

A rural landscape featuring a river in the foreground, a large red barn in the middle ground, and trees in the background. The scene is captured in a slightly hazy or overcast light.

# **Shaping the Basin's Future Together**

## **Soil Conservation**

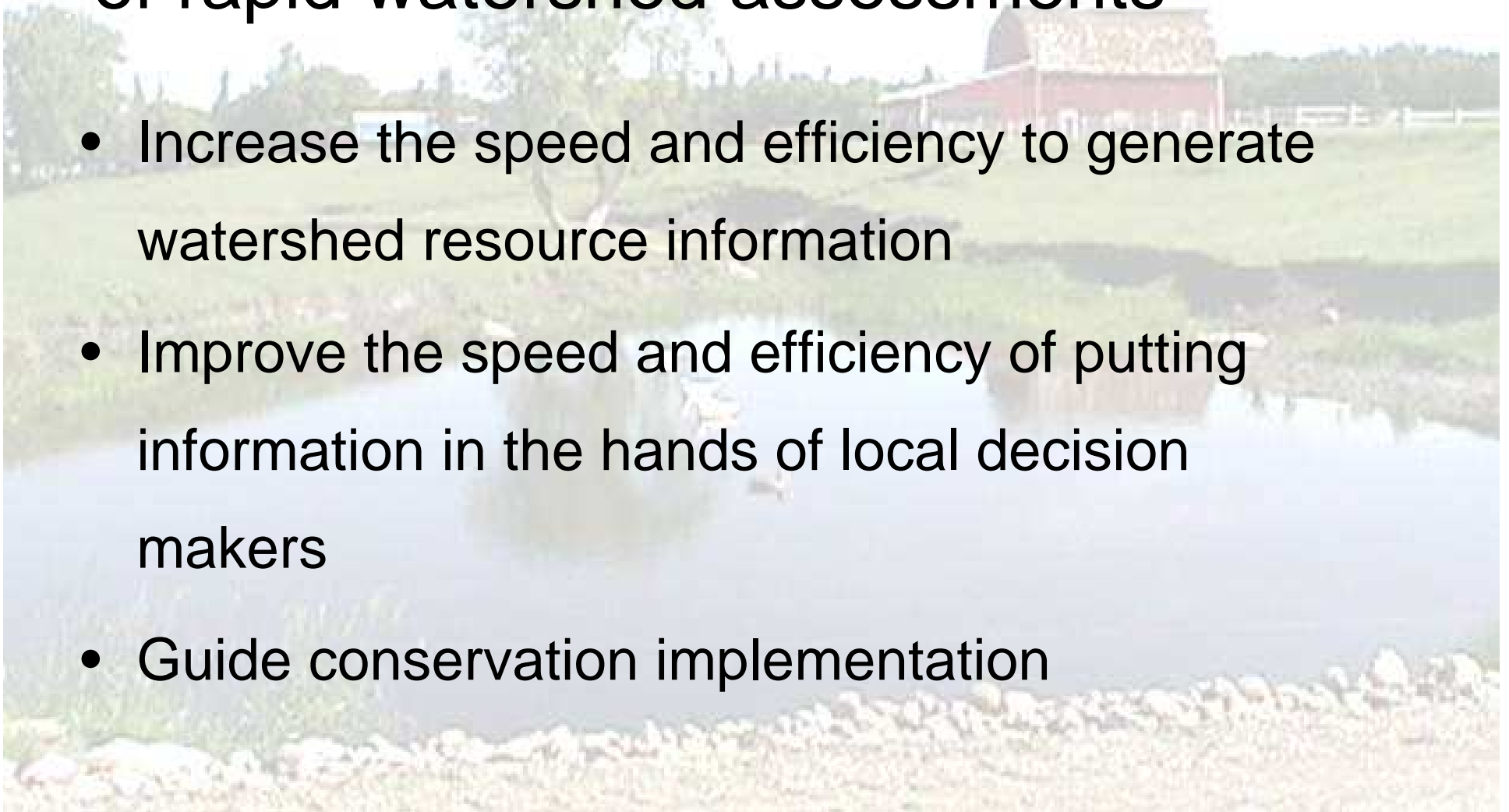
**“Rapid Watershed Assessments  
North Dakota's Approach”**


**Red River Basin 2009 Conference**

Winnipeg, Manitoba  
January 21, 2009

# Natural Resources Conservation Service (NRCS) is encouraging the development of rapid watershed assessments

- Increase the speed and efficiency to generate watershed resource information
- Improve the speed and efficiency of putting information in the hands of local decision makers
- Guide conservation implementation

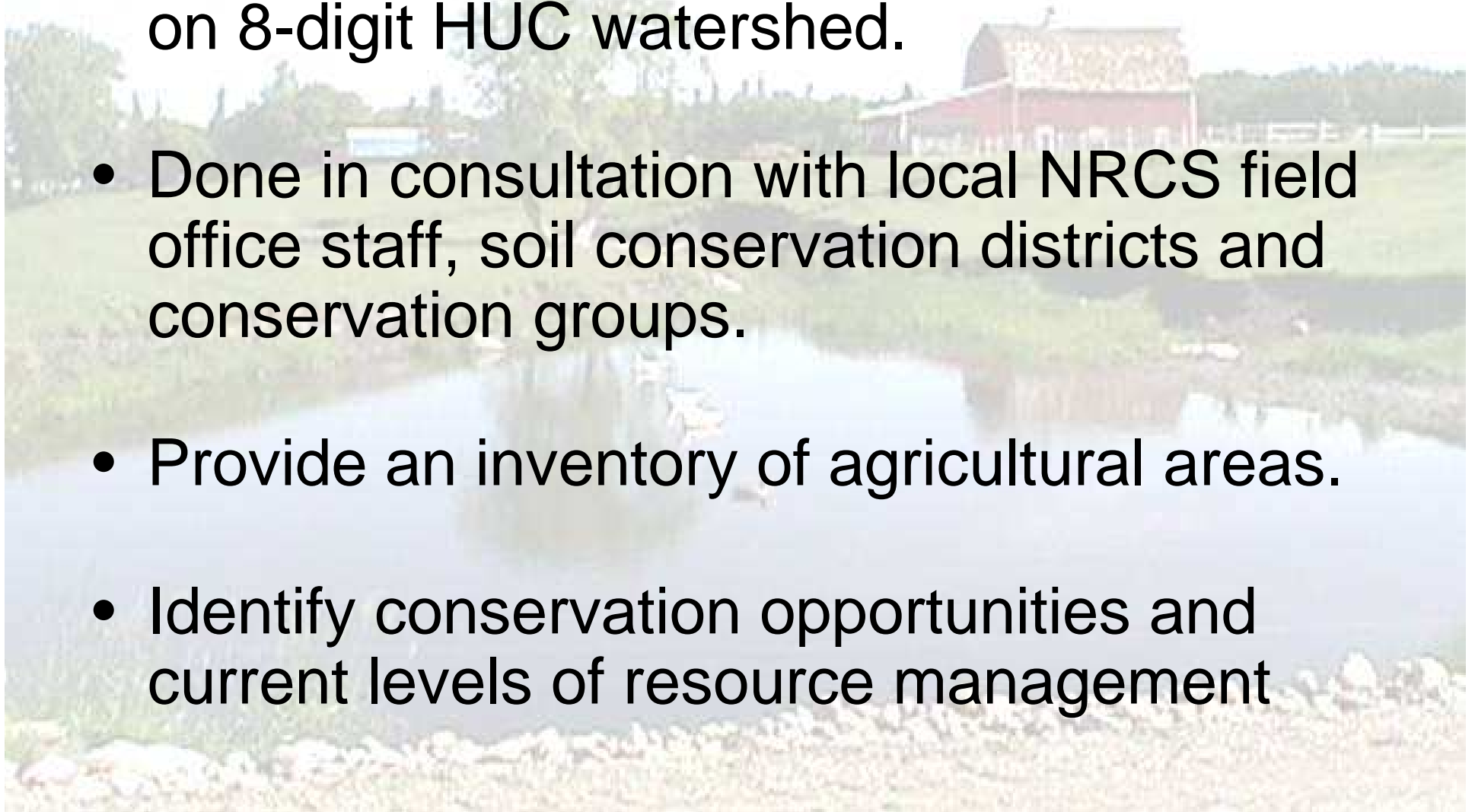


A rural landscape featuring a stream in the foreground, a large tree in the middle ground, and a red barn in the background. The scene is set in a grassy field with a white fence visible on the right side. The text is overlaid on this background.

