

NRCS CSREES Watershed Assessments

USDA NRCS

Darren Hickman

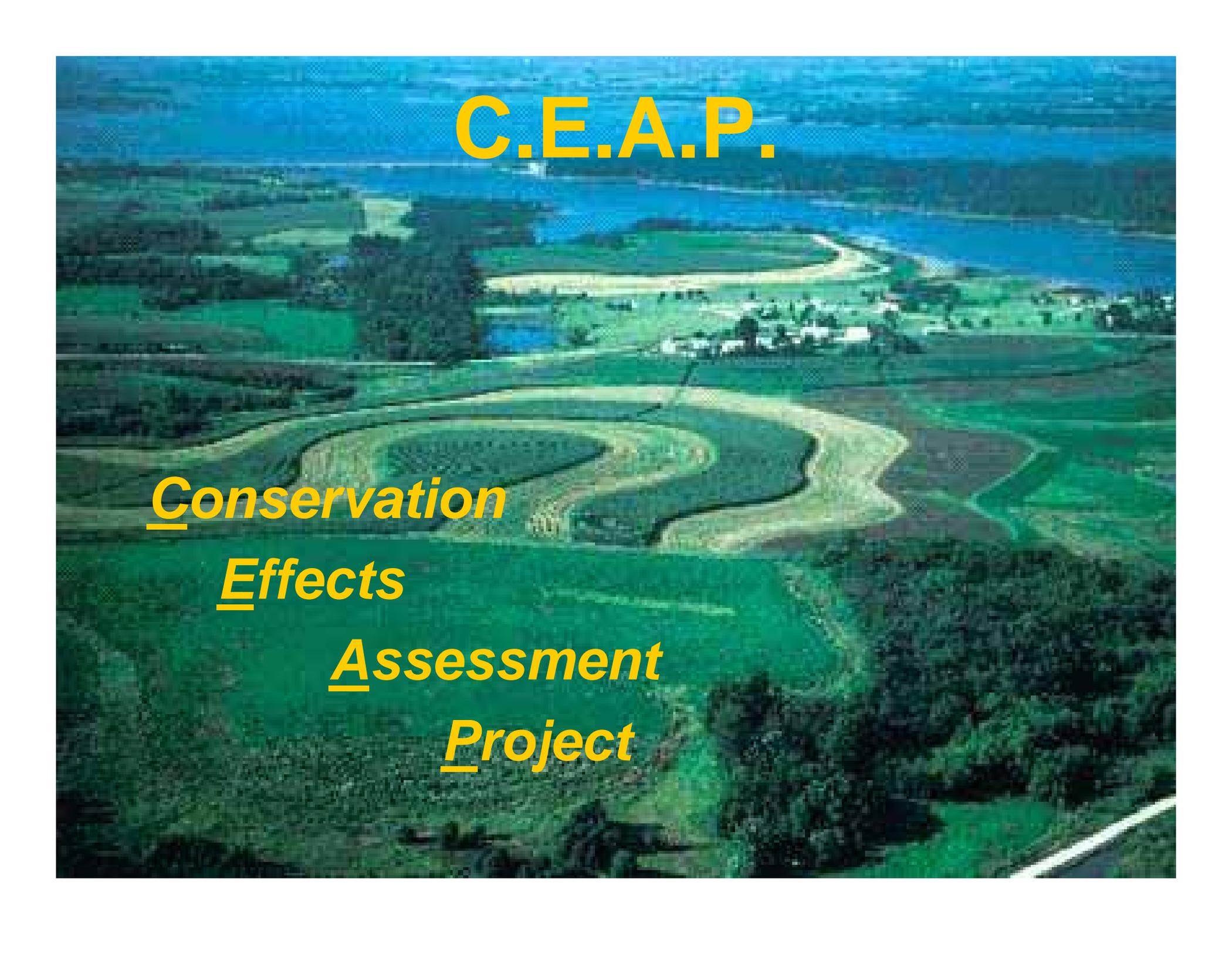
Jerry Lemunyon

Fort Worth, Texas

Conservation Effects Assessment Project

Please turn off the ringers on your cell phones, pagers, blackberries, et al. during this session.

