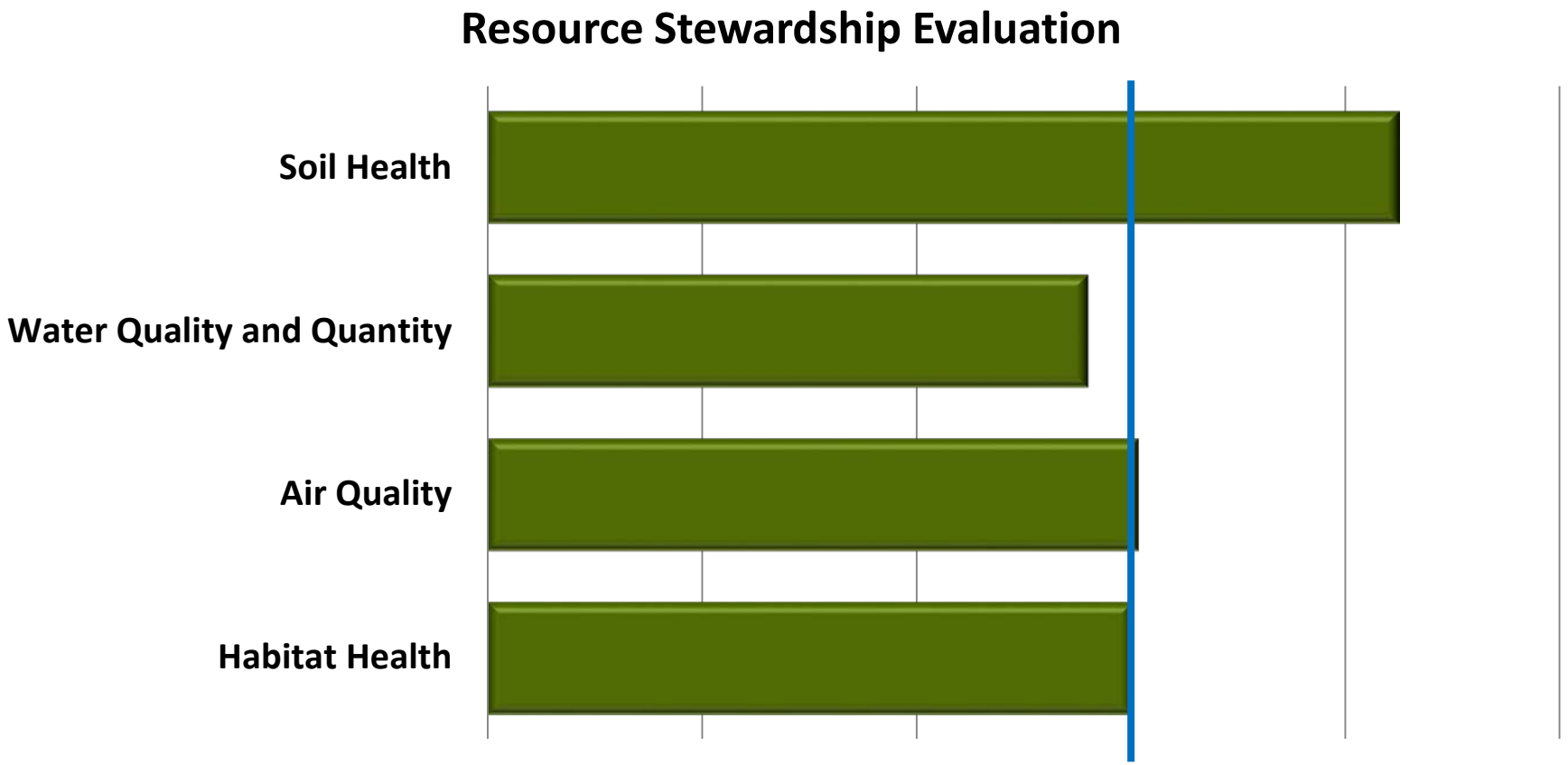
Not traditional NRCS Resource Concerns

- Animal welfare
- Genetically modified organisms (GMOs)
- Labor, worker safety and protection
- Food safety

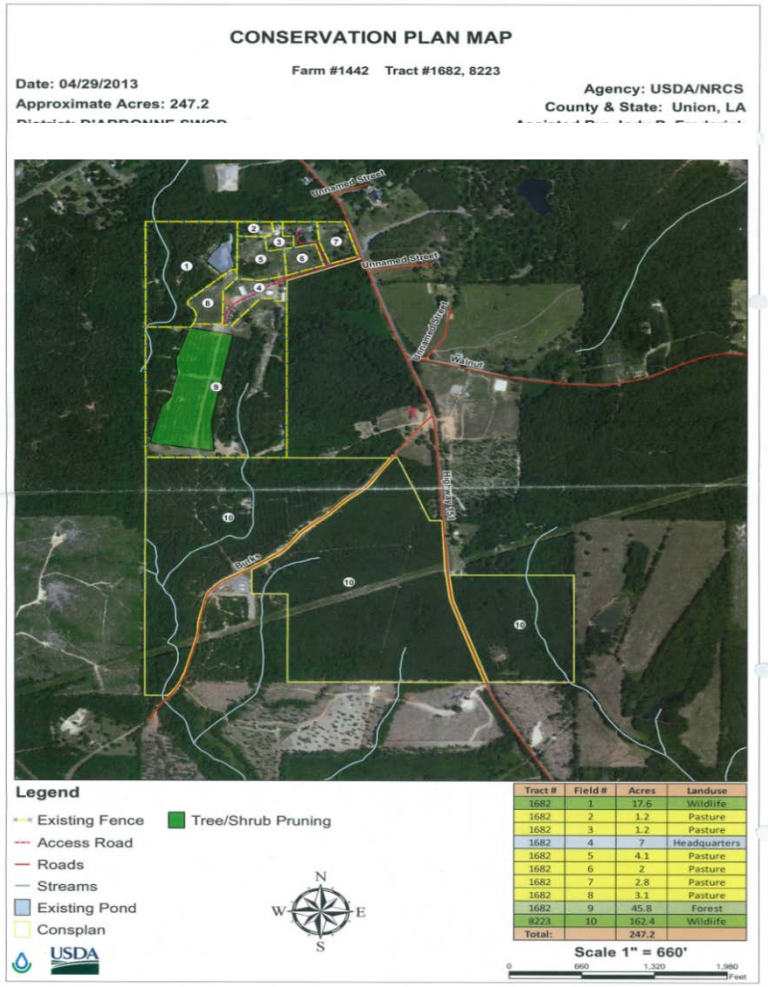
NRCS Resource Concerns

- Energy (Threshold not ready)