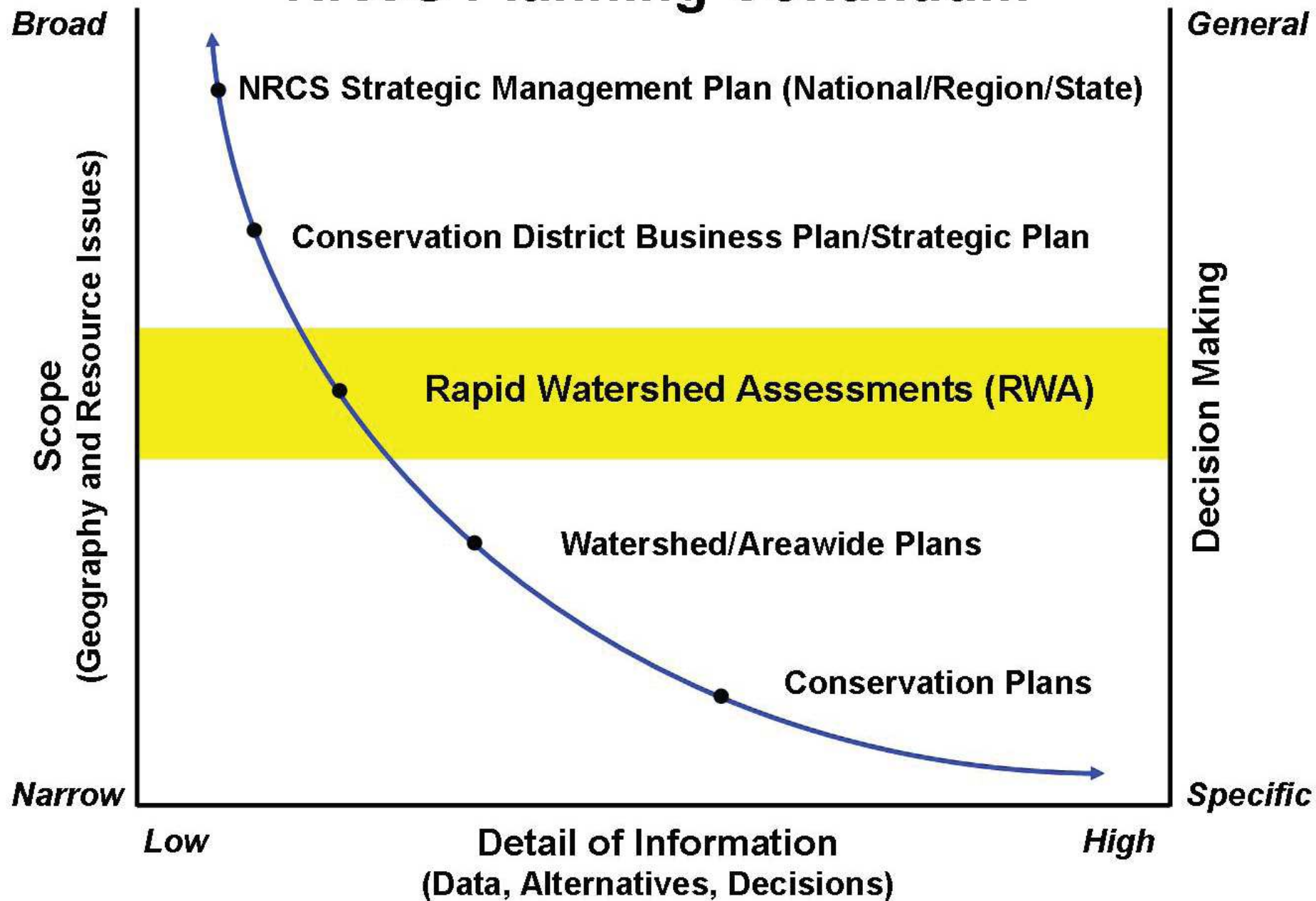
Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders.

# Assessments:

- Conducted by watershed planning teams on 8-digit HUC watershed.
- Done in consultation with local NRCS field office staff, soil conservation districts and conservation groups.
- Provide an inventory of agricultural areas.
- Identify conservation opportunities and current levels of resource management

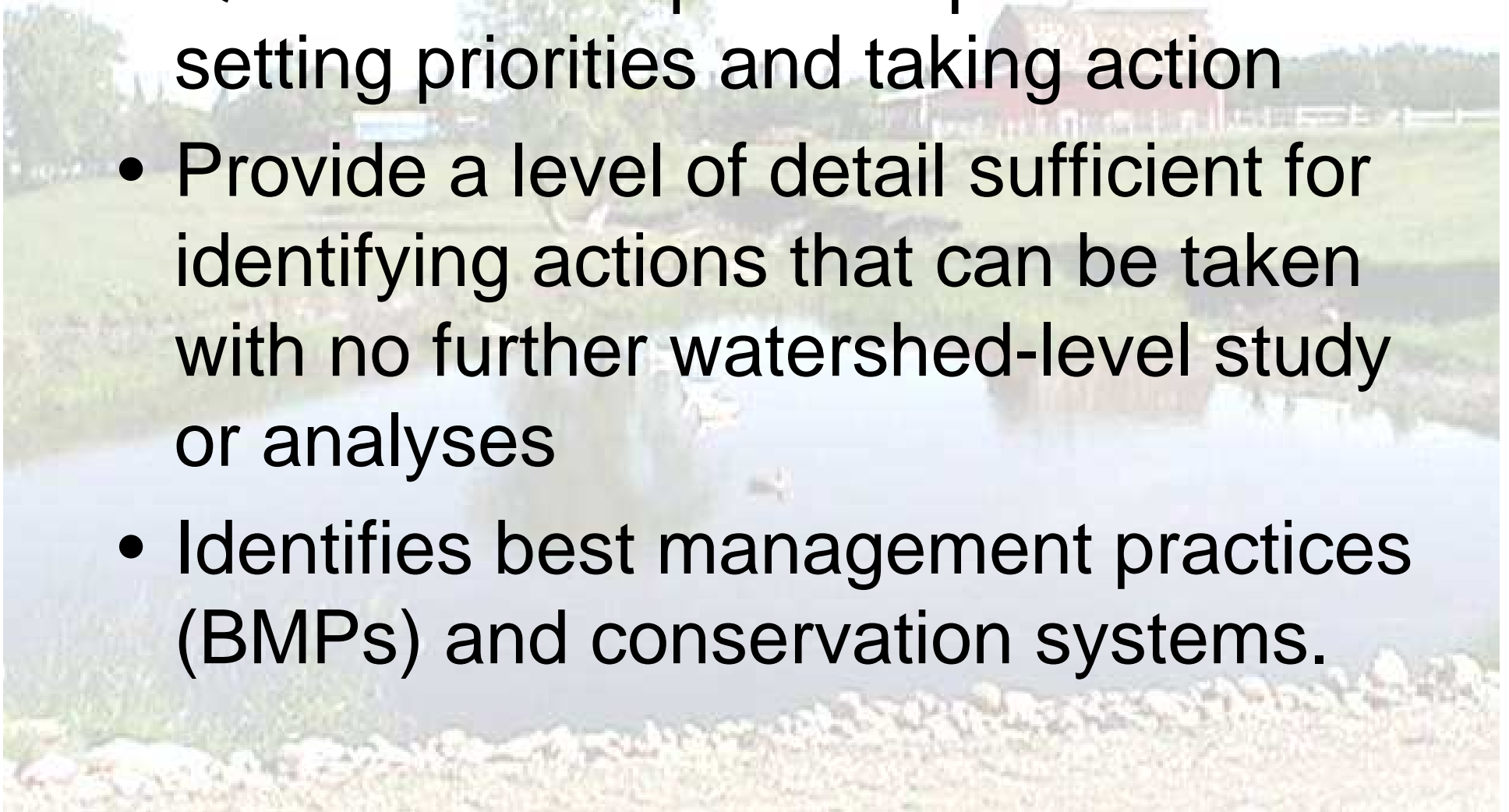


# NRCS Planning Continuum



# Benefits of these Activities

- Quick and inexpensive plans for setting priorities and taking action
- Provide a level of detail sufficient for identifying actions that can be taken with no further watershed-level study or analyses
- Identifies best management practices (BMPs) and conservation systems.