Nothing is more important than our presentation of CEAP!

An aerial photograph of a coastal wetland area. In the foreground, there is a large, irregularly shaped body of water with a sandy or light-colored shoreline. A winding path or road runs along the edge of the water. In the background, there is a larger body of water, possibly a bay or a large lake, and a small settlement or village with several buildings. The overall scene is a mix of natural wetland and human development.

C.E.A.P.

Conservation

Effects

Assessment

Project



Measuring the Environmental Benefits of Conservation

The Conservation Effects Assessment Project (CEAP)

Scope of CEAP

LAND USE GROUPS

- Cropland, including CRP
- Grazing lands
- Wetlands
- Agroforestry



Scope of CEAP

RESOURCE CONCERNS

- **Water Quality**
- **Soil Quality**
- **Water Conservation**
- **Air Quality**
- **Wildlife Habitat**
- **Ecosystem Health**
- **Livestock Operations**



Watershed Assessment Studies

Objectives:

- Provide **watershed scale** benefits information
- Develop and document **indicators** of benefits
- Identify **optimum implementation strategy** to meet water quality goals
- Provide **estimates of uncertainties**
- **Complements** the National Assessment

**Conservation Effects Assessment Project (CEAP):
Watershed Studies Component, 2004**



ARS Benchmark Research Watersheds

	<u>Watershed name</u>
GA	Little River
IA	South Fork, Iowa River
IA	Walnut Creek
IN	St. Joseph River
MO	Mark Twain
NY	Town Brook
OH	Upper Big Walnut Creek
OK	Upper Washita River
MS	Goodwin Creek
MS	Beasley Lake
MS	Yalobusha River
TX	Upper Leon River

Competitive Grants Watersheds

	<u>Watershed name</u>	<u>Research Lead</u>
IA	Three watersheds (Walnut Creek, South Fork Iowa River, Sny Magill)	(Iowa St. U.)
UT	Little Bear River	(Utah St. U.)
OH	Rock Creek	(Heidelberg College)
ID	Paradise Creek	(U. of Idaho)