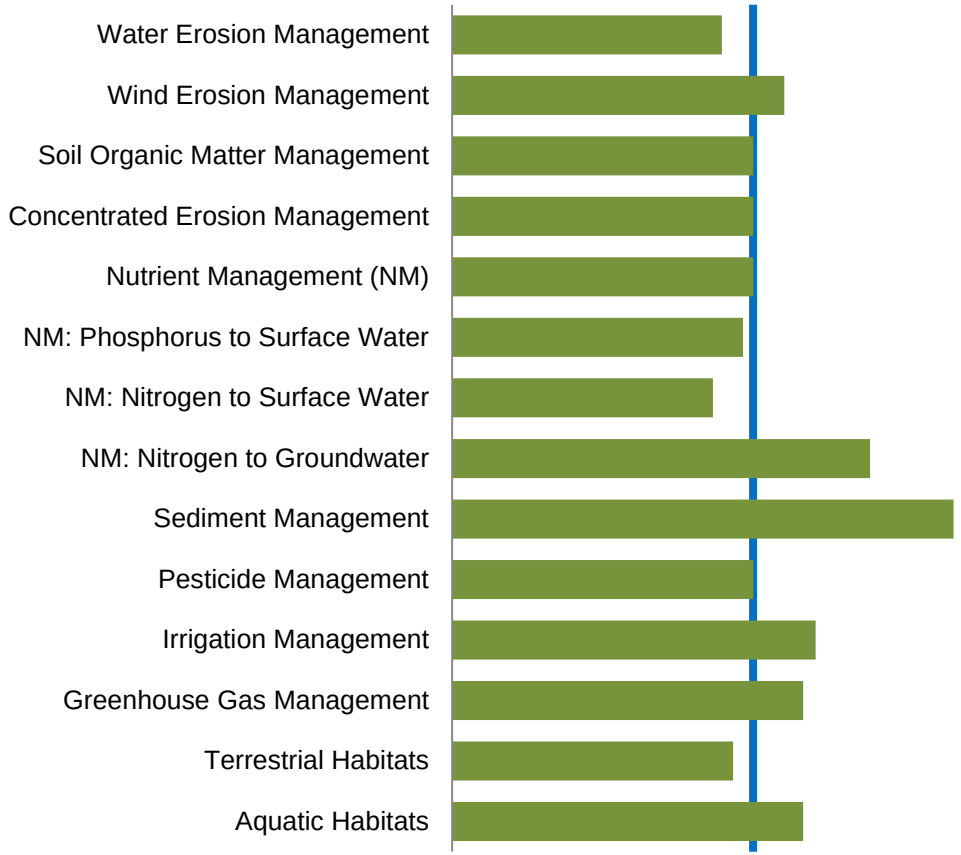
Stewardship Objectives



Key Indicators



Cropland Resource Stewardship Evaluation Key Indicators



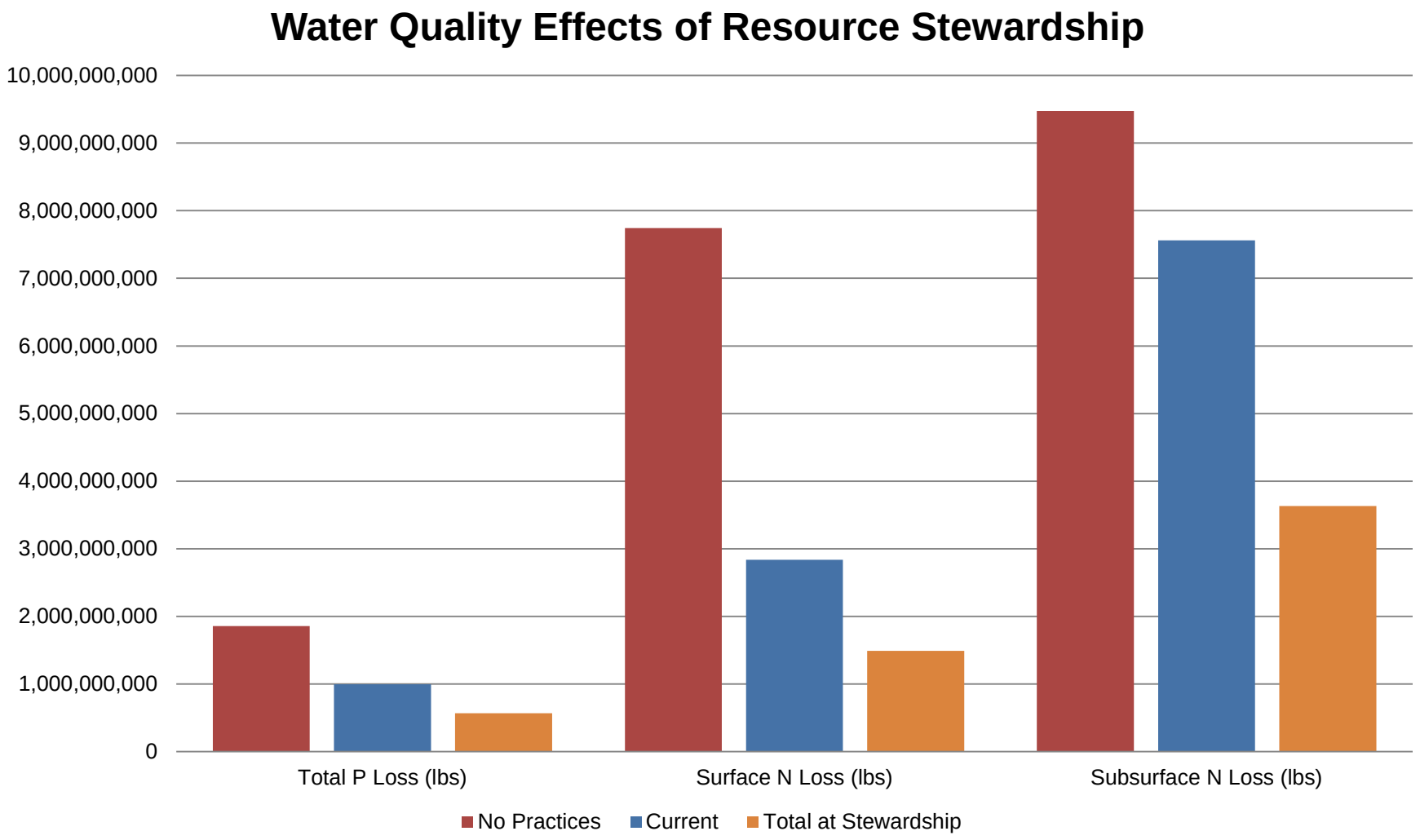
Critical Evaluation Tools

Tool	Notes
RUSLE2	Revised Universal Soil Loss Equation
WEPS	Wind Erosion Prediction System
STEP	Stewardship Tool for Environmental Performance (Water Quality)
WINPST	Windows Pesticide Screening Tool
FIRI	Farm Irrigation Rating Index
COMET	Whole Farm and Ranch Carbon and Greenhouse Gas Accounting System
PAWPRT	Pollinator and Wildlife Planning Resource Tool
RHA	Rangeland Health Assessment
PCS	Pasture Condition Score

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/?cid=STELPRDB1261051

Land use (Cropland)

Objective	Indicator	Threshold	Assessment Method
Soil Health	Soil erosion	T	RUSLE2 and WEPS
	Soil organic matter	SCI of ≥0	
Water Quality and Quantity	Runoff (sediment & nutrient)	Stewardship level	STEP
	Pesticide Mitigation	Low Risk	WINPST
Air Quality	Green House Gases	CO_2 Positive Net Effect	COMET farm
Habitat Health	Terrestrial Habitat	≥0.5	PAWPRT
	Stream Health	≥0.5	PAWPRT


Water Quality Effects of Resource Stewardship
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9,000,000,000
8,000,000,000
7,000,000,000
6,000,000,000
5,000,000,000
4,000,000,000
3,000,000,000
2,000,000,000
1,000,000,000
0
Total P Loss (lbs)
Surface N Loss (lbs)
Subsurface N Loss (lbs)
No Practices
Current
Total at Stewardship

Evaluation Example

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

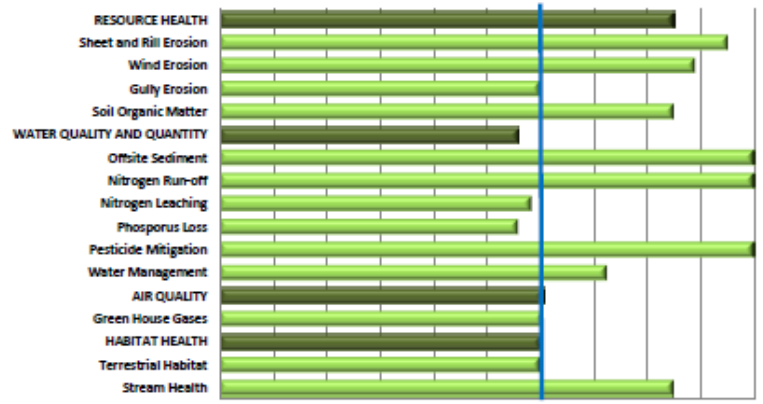
Resource Stewardship Evaluation

Operation:	Happy Farms	State:	Maryland	Farm #
Operator:	Jane Doe	County:	Queen Anne	Tract #
Site ID:	Field 1	Contact:	202/867-5309	
Land Use:	Cropland - Irrigated			
Assessor:	Aaron Lauster	Contact:	202/260-9230	
Date:	5/28/2014			

Assessments	Completed
RUSLE2	Yes
WEPS	Yes
STEP	Yes
COMET	Yes
Wildlife (Cropland)	Yes
Stream Evaluation	Yes
Irrigation Assessment	Yes

Resource Stewardship Evaluation
Cropland Results

Happy Farms
Field 1
5/28/2014

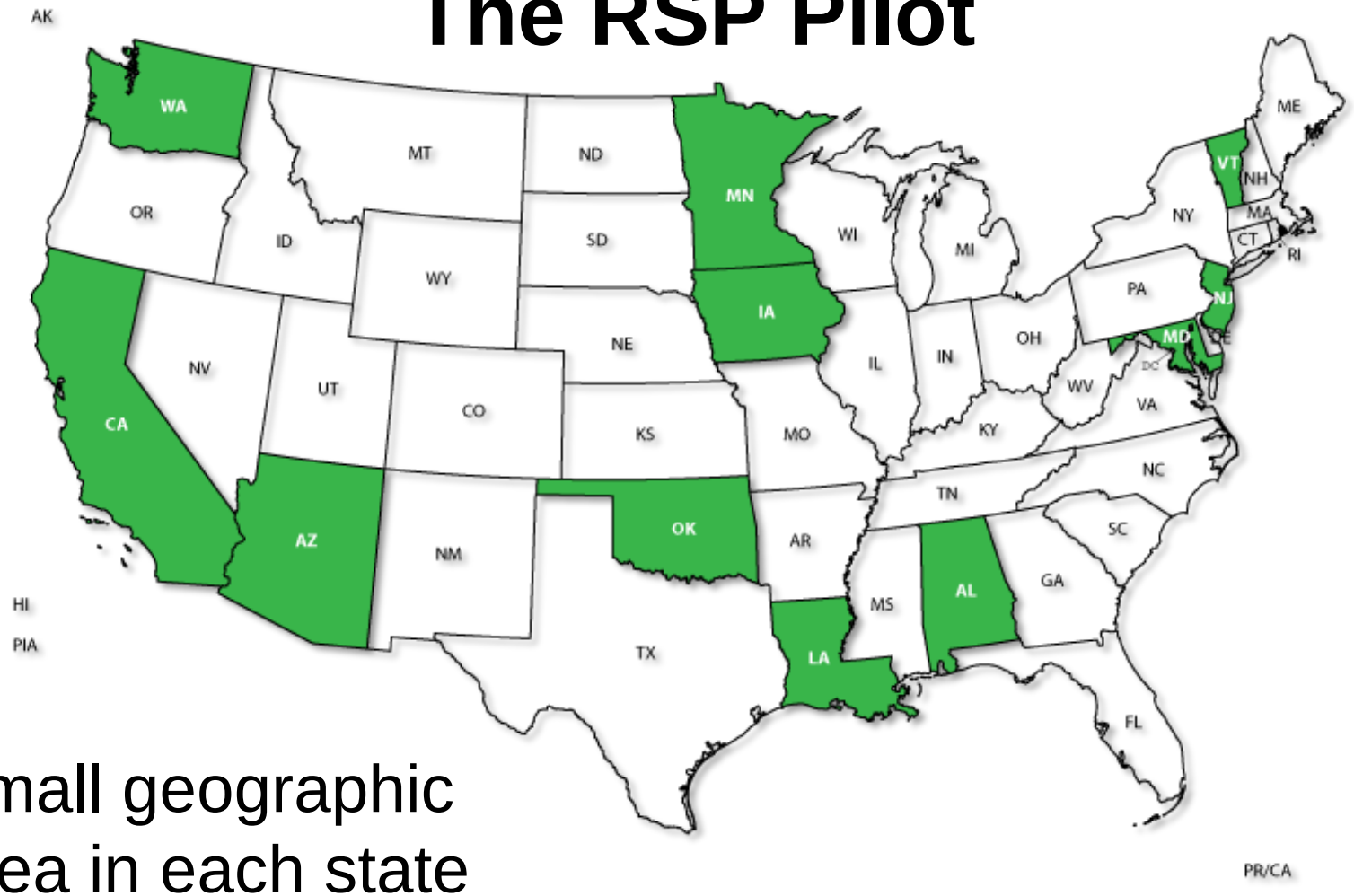


Indicator	Assessment Method	Result	Threshold	Notes
RESOURCE HEALTH				
Sheet and Rill Erosion	RUSLE2	0.6	5	
Wind Erosion	WEPS	2.1	5	
Gully Erosion	Gully Erosion	Pass	Pass	
Soil Organic Matter	RULSE2 (SCI)	0.5	0	
WATER QUALITY AND QUA				
Offsite Sediment	STEP Sediment	51	10	
Nitrogen Run-off	STEP Nitrogen Run-off	62	30	
Nitrogen Leaching	STEP Nitrogen Leaching	58	60	
Phosporus Loss	STEP Phosporus	46	50	
Pesticide Mitigation	STEP Pesticide	75	40	
Water Management	FIRI	75	60	
AIR QUALITY				
Green House Gases	COMET	-0.11	0.00	
HABITAT HEALTH				
Terrestrial Habitat	National Wildlife Guide	0.50	0.50	
Stream Health	National Stream Guide	0.75	0.50	