## Continued - Benefits of these Activities

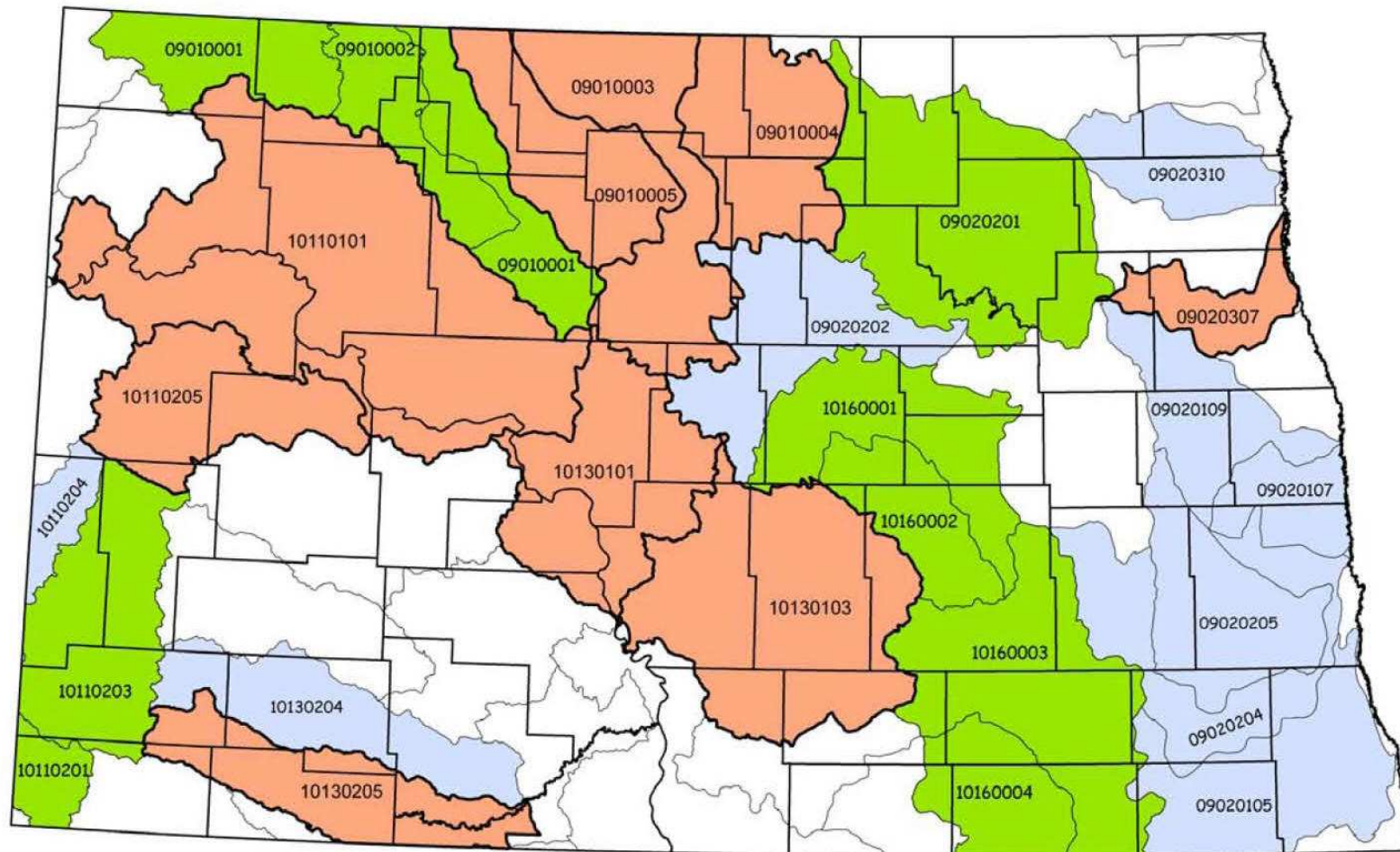
- Identifies where further detailed analyses or watershed studies are needed
- Plans address multiple objectives and concerns of landowners and communities
- Plans are based on established partnerships at the local and state levels



Continued - **Benefits of these Activities**

- Plans enable landowners and communities to decide on the best mix of NRCS assistance to meet their goals
- Plans include the full array of conservation program tools (i.e. cost-share practices, incentives, easements, and technical assistance)

# RWA Status in North Dakota



2006 RWA      2007 RWA      2008 RWA



A photograph of a rural landscape. In the foreground, there is a calm pond reflecting the sky and the surrounding greenery. The middle ground features a large, red barn with a gambrel roof, surrounded by a white fence and lush green fields. In the background, there are more trees and a clear sky. The overall scene is peaceful and idyllic.