Special Emphasis Watersheds

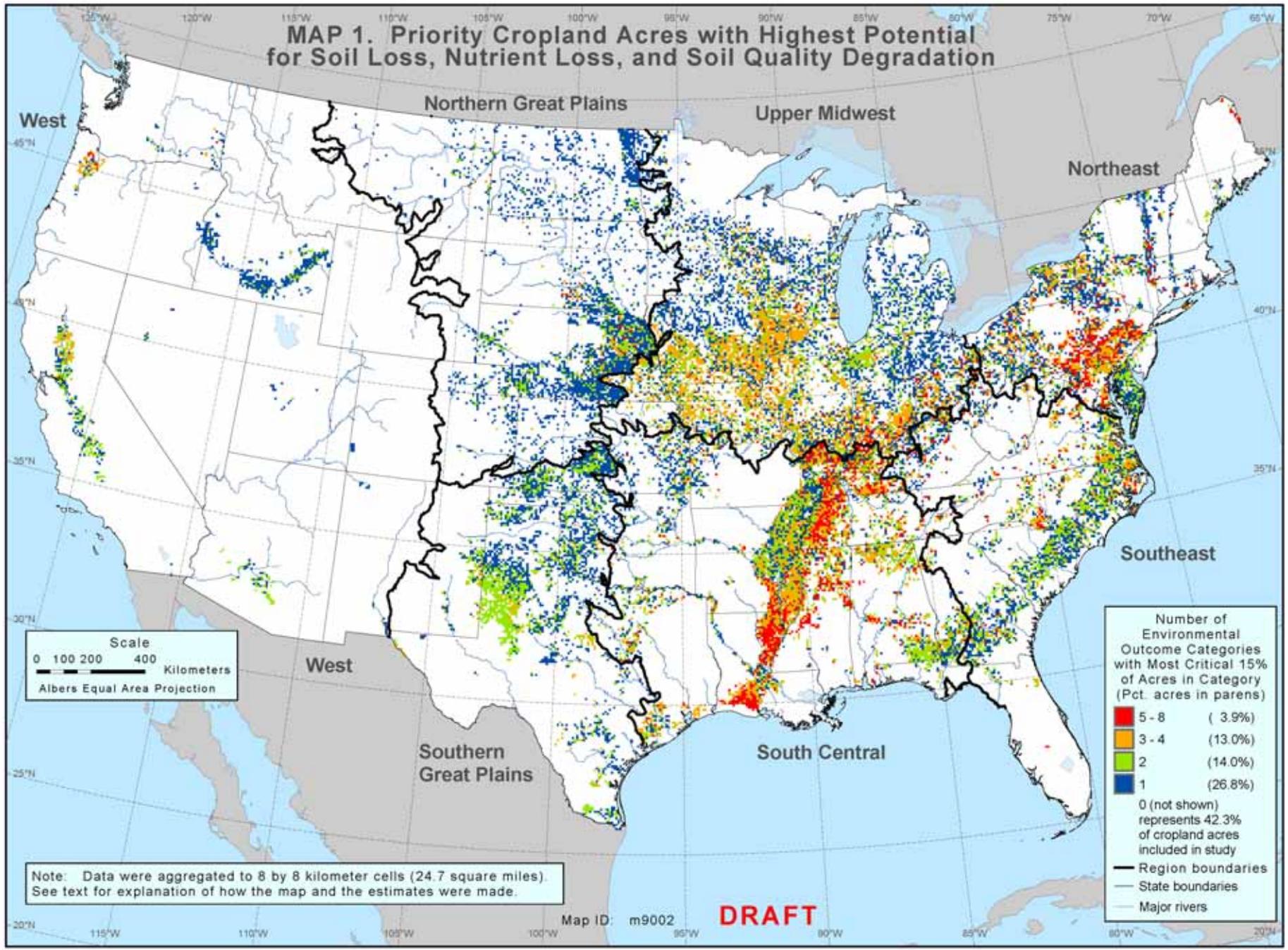
	<u>Watershed name</u>
CA	Stemple Creek
ID	Upper Snake Rock Creek
KS	Cheney Lake
MD	Choptank River
OH	Maumee River (Upper Auglaize R.)
MI	Maumee River (Upper Tiffin R.)
OR	Upper Klamath Lakes
TX	North Bosque River

Note: CEAP Watershed locations are plotted as 8-digit Hydrologic Unit Code Watershed boundaries for general locations only.

Modeling Strategy

- Scenario 1: CEAP baseline
- For CEAP sample points matched to categories of conservation plans:
 - Scenario 2: with conservation practices
 - Scenario 3: without conservation practices

MAP 1. Priority Cropland Acres with Highest Potential for Soil Loss, Nutrient Loss, and Soil Quality Degradation



Scale
0 100 200 400 Kilometers
Albers Equal Area Projection

Note: Data were aggregated to 8 by 8 kilometer cells (24.7 square miles). See text for explanation of how the map and the estimates were made.

Number of Environmental Outcome Categories with Most Critical 15% of Acres in Category (Pct. acres in Category)