Resource Stewardship Plan Pilot 2015

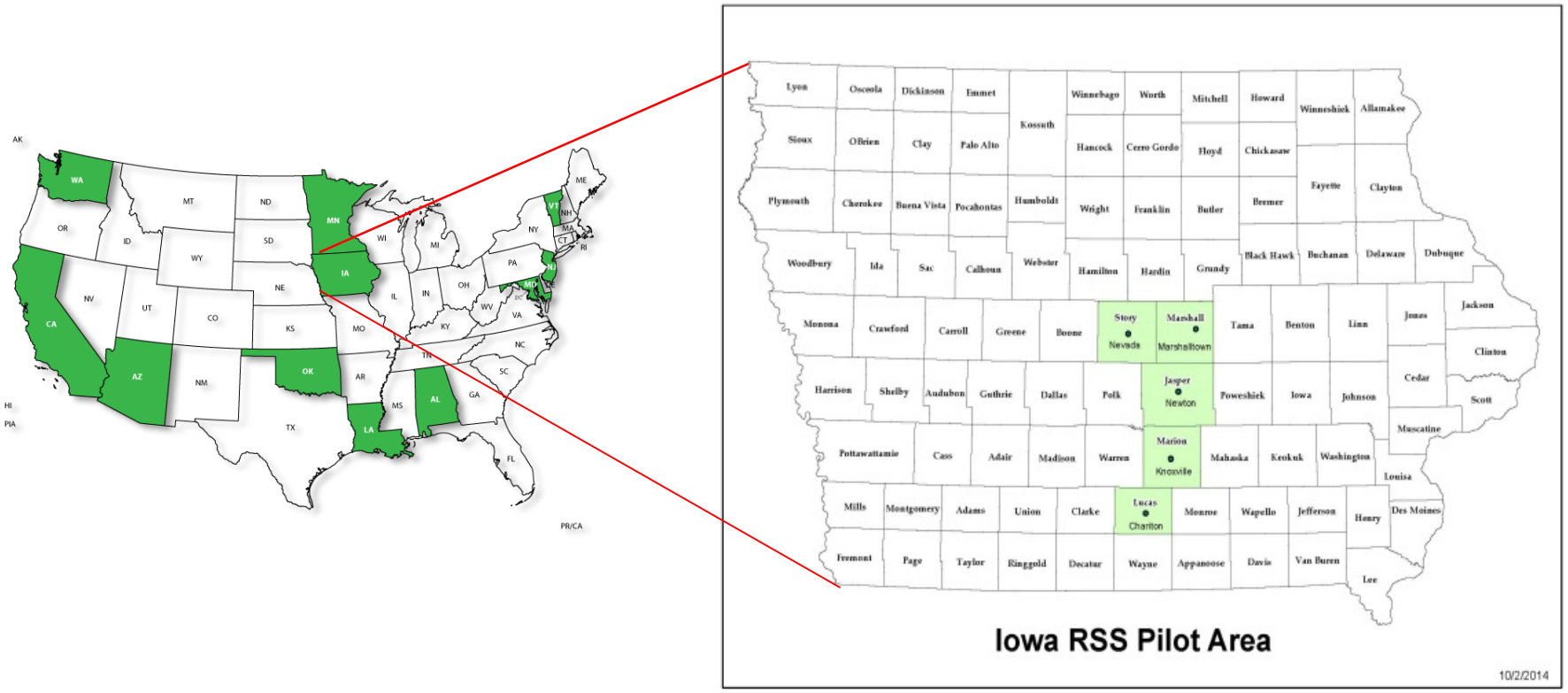
- Testing stewardship tools and evaluating stewardship thresholds/RMS planning criteria
- Evaluating implementation of Resource Stewardship Plan with EQIP
- Evaluate stewardship in CSP for eligibility and payment calculation
- Evaluate partner opportunities to incentivize resource stewardship and planning

The RSP Pilot

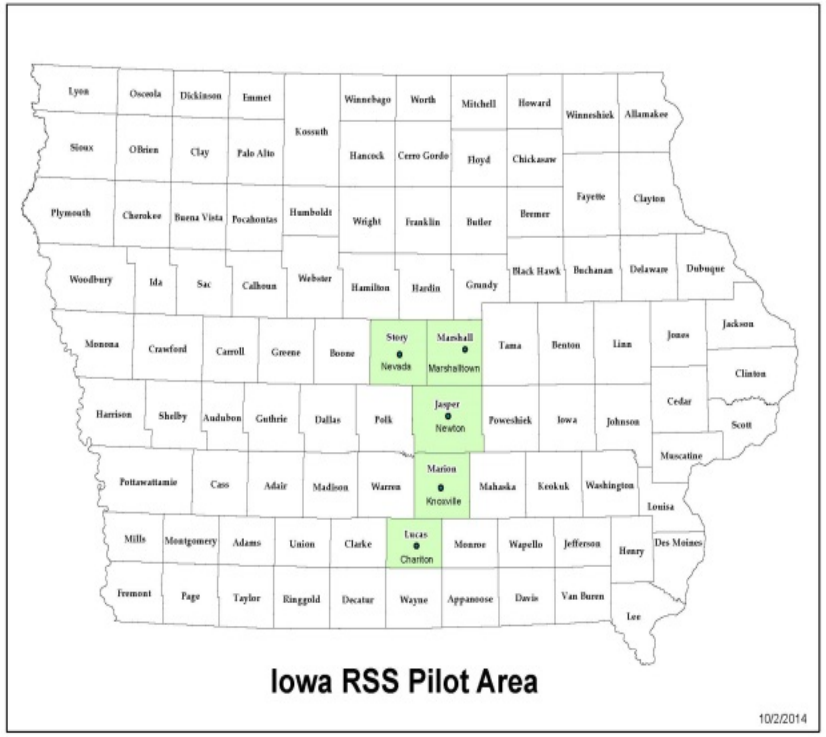


Small geographic area in each state

The Iowa Pilot

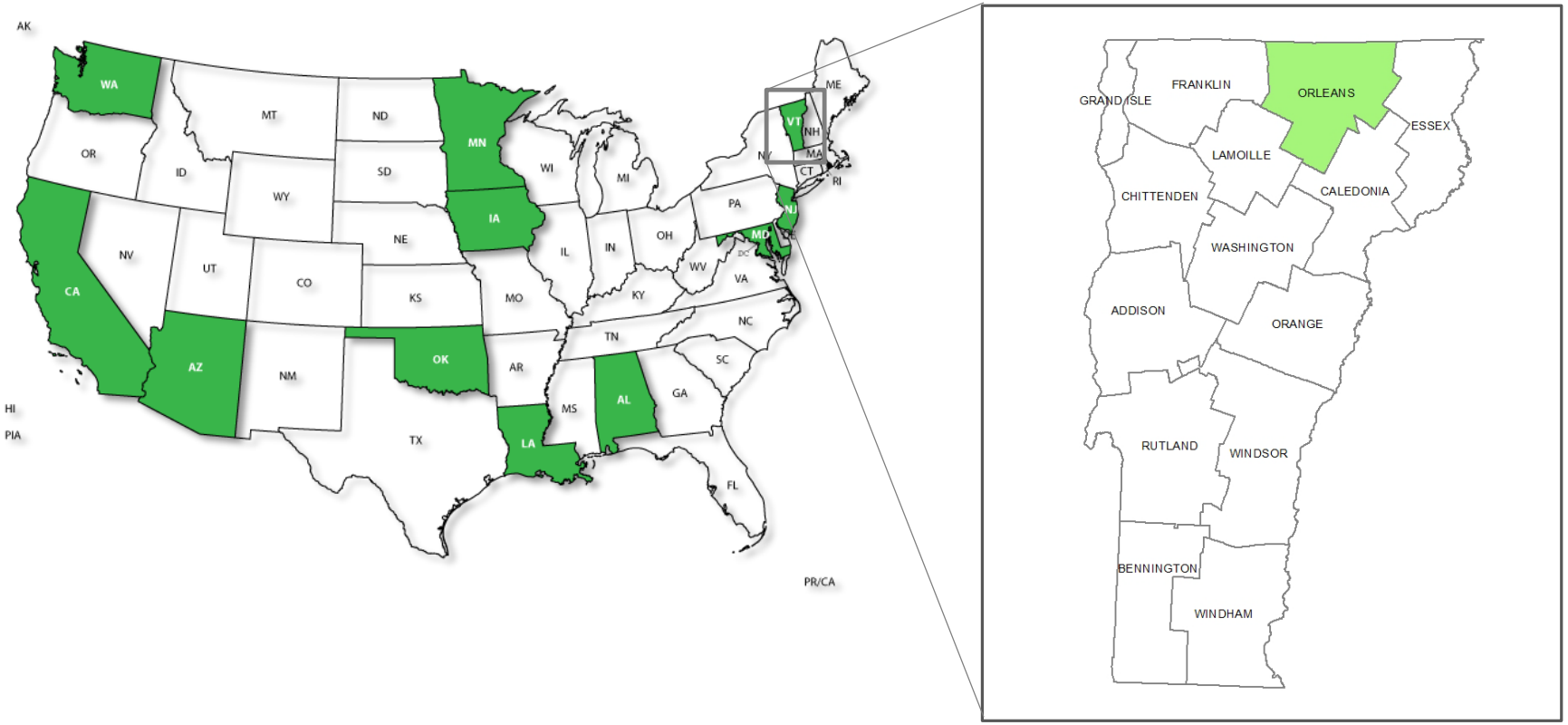


The Iowa Pilot Landscape



- Five Central/Southern IA counties
- Predominantly corn / soybean rotations
- Pasture in southern counties
- Varied topography w/ both leaching and runoff prone soils