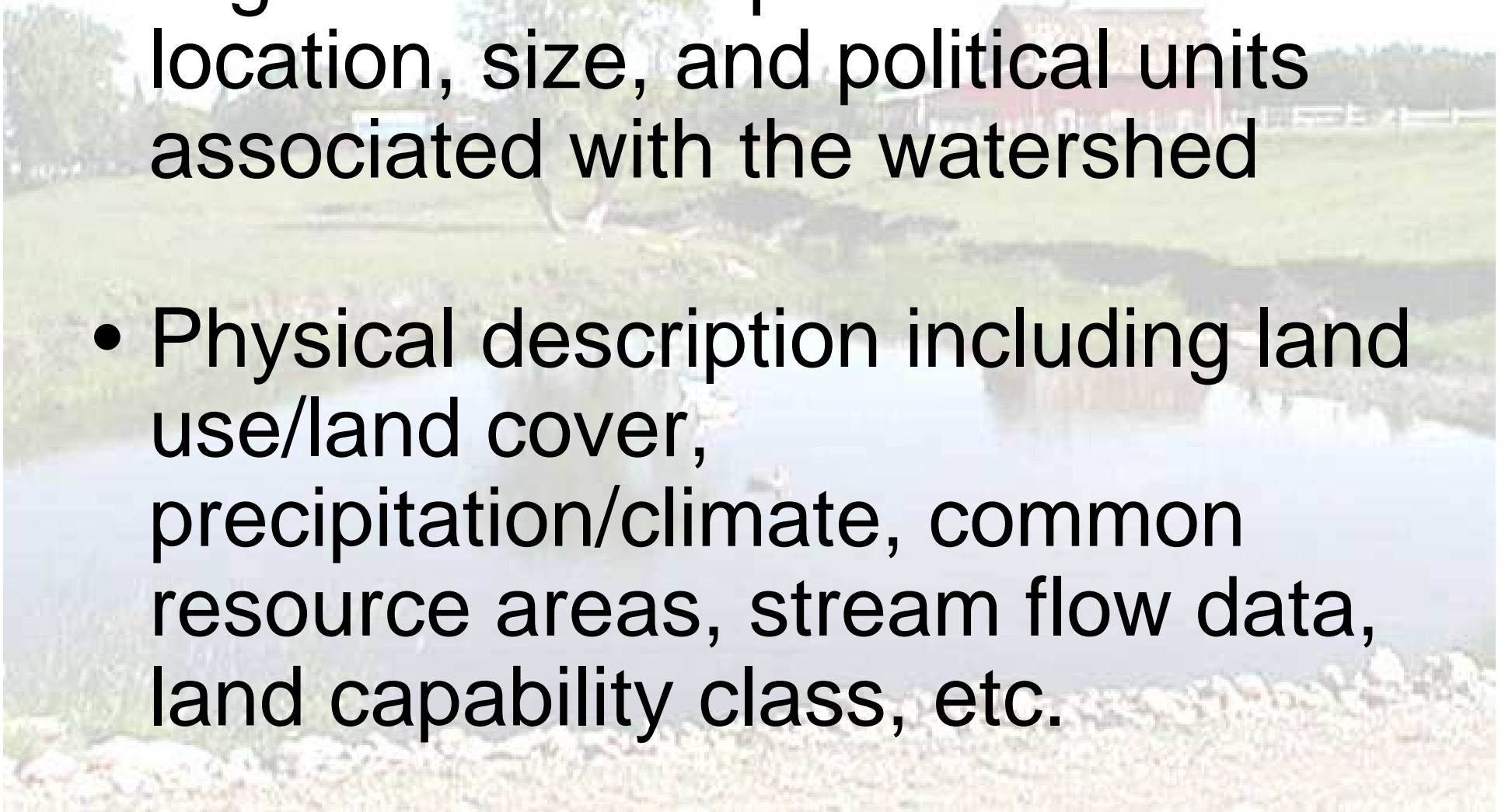
**RWA is a two part process**

**1 - Resource Profile**

**2 - Assessment Matrix**

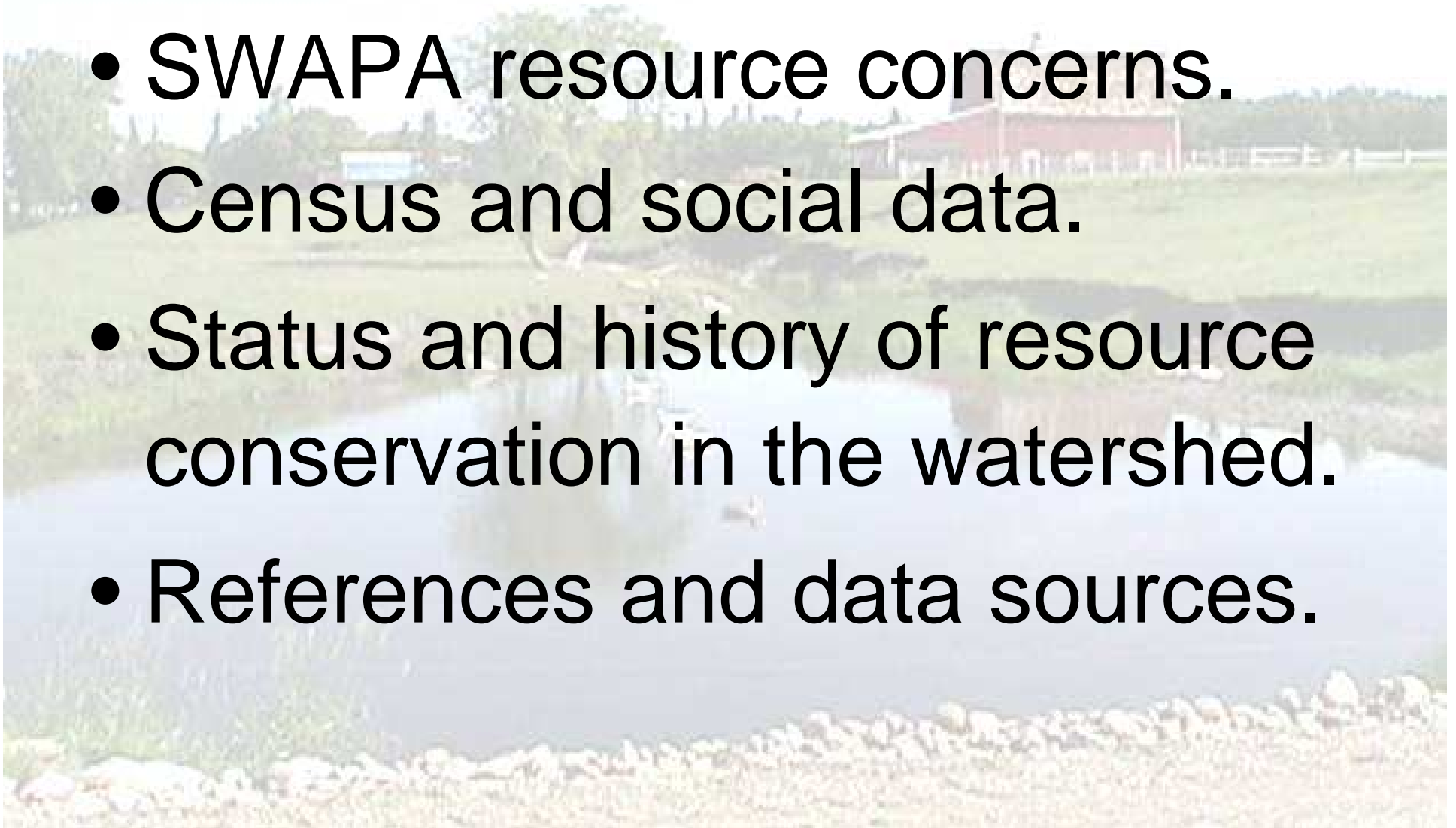
# Resource Profile

- A general description of the location, size, and political units associated with the watershed
- Physical description including land use/land cover, precipitation/climate, common resource areas, stream flow data, land capability class, etc.



# **Resource Profile includes:**

- SWAPA resource concerns.
- Census and social data.
- Status and history of resource conservation in the watershed.
- References and data sources.