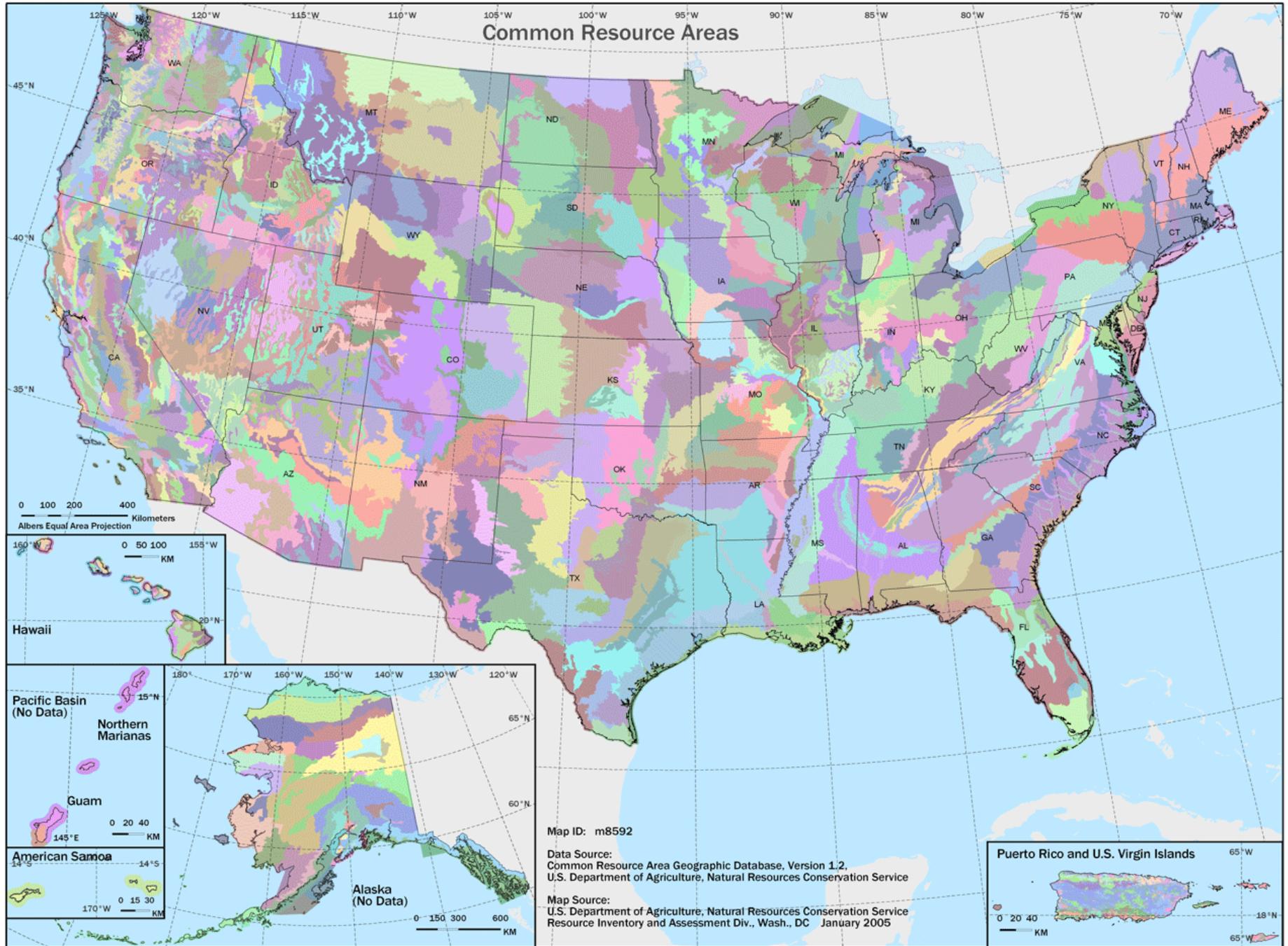
- 5 - 8 (3.9%)
- 3 - 4 (13.0%)
- 2 (14.0%)
- 1 (26.8%)
- 0 (not shown) represents 42.3% of cropland acres included in study

— Region boundaries
— State boundaries
— Major rivers

DRAFT

Map ID: m9002

Common Resource Areas

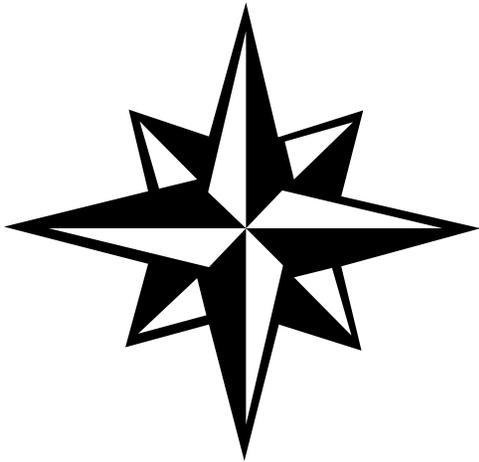


Questions? Comments?