The Vermont Pilot

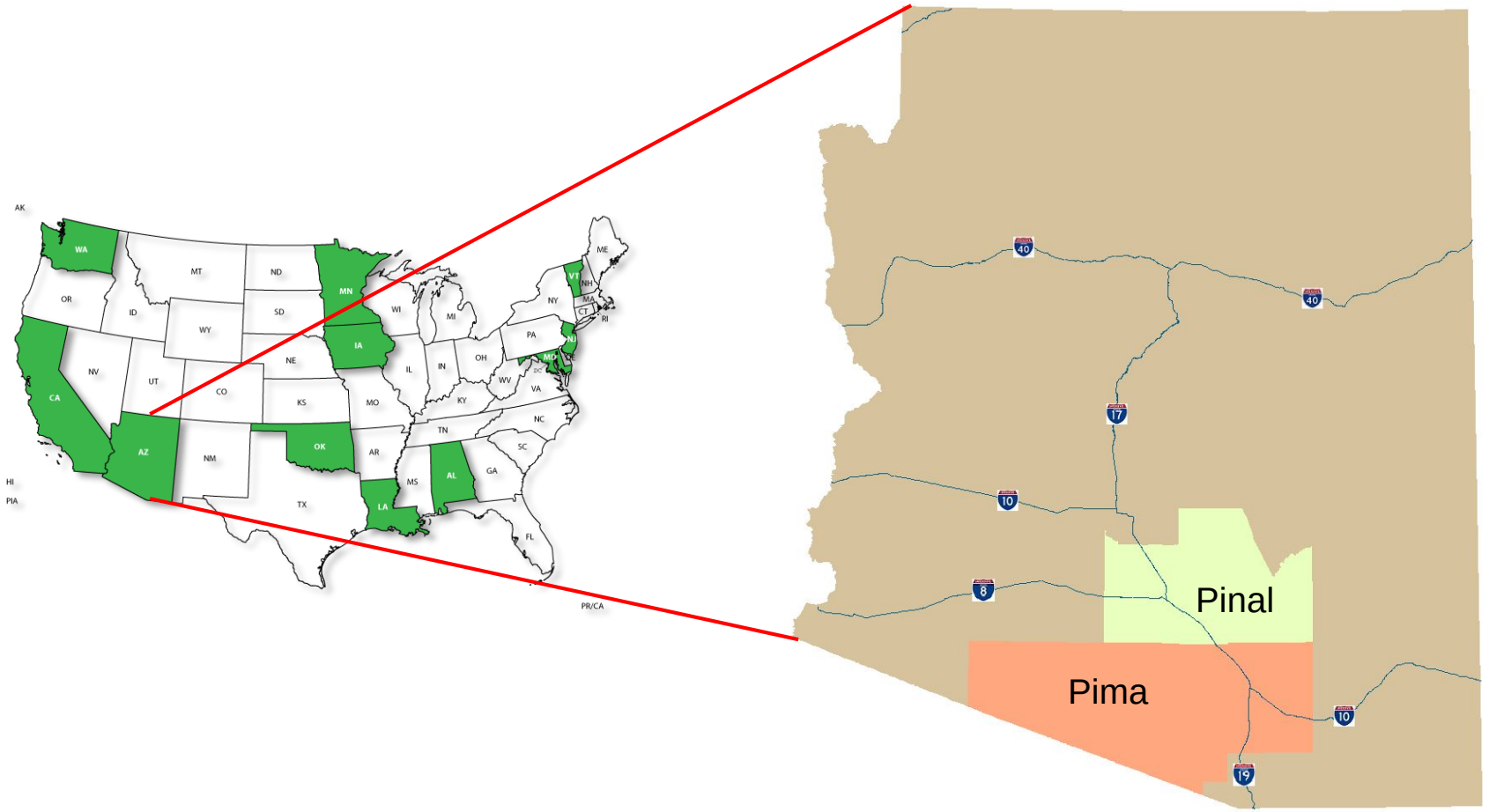


VT Pilot Area – Orleans County

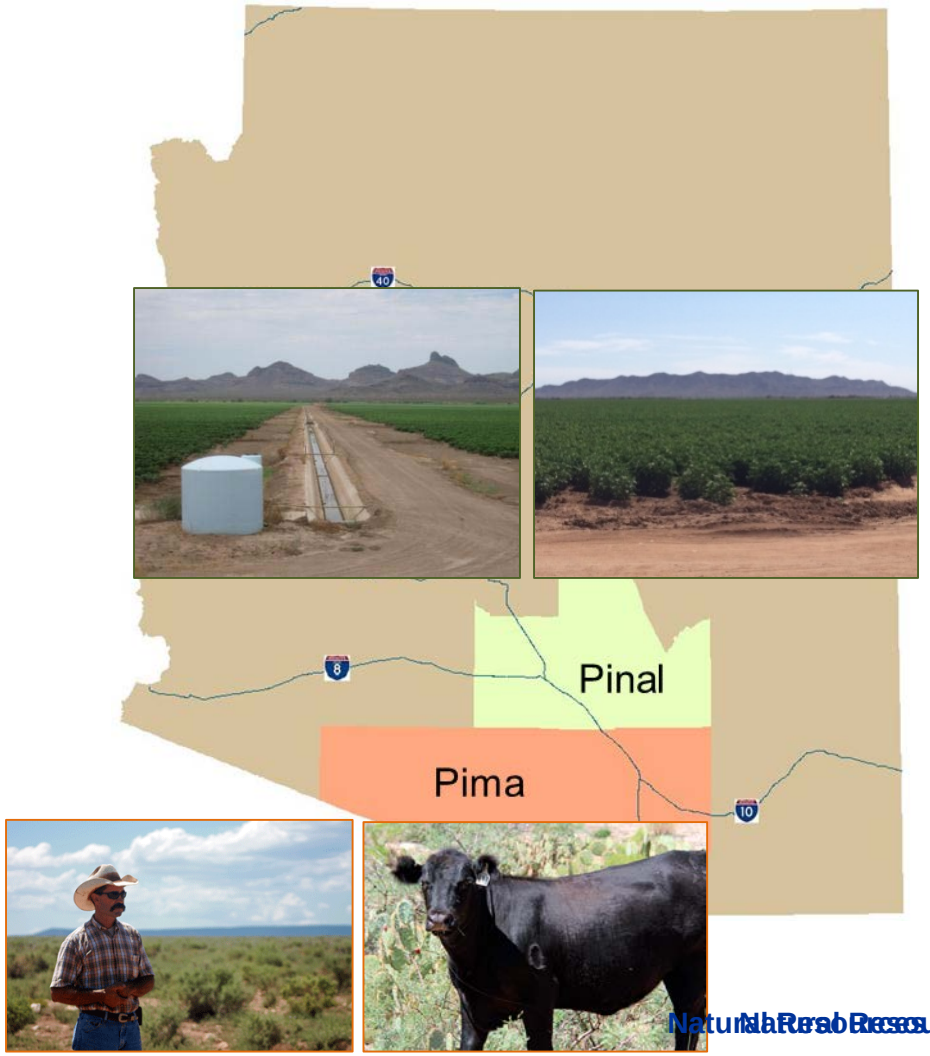
The Vermont Pilot Landscape

- Characterized by rolling topography, cool climate, short growing season, and abundant streams
- Annual Rainfall: 35 - 45 in.
- Predominantly soils with both high runoff potential and high N leaching potential
- Widespread tile drainage poses significant challenges for managing nutrient and pesticide losses
- A mixture of grass-based and confinement-based dairies
- Dairies vary in size from < 25 to > 900 head
- Main crops include hay, haylage, and corn silage
- Working with producers eager to increase their level of stewardship

The Arizona Pilot



The Arizona Pilot



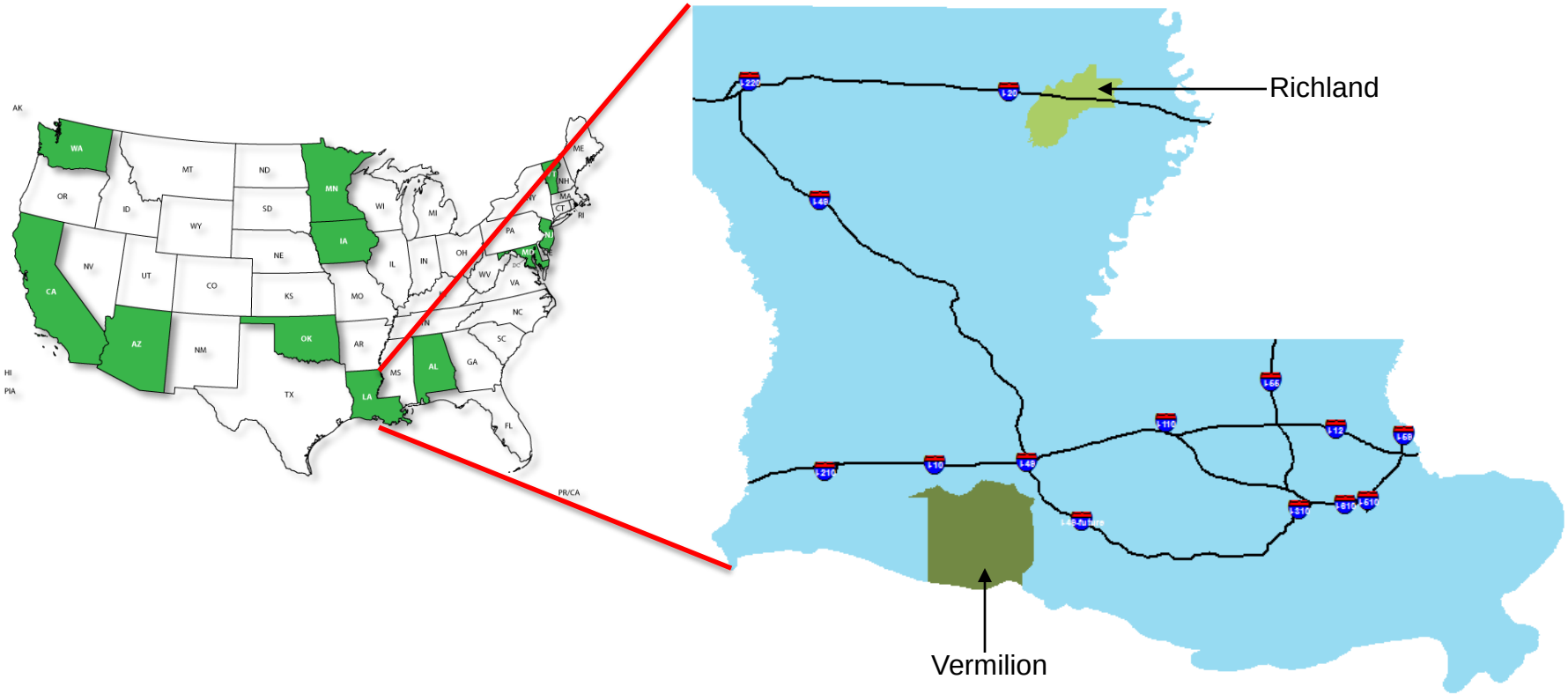
Pinal county:

- Irrigated croplands; cotton, small grains predominate.
- Variable irrigation delivery and application methods.
- Variable pest- and nutrient- management strategies.

Pima county:

- Rangelands
- Annual rainfall is highly variable with geography, but averages mostly 8-16” on the grazed rangelands; up to ~28” in the mountains.
- Invasive plants, drought, wildfire are common stressors to healthy rangelands.