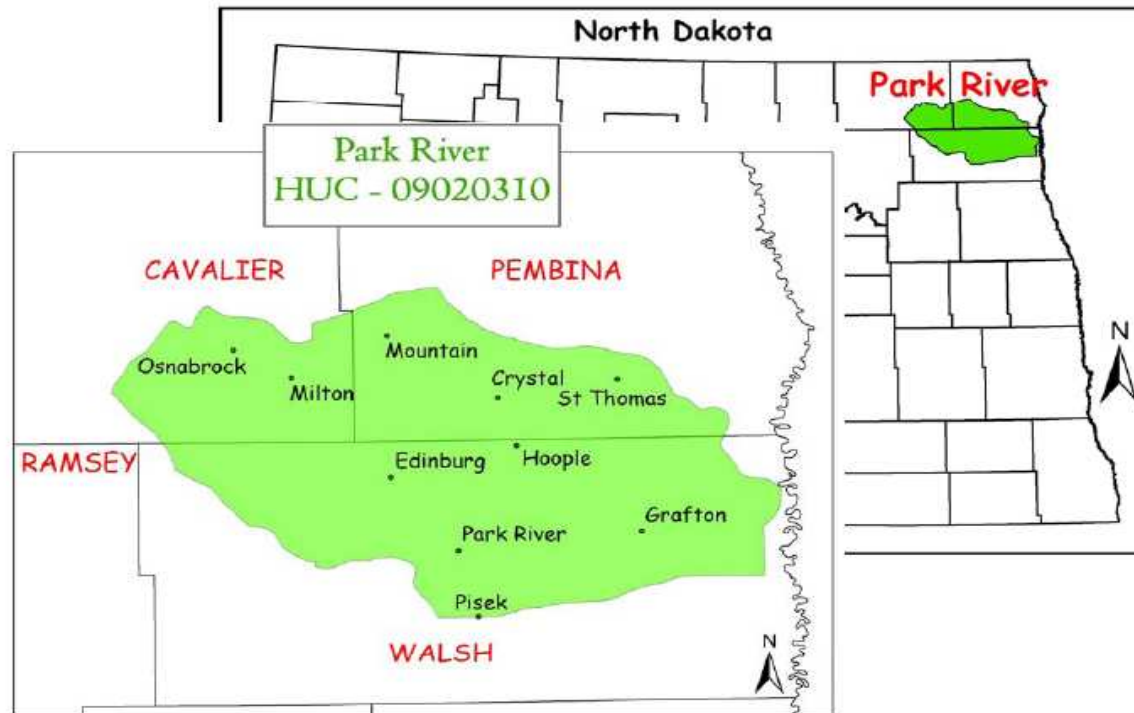
# Park River 09020310

## 8-Digit Hydrologic Unit Profile

August 2006

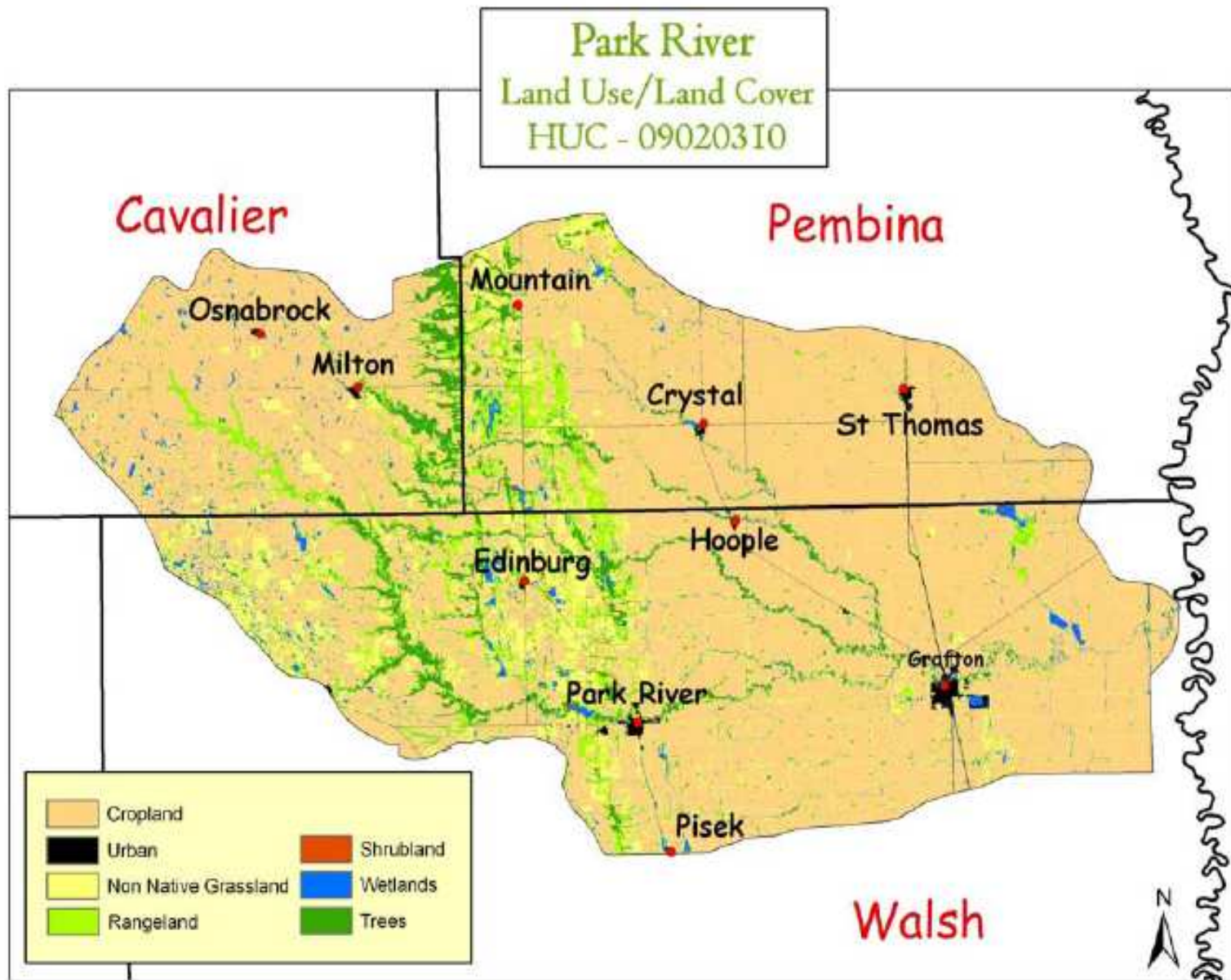
### Introduction

The Park River 8-Digit Hydrologic Unit Code (HUC) (09020310) sub-basin is approximately 681,100 acres covering parts of 3 counties (Cavalier, Pembina, and Walsh) in the Souris-Rainy Region – Red Sub-Region. Of the 680,910 acres, Walsh County contains 56%, Pembina 27%, and Cavalier 17%. There are approximately 620 farms in the sub-basin.

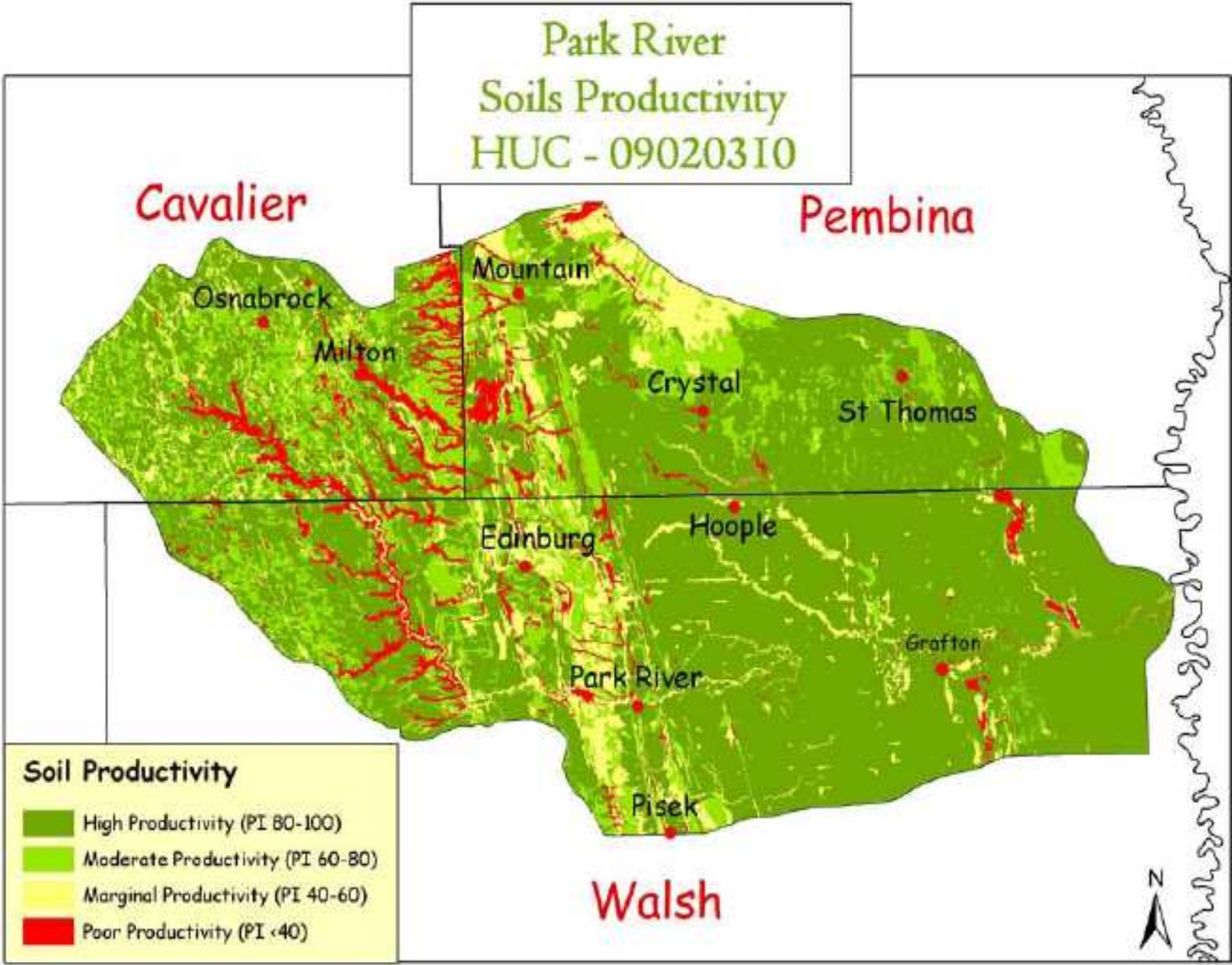


This sub-basin encompasses a wide variety of commodities ranging from soybeans, potatoes, canola, barley, wheat, corn, sugarbeets, and dry edible beans. Some livestock, primarily beef cattle, are found along the escarpment area and river valley.