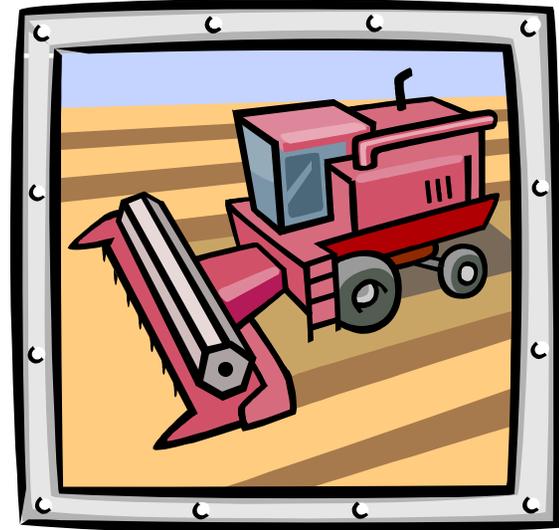
Visit the CEAP Website at:

www.nrcs.usda.gov/technical/nri/ceap

CEAP and CSG Integration



➤ **NRI point**



➤ **CSG space**

Conservation System Impacts

United States Department of Agriculture
NRCS Natural Resources Conservation Service
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a component of the Integrated SmartTech System

Thursday, 1/29/2004 10:00 AM Welcome Wendall R Oaks Session will end in 30 minutes if not active...Reset

Conservation System Code: **OR 10.12-CR-Irr Eros-R-RMS1** Name: **Crop, Irrigated, Irr. Induced Erosion**

Status: **Active** Start Date: **10/01/2003** End Date: Created By: **Tom M Gohlke (12/04/2003)** Last Modified By: **Tom M Gohlke (01/14/2004)**

Primary Resource Concern Consideration: **Soil Erosion** Resource Concern: **Irrigation-induced**

System Level: Alternative Conservation System (ACS) Basic Conservation System (BCS)

Conservation System Description: Central Oregon; 8-15 inch precipitation. Soils are shallow to deep, sandy loam to silt loam. Slopes are 0 to 12 percent. Growing season is from 90 to 120 days. Crop rotations are usually long and include, but are not limited to the following: Alfalfa, Cereal Grains, Peppermint, Garlic, Vegetable, Grass, and Flower Seeds.

System Effects & Impacts	Soil Erosion - Irrigation-induced (tons/ac/yr)	Soil Erosion - Sheet and Rill (tons/ac/yr)	Soil Erosion - Wind (tons/ac/yr)	Inefficient Water Use on Irrigated Land (ac-in)
Baseline Condition	10.00	2.00	6.00	24.00
System Effect	3.00	1.00	2.00	16.00
System Impact	7.00	1.00	4.00	8.00

[Add Practice](#)

Practice	Soil Erosion - Irrigation-induced (tons/ac/yr)		Soil Erosion - Sheet and Rill (tons/ac/yr)		Soil Erosion - Wind (tons/ac/yr)		Water Quantity - Inefficient Water Use on Irrigated Land (ac-in)	
	% of System Impact	Impact	% of System Impact	Impact	% of System Impact	Impact	% of System Impact	Impact
Conservation Crop Rotation (328) ac	15.00	1.05	50.00	0.50	50.00	2.00	0	0.00
Forage Harvest Management (511) ac	25.00	1.75	0	0.00	0	0.00	0	0.00

Conservation Practice Impacts

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 Thursday, 1/29/2004 11:44 AM Welcome Wendell R Oaks Session will end in 30 minutes if not active... Reset

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Primary Resource Concern: Consideration: **Soil Erosion** Resource Concern: **Irrigation-induced**

Program/Compliance System Level: Alternative Conservation System (ACS) Basic Conservation System (BCS)