The Louisiana Pilot



The Louisiana Landscape

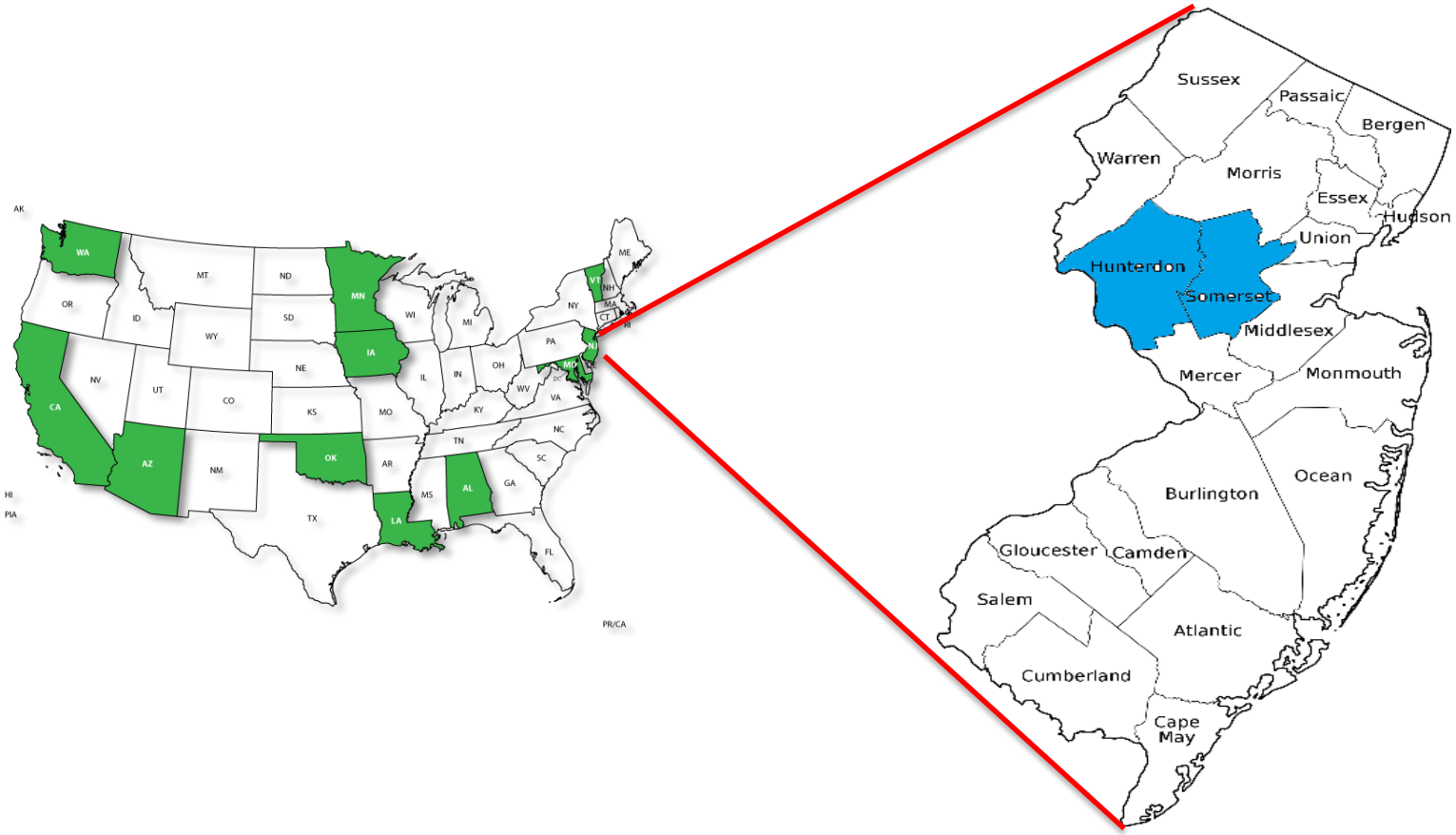
Richland Parish:

- Majority of land use is irrigated cropland including corn, soybeans and cotton.
- Ecosystem health threatened by erosion – predominance of soils are potentially highly erodible.
- Activities within this watershed impact water quality in the Mississippi River Basin.
- RSP pilot is within the pilot area for Field to Market tools for cotton

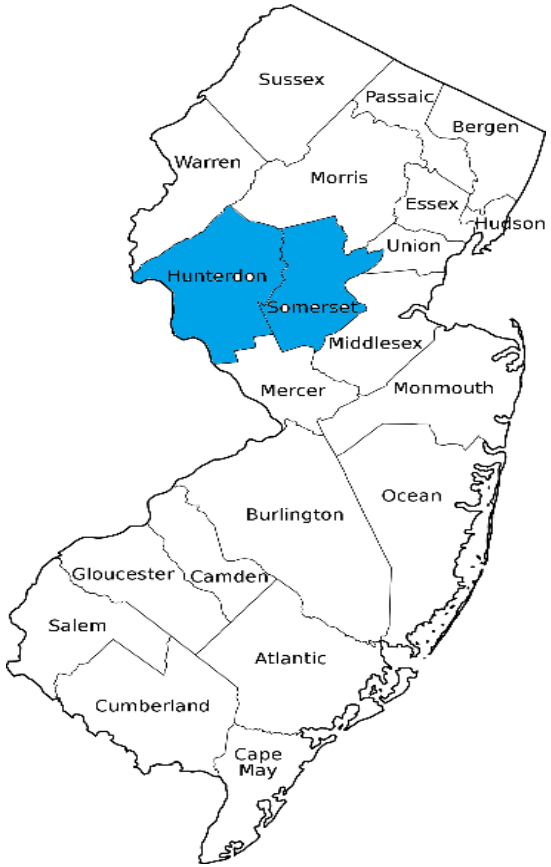
Vermilion Parish:

- A majority of the land use is irrigated croplands, predominately rice.
- Ecosystem health threatened by erosion, pollutants and high nutrient loads.
- Activities within this watershed impact water quality in the Gulf of Mexico.
- RSP pilot is within the pilot area for Field to Market tools for rice

The New Jersey Pilot



New Jersey Landscape



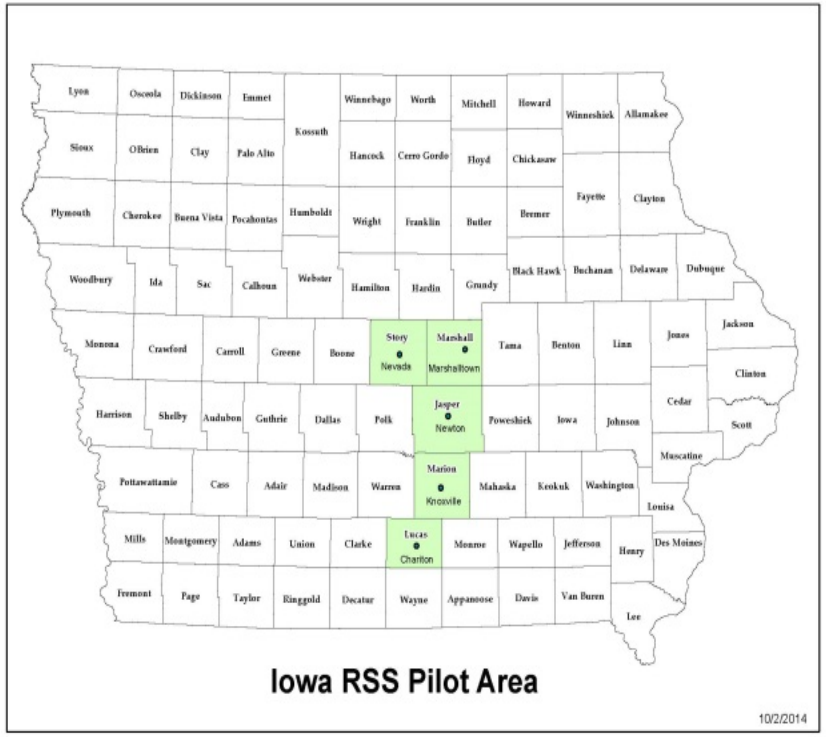
- A part of the Delaware and Raritan Water Supply System that provides drinking water to more than 1.5 million New Jersey residents
- 40 percent of agricultural lands, the highest in the Raritan Basin
- Frequent exceedances on the phosphorus and fecal coliform water quality standards
- Broad range of producers selected to get representative testing of the tools and thresholds being used. This includes traditional grain farmers, hay producers, organic CSAs, and livestock producers who collectively represent the diversity of NJ agriculture.

Please Hold Questions Until The End

CONSERVATION PLANNING 2015

Marty Adkins, Barb Stewart, and Jeff Matthias

The Iowa Pilot – Pre-History



- Conservation certainty and certification discussions
- Interactions with Field To Market

Field To Market

- Agricultural Retailers Association Agrium American Crystal Sugar Company American Farm Bureau Federation American Farmland Trust American Society of Agronomy ICCA Program American Soybean Association Archer Daniels Midland Auburn University/Alabama Cooperative Extension System BASF Bayer Crop Science Biotechnology Industry Organization Brown-Forman Bunge Cargill CHS Inc. Coalition on Agricultural Greenhouse Gases Conservation Technology Information Center Cotton Incorporated CropLife America Dow AgroSciences Ducks Unlimited DuPont Pioneer Environmental Defense Fund Fleishman-Hillard General Mills Illinois Corn Growers Association Illinois Soybean Association Indiana Soybean Alliance Ingredion Incorporated Innovation Center for US Dairy International Plant Nutrition Institute Iowa Agriculture Water Alliance John Deere J. R. Simplot Company Kellogg Company Land O'Lakes McDonald's Corporation Monsanto Company National Alfalfa & Forage Alliance National Association of Conservation Districts National Association of Wheat Growers National Corn Growers Association National Cotton Council of America National Potato Council North Carolina State University Penton Media PepsiCo Natural Resources Conservation Service Procter & Gamble Syngenta Corporation Tate & Lyle The Coca-Cola Company The Conservation Fund The Fertilizer Institute The Freshwater Trust The Mosaic Company The Nature Conservancy Thompson Coburn LLP Unilever United Soybean Board University of Arkansas Division of Agriculture University of Georgia University of Tennessee Extension University of Wisconsin- Madison College of Agricultural and Life Sciences U.S. Soybean Export Council USA Rice Federation Walmart World Wildlife Fund - US

Field Print Calculator

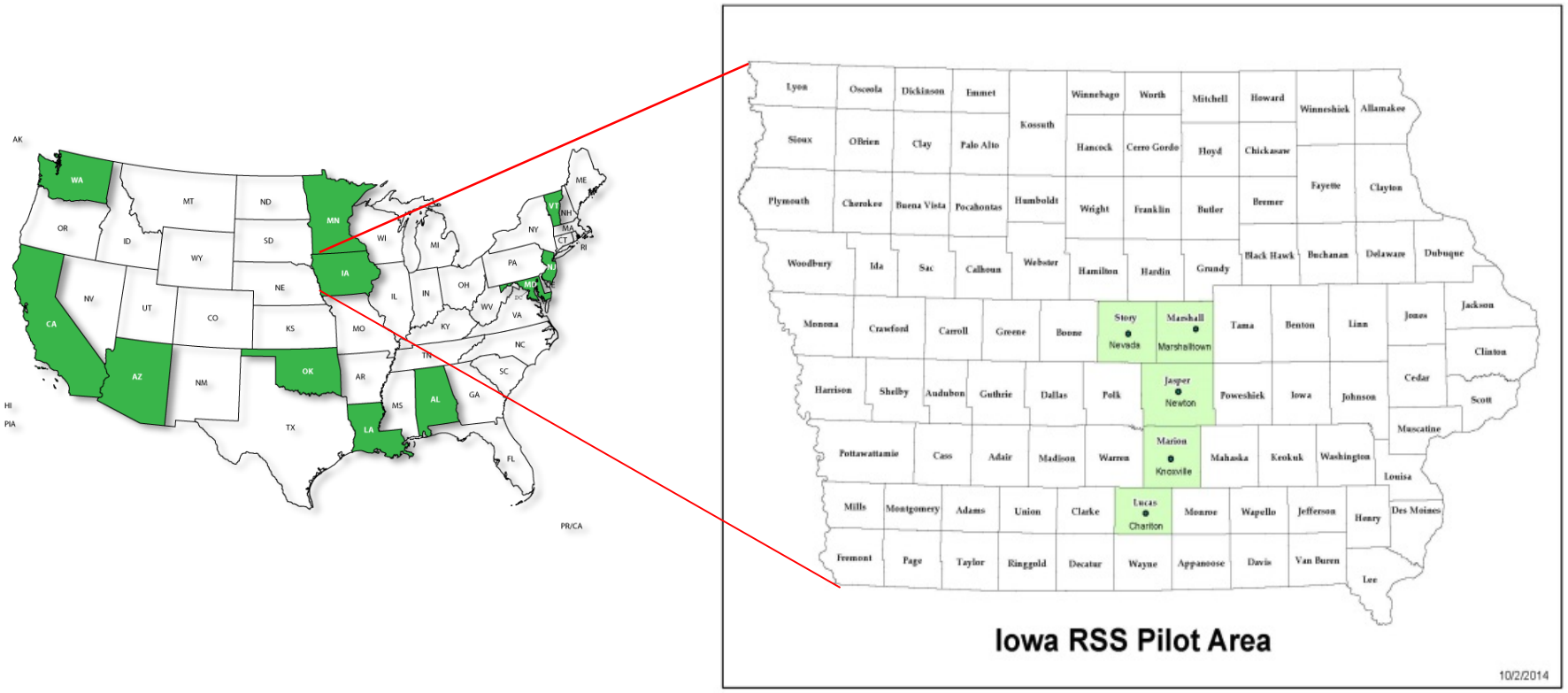
- Free and confidential tool developed for corn, cotton, rice, wheat, potatoes and soybean growers.
- Allows growers to better understand and communicate how management choices affect overall sustainability performance and operational efficiency.