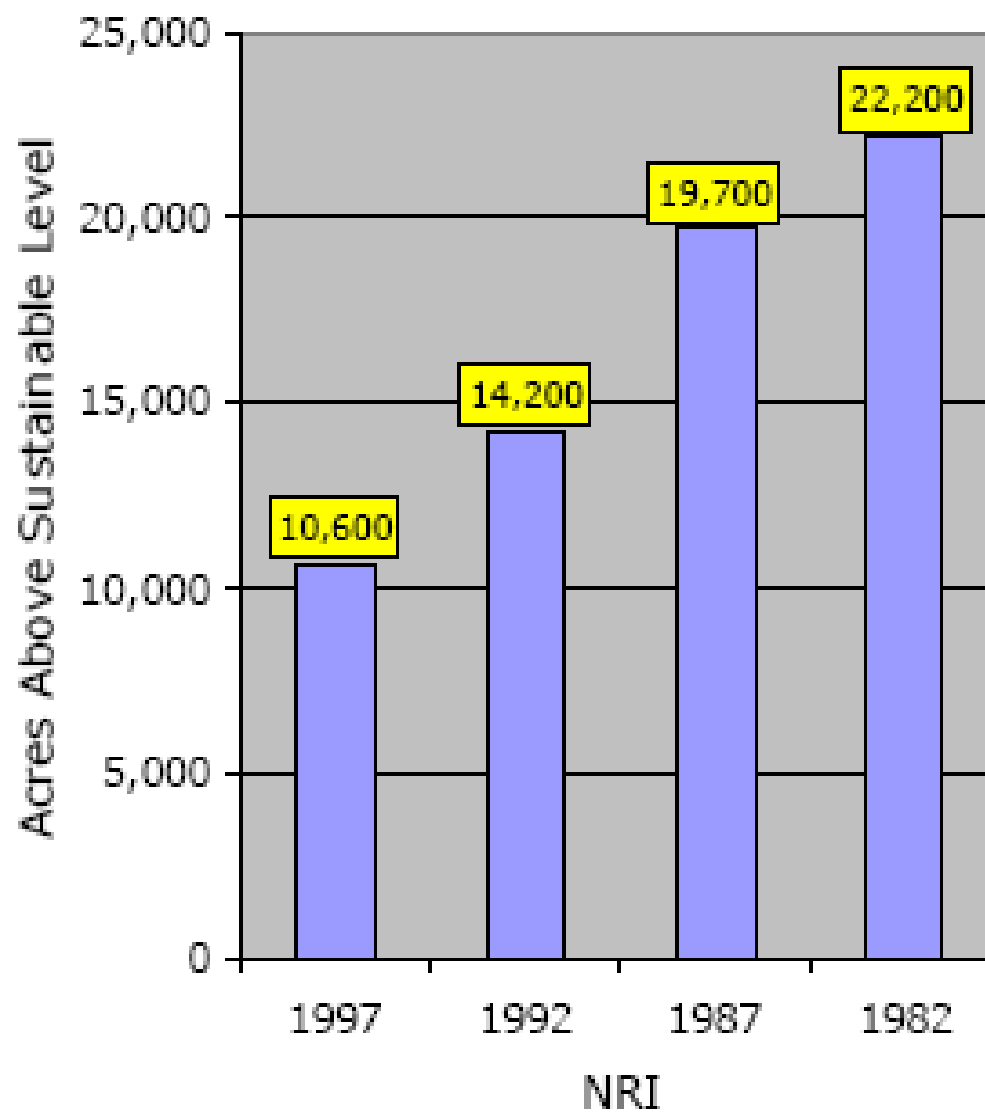
Conservation assistance is provided by three NRCS service centers and two Resource Conservation & Development offices.



The above map was developed from U.S. Geologic Survey's (USGS) ND Gap Analysis Program data.<sup>4</sup>



# Upper South Park River



The following table shows the different projects, plans, studies, and assessments conducted within the sub-basin.

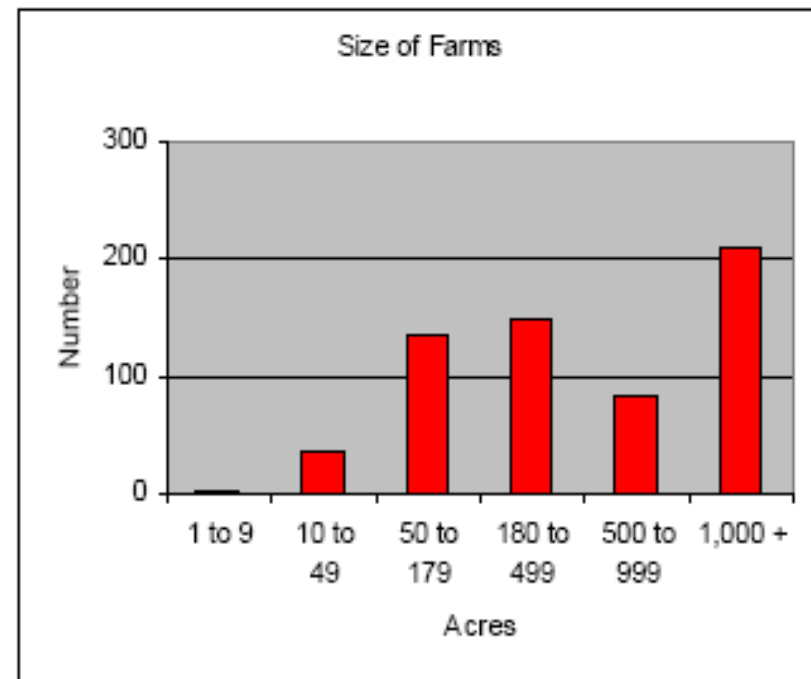
<b>Watershed Projects, Plans, Studies and Assessments</b>			
<b>NRCS Watershed Projects</b>		<b>NRCS Watershed Plans, Studies &amp; Assessments</b>	
<b>Name</b>	<b>Status</b>	<b>Name</b>	<b>Status</b>
North Salt Lake	Completed	Cart Creek Assessment	ongoing
Middle Branch Park River	Dam #5 scheduled for completion 2007		
<b>NDDH TMDLs</b>		<b>Soil Conservation District Assessments and Studies</b>	
<b>Number Listed</b>		<b>Name</b>	<b>Status</b>
Lakes/Reservoirs - 1	Streams - 6	Cart Creek Assessment	ongoing
<b>EPA 319 Watershed Projects</b>			
<b>Name</b>		<b>Status</b>	
Red River Riparian Project		Ongoing	

## Census and Social Data<sup>15</sup>

**Number of Farms: 620**

**Number of Operators:**

- Average Age: 55
- Full-Time Operators: 70%
- Part-Time Operators: 30%



# ND Resources Profiles

[http://www.nd.nrcs.usda.gov/technical/Watershed\\_Approach/Rapid\\_Watershed\\_Assessments.html](http://www.nd.nrcs.usda.gov/technical/Watershed_Approach/Rapid_Watershed_Assessments.html)



# Assessment Matrix

Matrix summarizes, in tabular form:

- Current resource conditions
- Related maintenance costs
- Desired resource conditions and conservation opportunities
- Related installation and maintenance costs
- Qualitative effects on primary resource concerns.