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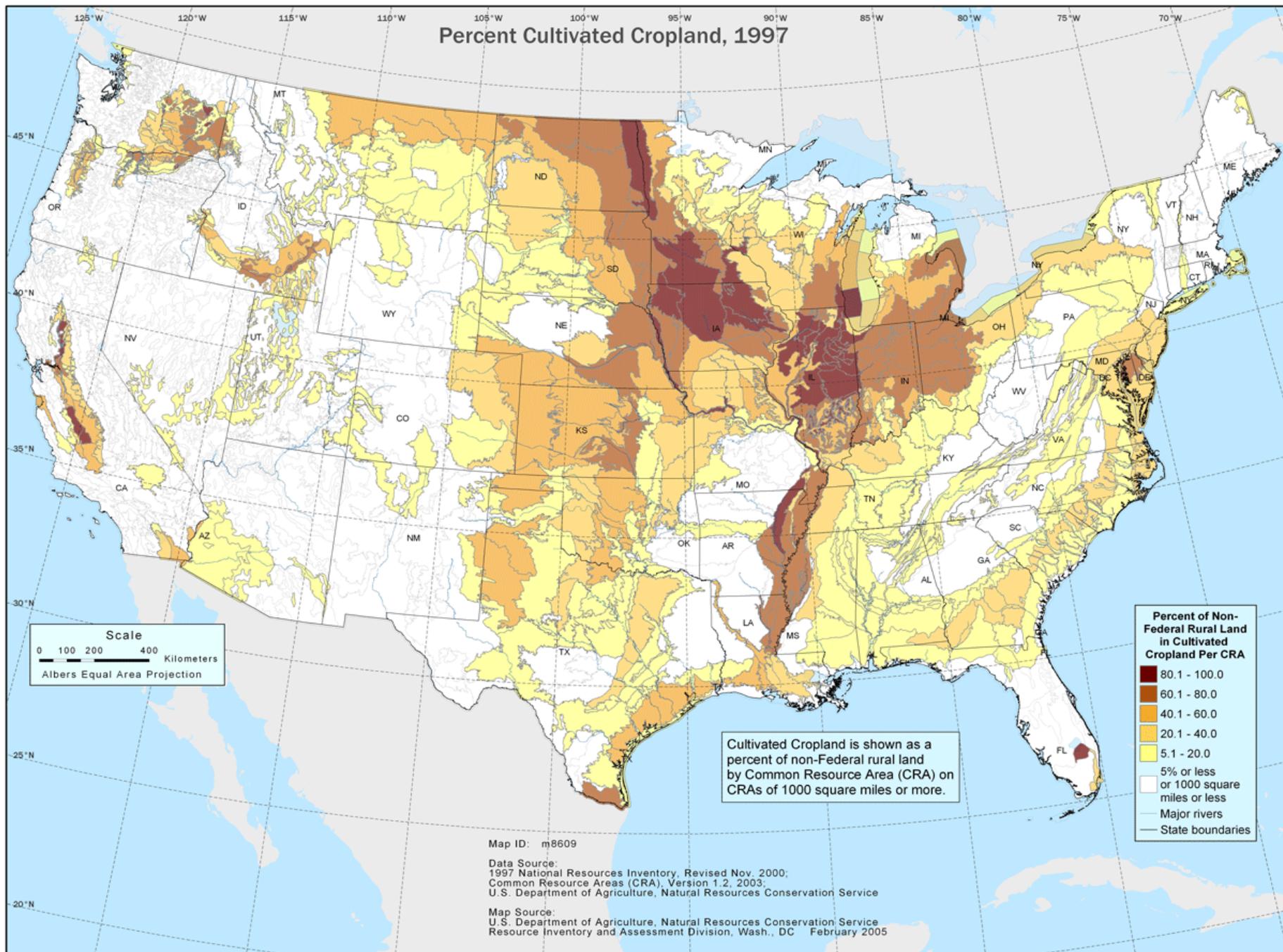
System Effects & Impacts		(tons/ac/yr)	(tons/ac/yr)	(tons/ac/yr)	(ac-in)
Baseline Condition		10.00	2.00	6.00	24.00
System Effect		<input type="text" value="3.00"/>	<input type="text" value="1.00"/>	<input type="text" value="2.00"/>	<input type="text" value="15.00"/>
System Impact		7.00	1.00	4.00	8.00

[Add Practice](#)