Field level performance on these sustainability indicators

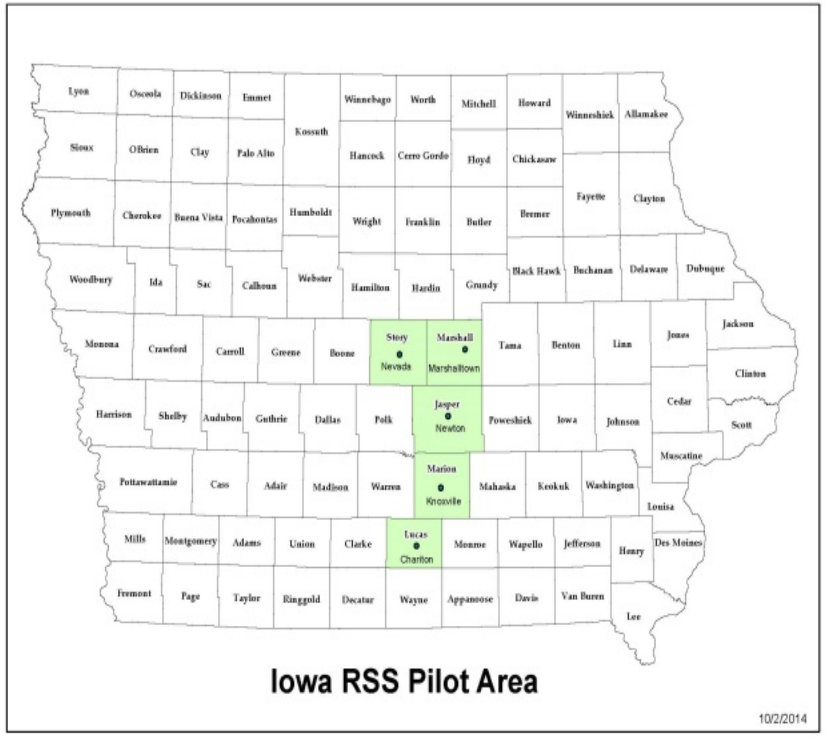
- Land Use
- Conservation
- Soil Carbon
- Irrigation Water Use
- Water Quality
- Energy Use
- Greenhouse Gas Emissions

We have an opportunity to help NRCS Resource Stewardship tools and the Field Print Calculator develop compatibly.

The Iowa Pilot



The Iowa Pilot Activities



- Trained IA staff in 5 Field Offices on Resource Stewardship (RS) concept & RS Tool
- Developed IA Landowner Factsheet for distribution
- Alpha tested RS Tool w developers – identified technical issues being addressed
- Worked w/ 1 producer initially
- 20-30 additional producer visits expected some of which will be Fieldprint Calculator participants
- Positive initial response on link between producer needs, conservation planning, science and water quality

Iowa Resource Stewardship Observations

- Encourages planner to look at more potential resource concerns.
- Provides a process to use assessment tools that have not been used frequently in the past.
  - WEPS
  - PAWPRNT
  - COMET
  - STEP
- Motivation to develop a more complete resource inventory checklist for use with clients.
  - Producer can complete parts of it on their own.

Crop Management Inventory Worksheet

USDA United States Department of Agriculture
Natural Resources Conservation Service

Crop Management Inventory Worksheet
(Please complete one form per cropping system)

FOR NRCS USE
Planner: Date:
Dominant Critical SMU:
Soil Loss (T/A):
SCI:
STIR:
P-Index Rating:

Producer: [redacted]
Farm Number: —
Crop Rotation: C/B
Tract Number: [redacted]
Field ID/Number(s): 1, 2, 3, 6, 8, 20, 21, 23
(list all fields that share this management)

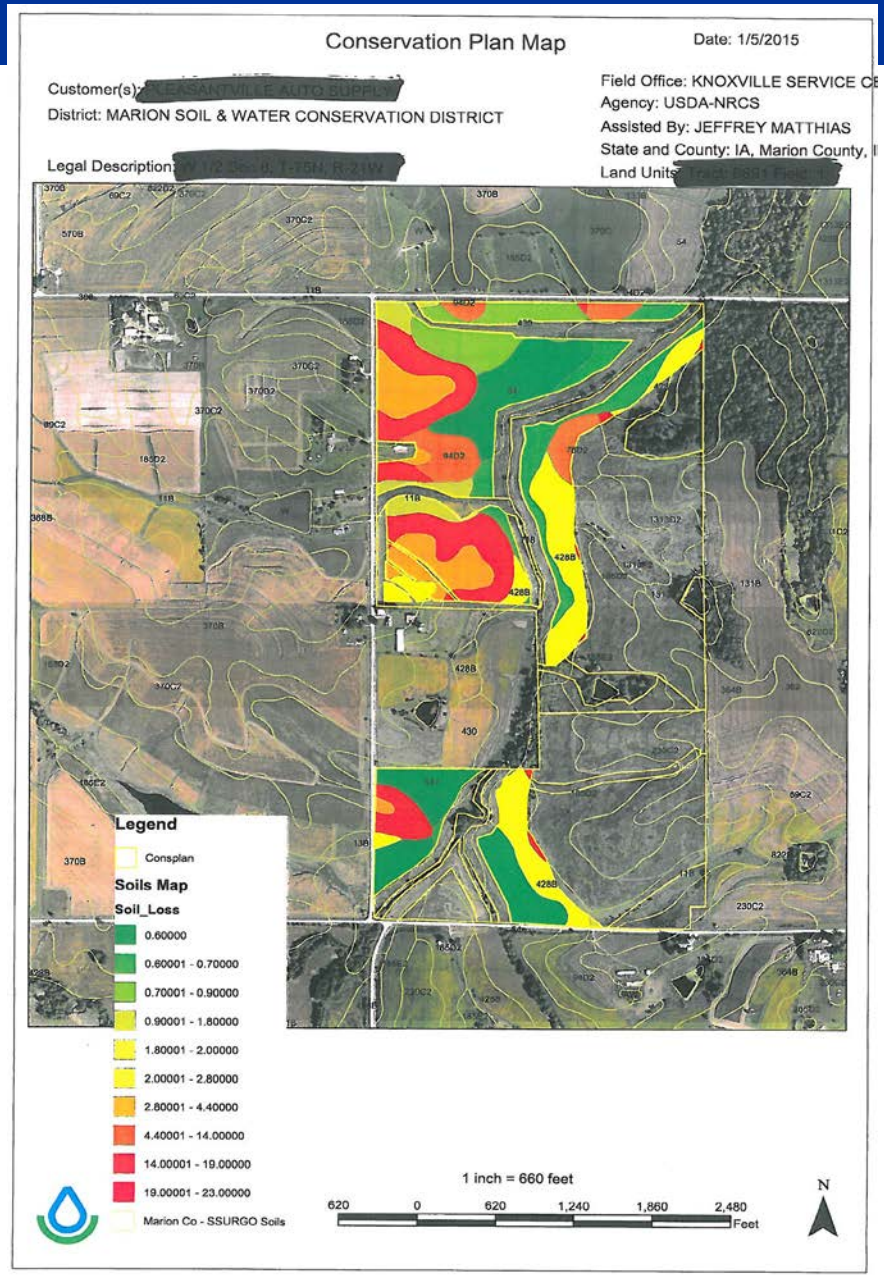
Crop, Tillage, Fertilization, and other Field Operations

Op. # (1,2,3)	Operation Date (mm/dd/yy)	Crop (including cover crop)	Disturbance Activity/Operation (Starting with the harvest, list all field operations for the crops in the rotation listed above. Clearly specify implements used, spacing, etc.)	Crop Yield (actual or realistic estimate, units/ac)	Fertilizer (Application of N-P_2O_5-K_2O in lbs/acre)	Comments (For fertilizer, specify source (e.g. anhydrous, hog manure, etc.), analysis, rate of product applied, and placement. For herbicides and pesticides, specify product, rate, and placement.)
0			**Start Rotation**			
1	winter		Spread dry fertilizer		10-47-40	VRT MAP + POTASH
2	4/10		3D NH3 Toolbar		150#	NH3
3	4/25		Plant Cornelit 4/RoundUp Clones 12 row 30"	134 bu. corn		
4	4/25		Spray Corvus + Atrazine			Corvus - 5.6oz. Atrazine - 1qt
5	6/7		Spray Laudis + Roundup			Laudis - 3oz Roundup - weather mix - 20 oz
6	10/20		Harvest Corn w/ 4 stalk stompers			

Iowa NRCS

October 4, 2014

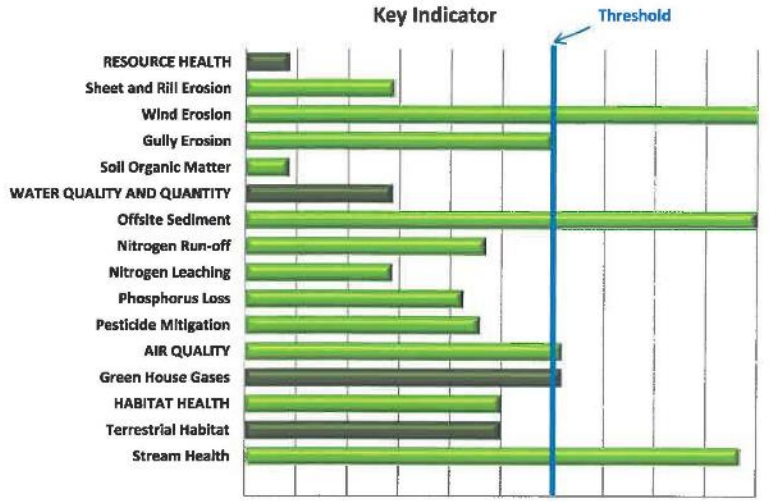
Showing soil loss by soil type was an eye opener for clients.