# Assessment Matrix contains:

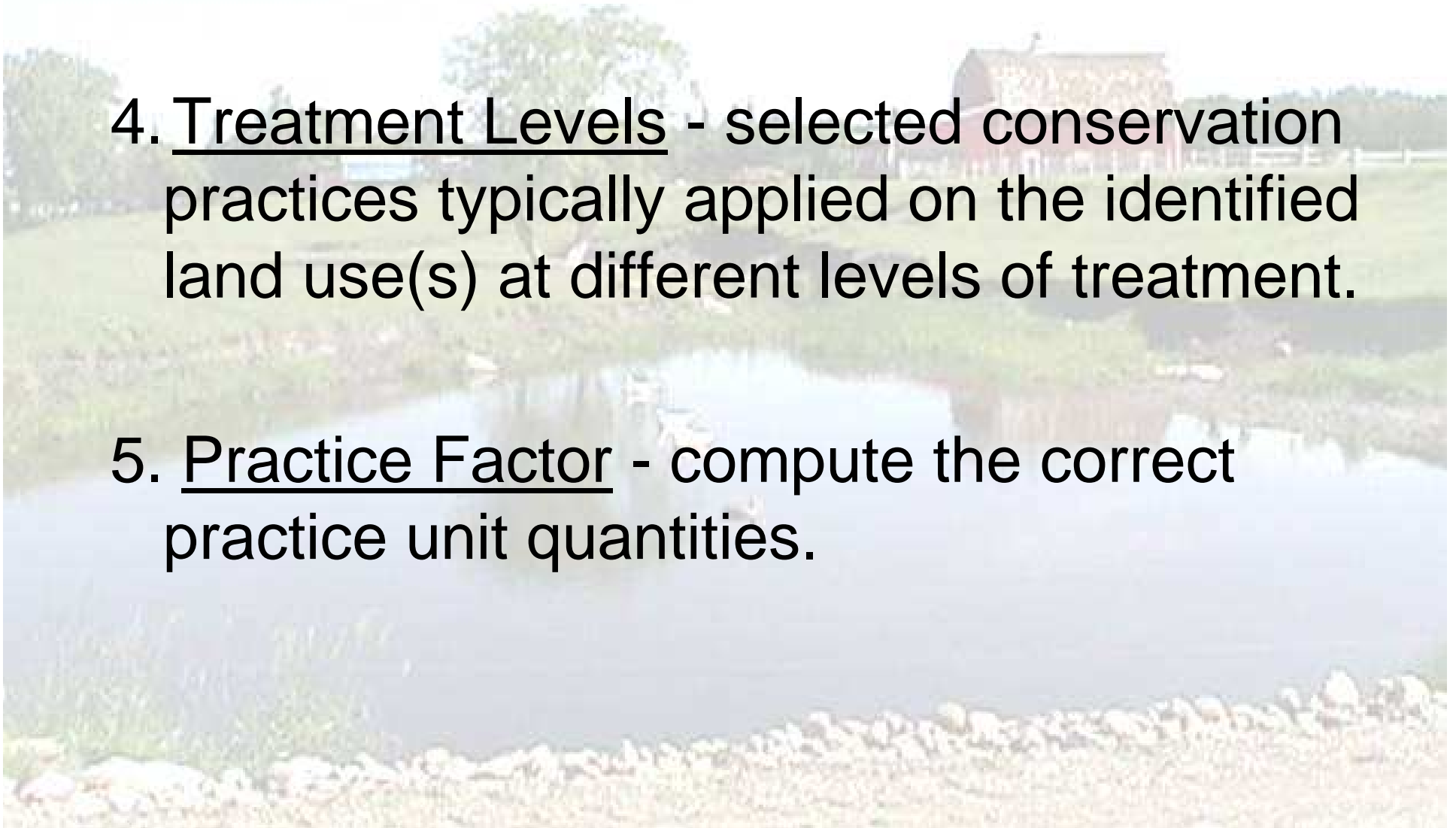
- Current Conditions Table—detailing the current level of conservation in the watershed.
- Future Conditions Table—identifying appropriate suites of conservation practices needed to address primary resource concerns by each land use.

# Assessment Matrix includes:

1. Variables - basic information from watershed profile and anticipated future conservation participation.
2. Selected Concerns-Practices - select major resource concerns.
3. Practice effects - default ratings from the statewide Conservation Practice Physical Effects (CPPE) for both the selected resource concerns and conservation practices.

# Assessment Matrix includes:

4. Treatment Levels - selected conservation practices typically applied on the identified land use(s) at different levels of treatment.
5. Practice Factor - compute the correct practice unit quantities.



# Assessment Matrix includes:

## 6. Template – (2 part)

Part 1 summarizes the practices at each treatment level, the quantities of practices for current benchmark conditions and projected future conditions

Part 2 summarizes the installation, management, operation & maintenance costs by practice and treatment level for the projected future conditions.

# Assessment Matrix includes:

7. Funding - display applicable USDA programs that can be utilized to apply conservation practices and systems selected for implementation.



# Example of Assessment

Future Conditions for Cropland - Irrigated													
Management Systems		Quantity		Costs		Effects*				Implementation			
	Practices	Unit	Quantity	Investment Cost	Annual O&M Cost	Soil Erosion	Soil Condition	Water Quantity	Water Quality, Surface	EQIP	WHIP	WRP	Other
BM1		Ac.	44,732			-3	-1	-3	-2				
	Conservation Cropping Rotation	Ac.	44,732		\$26,839								
	Residue Management	Ac.	44,732		\$984								
BM2		Ac.	67,098			0	-1	0	-1				
	Conservation Cropping Rotation	Ac.	67,098		\$40,259								
	Residue Management	Ac.	67,098		\$1,476								
	Irrigation Water Management	Ac.	67,098		\$73,808								
RMS1		Ac.	70,785			+2	0	+1	+1				
	Conservation Cropping Rotation	Ac.	70,785	\$424,708	\$42,471					X			
	Residue Management	Ac.	70,785	\$77,863	\$1,557					X			
	Nutrient Management	Ac.	70,785	\$566,278	\$56,628					X			
	Pest Management	Ac.	70,785	\$424,708	\$42,471					X			
	Irrigation Water Management	Ac.	70,785	\$778,632	\$77,963					X			
RMS2		Ac.	4,438			+2	+1	+1	+1				
	Conservation Cropping Rotation	Ac.	4,438	\$26,626	\$2,663					X			
	Conservation Tillage	Ac.	4,438	\$39,940	\$3,994					X			
	Irrigation Water Management	Ac.	4,438	\$48,815	\$4,882					X			
(convert to low pressure)	Irrigation System, Sprinkler (conversion)	Ac.	4,438	\$252,951,210	\$1,264,756					X			X
<b>Total RMS Costs</b>													
				<b>\$255,338,780</b>	<b>\$1,640,751</b>								

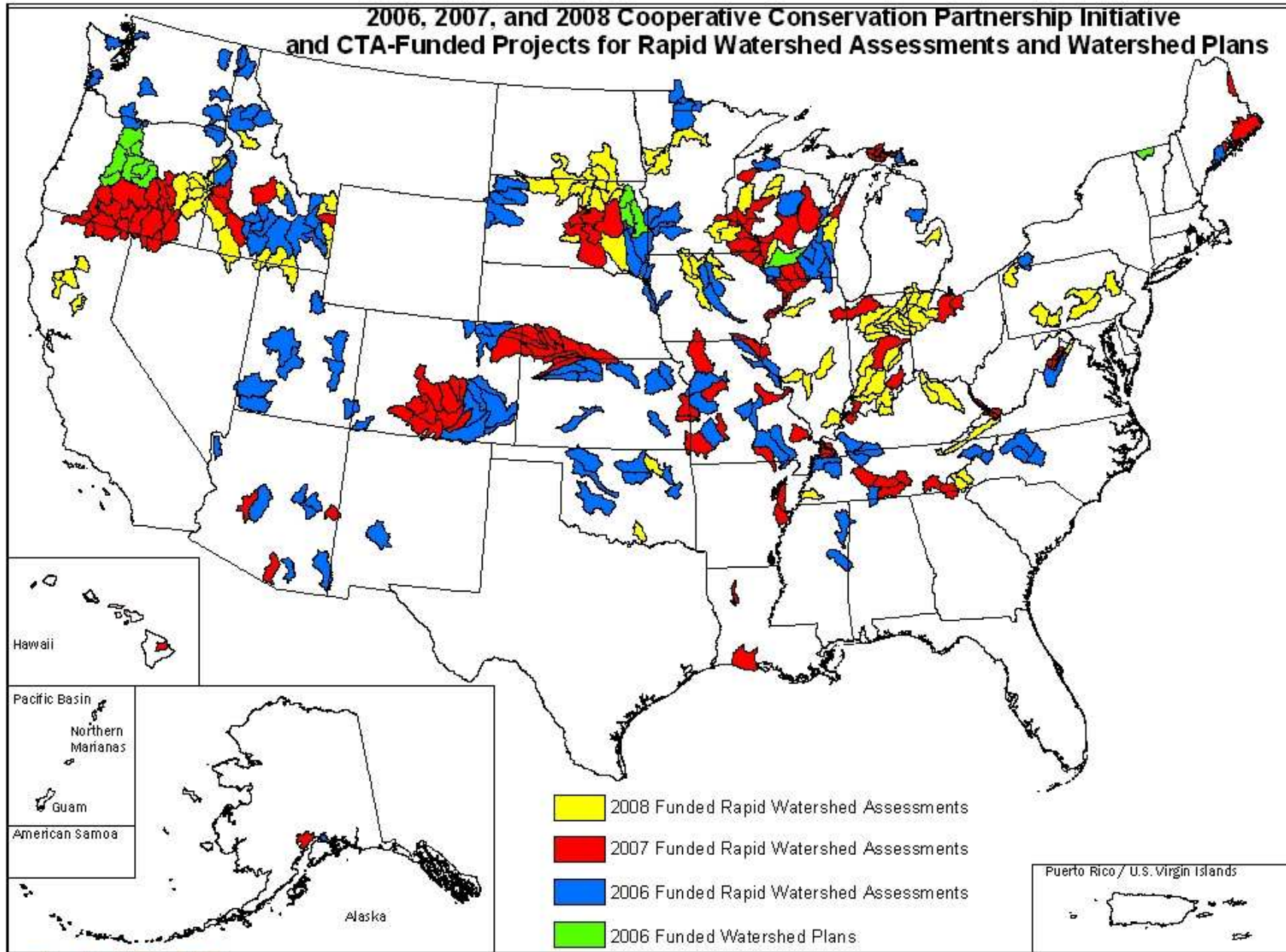
\* Note: Effects are numerical values placed on benchmark conditions and degree of change in conditions by conservation system(s) application. Scale ranges from -5 (most damaging to resources) to +5 (best protection offered by treatment).

WATERSHED NAME & CODE		UPPER BIG SIOUX - 10170202			LANDUSE ACRES		808,120		
LANDUSE TYPE		CROPLAND			TYPICAL UNIT SIZE ACRES		80		
ASSESSMENT INFORMATION					CALCULATED PARTICIPATION		10%		
		Benchmark Conditions	Future Conditions		RESOURCE CONCERNS				
Conservation Systems by Treatment Level		Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Soil Erosion – Sheet and Rill	Soil Erosion – Ephemeral Gully	Soil Condition – Organic Matter Depletion	Water Quality – Excessive Suspended Sediment and Turbidity in Surface Water
<b>Baseline</b>		<b>System Rating -&gt;</b>			<b>4</b>	<b>4</b>	<b>3</b>	<b>3</b>	
Conservation Cover (ac.) 327		10,506	9,245	0	9,245	5	5	5	3
Conservation Crop Rotation (ac.) 328		26,264	23,112	0	23,112	3	3	4	2
Residue Management, Seasonal (ac.) 344		78,792	69,337	0	69,337	0	2	-2	1
Use Exclusion (ac.) 472		26,264	23,112	0	23,112	2	2	2	4
Windbreak/Shelterbreak Establishment (ft.) 380		1,969,793	1,733,417	0	1,733,417	0	0	2	2
<b>Total Acreage at Baseline</b>		<b>525,278</b>	<b>462,245</b>	<b>0</b>	<b>1</b>				
<b>Progressive</b>		<b>System Rating -&gt;</b>			<b>5</b>	<b>5</b>	<b>4</b>	<b>4</b>	
Conservation Cover (ac.) 327		60,609	58,419	9,665	68,084	5	5	5	3
Conservation Crop Rotation (ac.) 328		109,096	105,743	16,809	122,551	3	3	4	2
Irrigation System, Sprinkler (ac.) 442		242	230	42	272	0	0	0	0
Pest Management (ac.) 595		60,609	57,579	10,506	68,084	1	1	2	2
Residue and Tillage Management, Mulch Till (ac.) 345		0	57,579	10,506	1	4	4	1	3
Residue Management, Seasonal (ac.) 344		48,487	52,366	2,101	0	0	2	-2	1
Terrace (ft.) 600		9,091	8,637	1,576	10,213	5	4	1	3
Underground Outlet (ft.) 620		1,212	1,152	210	1,362	1	4	0	0
Use Exclusion (ac.) 472		24,244	25,133	2,101	27,234	2	2	2	4
<b>Total Acreage at Progressive Level</b>		<b>0</b>	<b>230,314</b>	<b>42,022</b>	<b>272,336</b>				

# Interstate RWAs



# 2006, 2007, and 2008 Cooperative Conservation Partnership Initiative and CTA-Funded Projects for Rapid Watershed Assessments and Watershed Plans



U.S. Department of Agriculture  
Natural Resources Conservation Service  
Conservation Planning & Technical Assistance Division  
Washington, D.C. July 2008

Map ID: jms0017

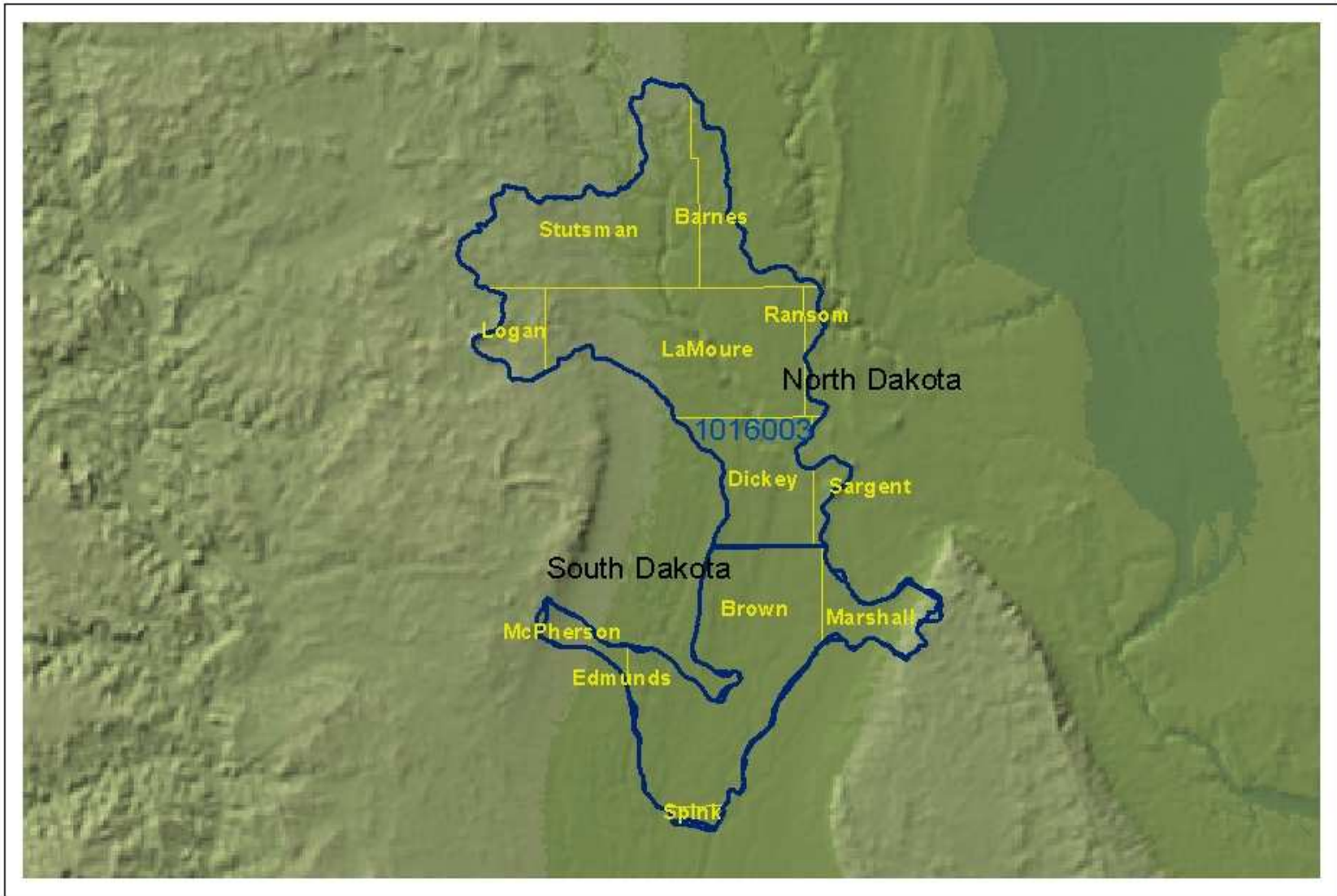
Source: NRCS

# Upper James Watershed - 10160003



## South Dakota Watershed Profile



# Upper James Watershed - 10160003 Hydrologic Unit Code



**Legend**

-  8 Digit Hydrologic Unit
-  Upper James Watershed



A photograph of a rural landscape. In the foreground, there is a calm pond reflecting the sky and surrounding greenery. The middle ground shows a lush green field with a few trees. In the background, a large red barn with a white roof is visible, surrounded by a white fence. The sky is bright and clear.

# Productive Lands -- Healthy Environment

***“Helping People Help the Land”***