The Key Indicator graphic display bar is a good visual display for clients.

Resource Stewardship Evaluation
Cropland Results

Field 1
1/6/2015



Indicator	Assessment Method	Result	Threshold	Notes
RESOURCE HEALTH				
Sheet and Rill Erosion	RUSLE2	19	3	
Wind Erosion	WEPS	0	5	
Gully Erosion	Gully Erosion	Pass	Pass	
Soil Organic Matter	RULSE2 (SCI)	-1.03	0	
WATER QUALITY AND QUA				
Offsite Sediment	STEP Sediment	120	40	
Nitrogen Run-off	STEP Nitrogen Run-off	48	65	
Nitrogen Leaching	STEP Nitrogen Leaching	15	40	
Phosphorus Loss	STEP Phosphorus	39	60	
Pesticide Mitigation	STEP Pesticide	100	140	
AIR QUALITY				
Green House Gases	COMET	-0.363636	0	
HABITAT HEALTH				
Terrestrial Habitat	National Wildlife Guide	0.40	0.50	
Stream Health	National Stream Guide	0.87	0.50	

More observations…

- Showing the WinPST ratings for individual pesticides motivated follow-up action to better understand and reduce toxicity risks.
- The PAWPRNT tool did not adequately account for the habitat value of adjoining areas.
- COMET questions did not relate well to southern Iowa pasture conditions.
- Having an integrated tool to eliminate duplicate data entry is vital.
- The tool needs to be able to account for nutrients applied to pastures.
- We used the Midwest Pasture Conditioning Score in place of the National PCS.

CONSERVATION PLANNING 2015

Arlen Ricke

NRCS Conservation Planning Policy and Procedures

Arlen Ricke
Landscape Planning Specialist
Conservation Technical Assistance and Planning Team
Conservation Technical Assistance Division

Conservation Planning Policy

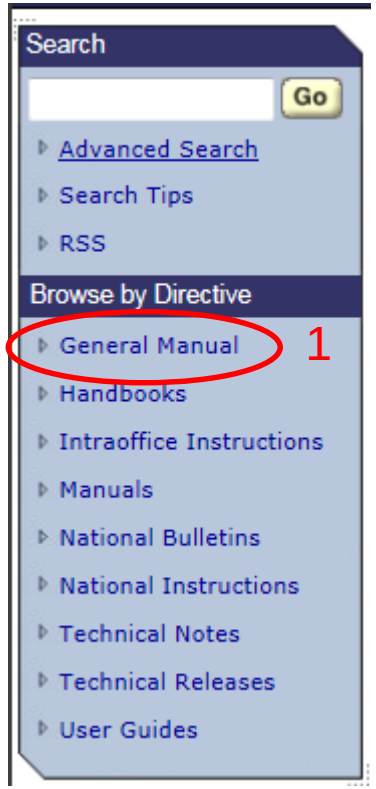
GM-180, Part 409 establishes NRCS policy for providing conservation planning assistance to clients.

- The director of the Conservation Technical Assistance Division (CTAD) has national responsibility for conservation planning policy.

- States may supplement this GM policy, as needed, to provide specific guidance and to comply with State, Territorial, Tribal, and local laws and regulations.

  - A copy of the State supplement will be sent to the Director, CTAD for review and approval.

To view the GM policy in eDirectives:



- Select General Manual under Browse by Directive
- Click the menu for Title 180 – Conservation Planning and Application
- Find Part 409 on the list

Conservation planning GM policy was revised in October, 2014.

Major changes to 180-GM, Part 409, in last revision:

409.5 Documentation of Conservation Planning Data and Signature Requirements

- Added rules for the National Planning and Agreements Database.

409.9 Criteria to Achieve an NRCS Certified Conservation Planner Designation

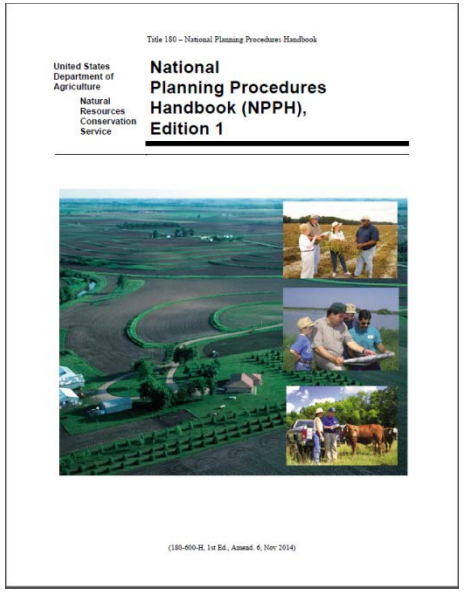
- Separated the certification requirements for TSPs from those for NRCS and partner employees.

Conservation Planning Policy

According to 180-GM, Part 409, 409.1 General:

- Title 180, National Planning Procedures Handbook (NPPH), Part 600, provides procedures and guidance on implementing this planning policy.

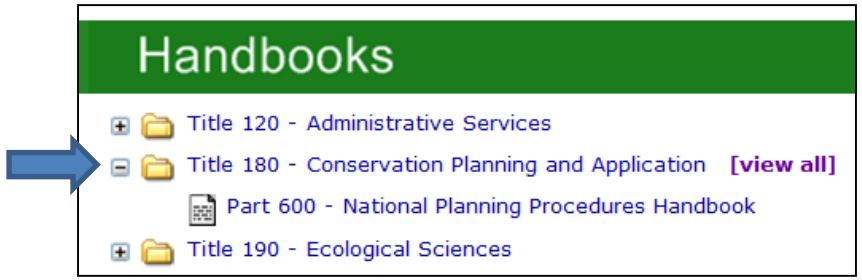
- The NRCS planning process and standards as outlined in the NPPH will be used for all conservation planning.

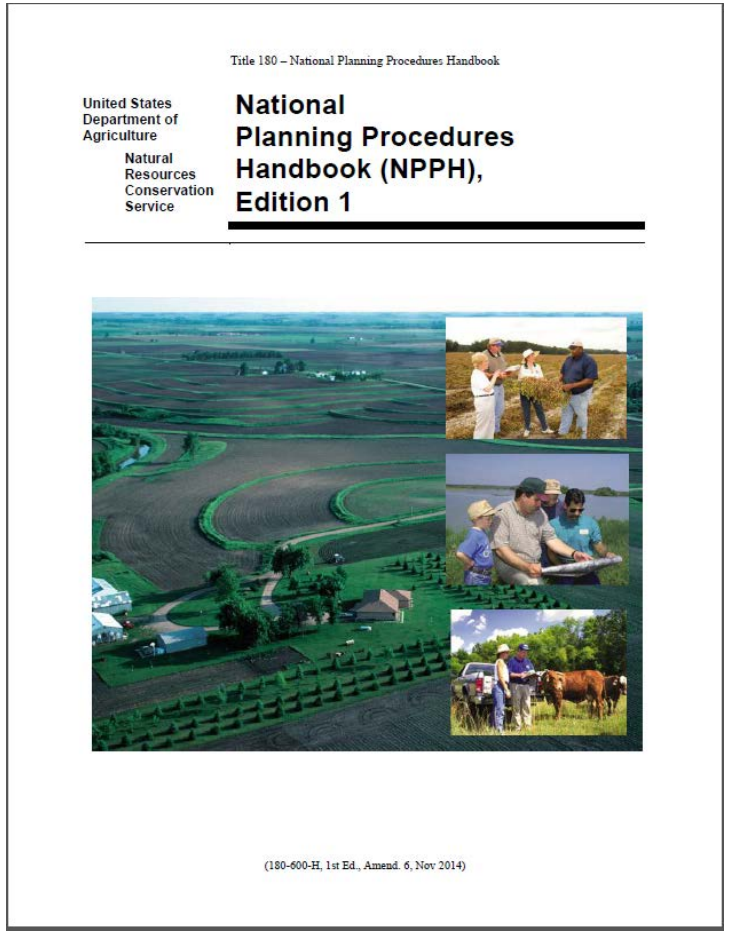


The National Planning Procedures Handbook (NPPH) Handbook 180, Part 600

NPPH was last revised in November, 2014.

The NPPH is located on eDirectives under Handbooks, Title 180.





Purpose of National Planning Procedures Handbook:

To provide guidance on the planning process used by the NRCS and many of its partners for developing, implementing, and evaluating individual conservation plans and areawide conservation plans.

Major changes to NPPH in the last revision:

600.2 Definitions

- Removed old Land Use designations and definitions and added the new land uses and definitions.
- Added land use modifiers and definitions.

600.32 Documentation of the Electronic Case File

- Added rules for the National Planning and Agreements Database.

600.50 Areawide Conservation Planning

- Added entire Areawide section, which was removed in the 2013 revision.

The NPPH:

- Provides references and definitions related to conservation planning
- Provides guidance on the framework and concepts for conservation planning
- Describes the NRCS 9-Step Planning Process in detail
- Provides guidance on plan format and content
- Provides support guidance for conservation effects, NEPA, working with individuals and groups, and available training
- Provides guidance on areawide planning

The National Planning Procedures Handbook (NPPH)

The NPPH includes tables for each step of the planning process, which provide guidance on WHAT tasks should occur during each step of the process and HOW to accomplish the tasks.

F. Step 1: Identify Problems and Opportunities – Activities – Conservation Plan

WHAT	HOW
1. Complete an initial determination of the client's problems, opportunities, and concerns related to natural resources and human considerations and identify the planning area.	• Identify the clients associated with the planning area and their relationship to the business, land, and the planning process (decisionmaking, ownership, and business association). • Elicit initial information about the client's problems, opportunities, and concerns through email or other electronic contact, office or field visit, or phone conversation between the client and the NRCS. • Gain, and continue to refine, a good general awareness of the kinds of problems that occur within your field office area, as well as the surrounding area. • Utilize sections I and III of the FOTG and any existing locally led assessments, or areawide conservation plans, or similar plans to enhance your understanding of the area's resource issues and potential solutions.

The National Planning Procedures Handbook (NPPH) Handbook 180, Part 600

2. Begin recording identified problems, opportunities, and concerns.	• Make a complete record of the client's problems, opportunities, and concerns associated with all natural resources. • Record and organize natural resource problems and opportunities into clear concise statements, using agency planning software and resource concern worksheets. • Document EE data per State, Tribal, Territorial, and Federal guidance (see section 600.71). • Document discussions between planner and client in assistance notes.
3. Discuss the process involved in conducting an inventory and evaluation of the resources.	• Describe to the client the onsite nature of the conservation planning process and the benefits of having the land owner, manager, or operator, who will make planning decisions, present for at least the initial field visit. • Agree to how access to the property will be granted to the planner and if the client always wants to be present. • Discuss any hunting, fishing, or other seasonal impacts to accessing the property.

Conservation Planning Policy
180 GM, Part 409

Conservation plans are the basis for all assistance NRCS provides to clients and the basic tool for clients to manage their natural resources.

- The greatest value comes by having the client engaged in every step of the planning process.

- Through participation, the client develops an understanding of the natural resource issues, interactions, and treatments necessary for resource sustainability.

Conservation Planning Policy

Resource Management System (RMS)

- Conservation planning is conducted with the client, working progressively towards a RMS level of management.

- An RMS is a combination of conservation practices and resource management activities for the treatment of all identified resource concerns for soil, water, air, plants, animals, energy, and humans that meets or exceeds the planning criteria in the FOTG.

Conservation Planning Policy

Progressive Planning

- The conservation planning process is progressive when a client addresses only a limited number of resource concerns—or even a single resource concern alone—but does not achieve an RMS level of treatment.

- The rate of progress in moving to an RMS level will depend on the client's desires and constraints.

Conservation Planning Policy

Conservation Plan

- A conservation plan is the record of decisions and supporting information for treatment of a unit of land or water meeting planning criteria for one or more identified natural resource concerns as a result of the planning process.

- The plan describes the schedule of implementation for practices and activities needed to solve identified natural resource concerns and takes advantage of opportunities.

- The needs of the client, the resources, and Federal, State, Territorial, Tribal, and local requirements will be met.

Conservation Planning Policy

National Environmental Policy Act (NEPA)

- NEPA requirements will be incorporated into all steps and activities of NRCS assisted planning activities as applicable and will not be considered as a separate process or requirement.

- Planners will identify the level of NEPA documentation required for each planning activity as early in the planning process as possible, and incorporate activities into each planning step to ensure that information required for NEPA documentation is developed simultaneously with the plan document.

Conservation Planning Policy

Training

The State Conservationist will establish and implement a process to ensure training is provided to NRCS and partner employees delivering conservation planning services for the agency.

- Ensuring that all individuals that approve conservation plans meet minimum NRCS certified conservation planner requirements.
- Ensure State training opportunities are also available to TSPs, particularly modules 6-8 of the NRCS Conservation Planning Course.
- Ensure all certified conservation planners develop conservation plans that contain conservation practices that meet NRCS standards and specifications as documented in the FOTG.

Conservation Planning Policy

409.5 Documentation of Conservation Planning Data and Signature Requirements (Revised 2014)

- NRCS employees, and partners on the NRCS network, will document and maintain conservation plan data using agency approved tools and the official planning database, National Planning and Agreements Database (NPAD). See 130-GM, Part 408, for mandatory electronic field office business tools.

- The NRCS copy of the conservation plan and associated documents and worksheets will be maintained in combination of hardcopy and electronically, as appropriate.

- Conservation plan documents may be made available to the customer in electronic format, hardcopy, or both.

Conservation Planning Policy

409.5 Documentation of Conservation Planning Data and Signature Requirements (Revised 2014)

To ensure data integrity and to implement a national planning database that is current, accurate and useful for modeling and reporting purposes—

- The PLUs for all active conservation planning will be spatially located (digitized and

attributed) in the proper geographic data layer (active PLU layer) in the agency's official conservation planning database.

- Each PLU in the Active PLU Layer will be associated with a unique geospatial boundary

(polygon).

- The following Horizontal topology is required for PLUs in the Active PLU Layer:
  (i) No overlapping of adjacent PLU boundaries (polygons)
  (ii) No stacking of PLUs (polygons)

- All planned conservation practices must be spatially located with its standard geometry (point, line or polygon) in the proper geographic data layer (practice

Conservation Planning Policy

409.5 Documentation of Conservation Planning Data and Signature Requirements (Revised 2014)

Plan Signatures

- The plan is signed by a NRCS certified conservation planner indicating the plan meets client objectives and all NRCS policy, procedures and standards.
    - Some Federal, State, Tribal, or local program requirements may call for additional signatures. These additional approvals are not required by NRCS, but may be necessary to meet the client's objectives. Therefor it is the client's responsibility to obtain these additional signatures.
- The plan is signed by the customer indicating acceptance of the conservation system alternative.
- The plan may be signed by the Conservation District, per NRCS and conservation district policy as specified under mutual, cooperative working, operational, and contribution agreements and in accordance with the confidentiality provisions of Section 1619 of the Food, Conservation, and Energy Act of 2008.

Conservation Planning Policy

Certified Conservation Planners

- All NRCS conservation planners will be certified.
- All conservation plans developed by NRCS or partner employees for NRCS purposes will be approved by an NRCS-certified conservation planner.
- A certified conservation planner is a person who possesses the necessary skills, training, and experience to implement the NRCS nine-step planning process to meet client objectives in solving natural resource concerns.
- Policy for certifying conservation planners is in Part 409.9 of the conservation planning policy.

Conservation Planning Policy

The minimum training required for planner certification is completion of the NRCS Conservation Planning Course modules 1-9.

The State Conservationist may require candidates to have additional training to be certified in their state, which can be included in State Supplements to this policy.

The National Conservation Planning Course:

Modules 1-5 are completed in AgLearn

Modules 6-8 are classroom and field training provided by the State

Module 9 is the development of an RMS plan that is field reviewed and approved by the State Conservationist designee

Conservation Planning Policy

State Supplements

Currently 20 States have Supplements to GM-180, Part 409, posted to eDirectives.

Most of these (17) are supplements to 409.9, which is Conservation Planner Certification policy. Some States have not posted planner certification policy to eDirectives, but have it posted on their web or SharePoint sites.

We were able to track down planner certification policy for 31 States.

Conservation Planning Policy

Technical Service Providers (TSP)

Since the last revision of this policy, October 2014, TSPs will follow a National set of requirements to become a NRCS-Certified Conservation Planner.

The new policy was established due to the difficulty for TSPs to keep track of what is required in each state, since State requirements vary greatly.

Conservation Planning Policy

TSP National Certified Conservation Planner Requirements

TSPs must take all modules of the NRCS Conservation Planning Course or approved alternatives.

A TSP must develop a field-reviewed RMS plan.

Once a TSPs field reviewed plan has been approved, the TSP will be eligible for planner certification in all States without submitting additional plans for review.

Conservation Planning Policy

TSP National Certified Conservation Planner Requirements

Additional Training:

Introduction to the Field Office Technical Guide (AgLearn)

Cultural Resources Training, Part 1 (AgLearn)

Erosion Prediction Software (Wind and Water Erosion) Training

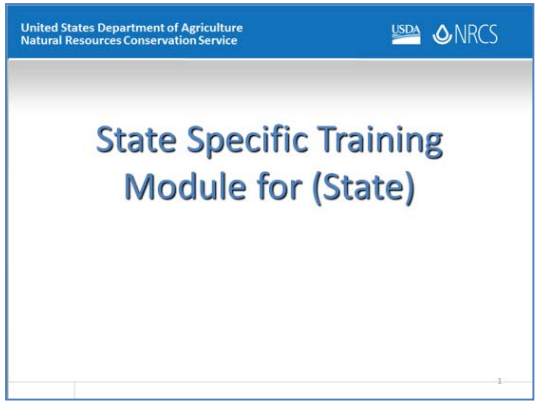
State Specific Training Module for each State where planning will be conducted

TSP planner certification will be reviewed at least once every 3 years by the State Conservationist in the TSPs resident State. If no work was performed by the TSP in the resident State, another state where work has been done will be selected.

Conservation Planning Policy

State Specific Training Modules for TSPs

Since TSPs no longer have to meet State training requirements, the state specific modules give states an opportunity to provide TSPs with important information about planning in their state.

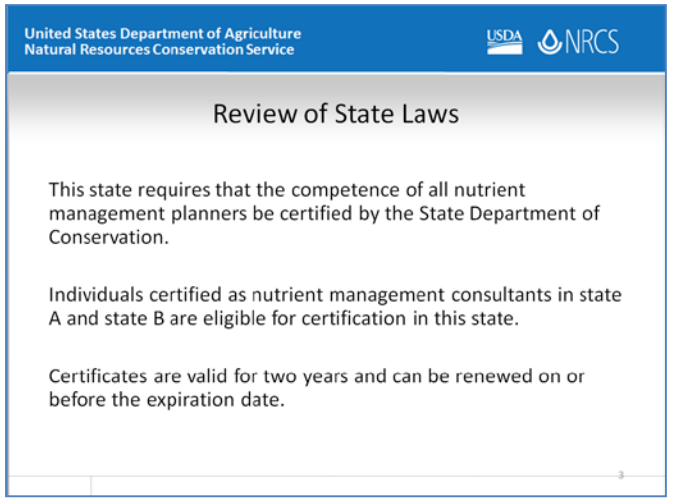


After completing modules 1-9 of the Conservation Planning Course, the additional required training, and the State Specific Training Modules, the TSP will be certified in all states where they have completed the state specific modules.

Conservation Planning Policy

State Specific Training Modules for TSPs

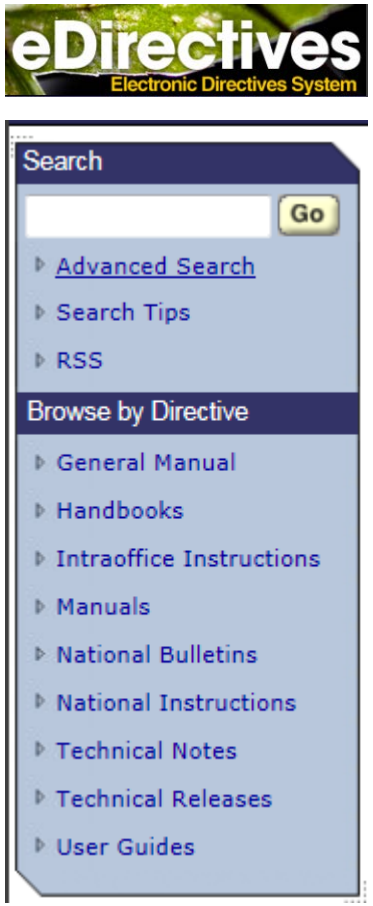
The state specific modules are short (1 hour), so they will only allow very basic information be communicated. States should not try to fit detailed training into these modules.



It will be up to the TSP to follow-up on the information and make sure they have the knowledge, skills, abilities, certifications, and licenses to conduct planning in that state. See NB 180-15-1 for additional information.

The State can recommend additional training for the TSP and invite them to State training opportunities if they choose.

Additional planning related guidance:



- Title 440 - Conservation Programs Manual (CPM)
  - Part 525 Conservation Technical Assistance Program
- The NRCS Field Office Technical Guides (FOTG)
- National Operations and Maintenance Manual
- Ecological Sciences Handbooks and Manuals
- National Engineering Handbook Series and Manual
- General Manual 450, Part 407 – Documentation, Certification, and Spot Checking

QUESTIONS AND WRAP UP

What will the next 80 years bring in resource use and conservation?

Regardless, it will involve a conservation plan.

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