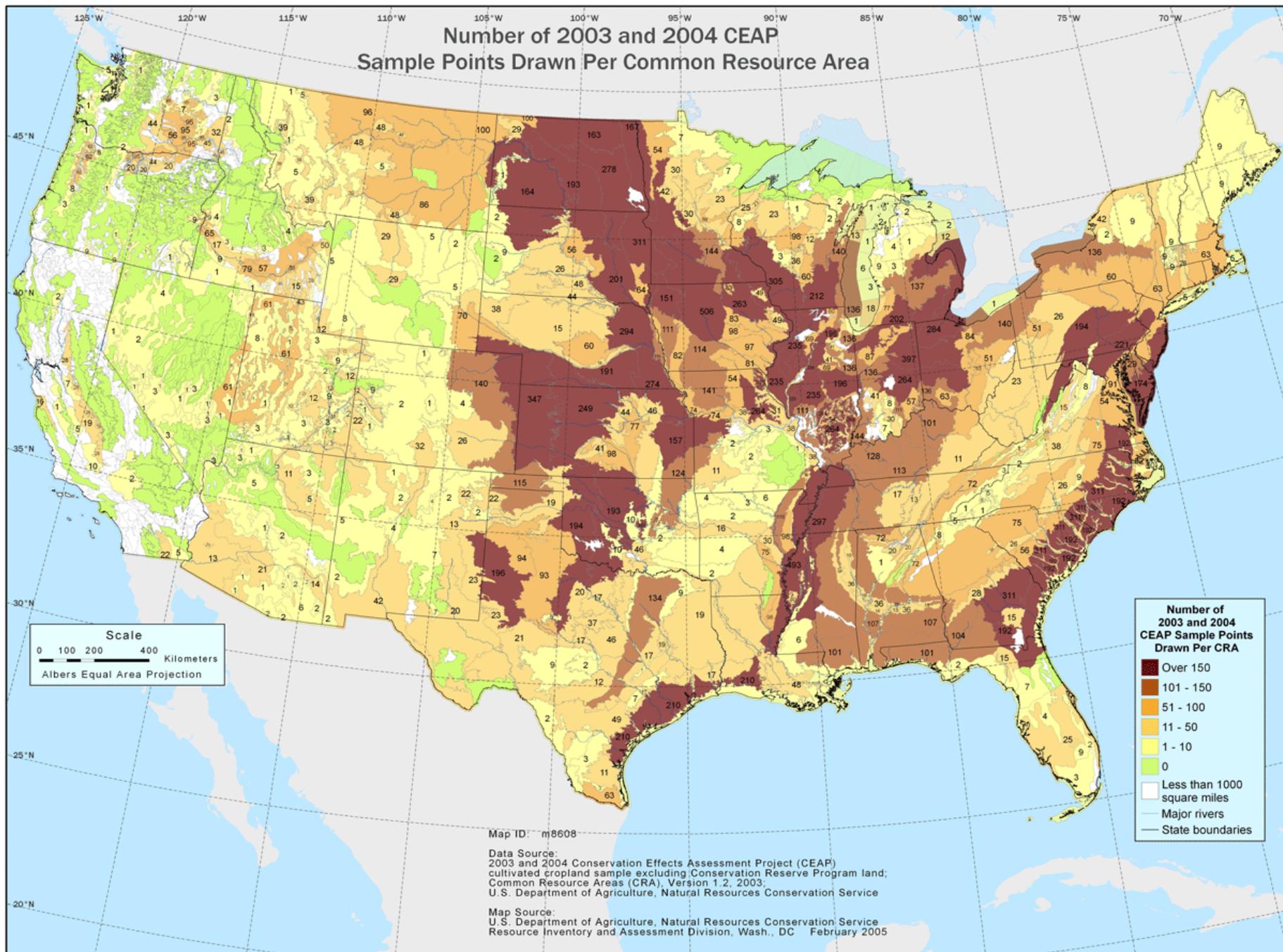
Practice	Practice	Soil Erosion - Irrigation-induced (tons/ac/yr)		Soil Erosion - Sheet and Rill (tons/ac/yr)		Soil Erosion - Wind (tons/ac/yr)		Water Quantity - Inefficient Water Use on Irrigated Land (ac-in)	
		% of System Impact	Impact	% of System Impact	Impact	% of System Impact	Impact	% of System Impact	Impact
Conservation Crop Rotation (328) ac		<input type="text" value="15.00"/>	1.05	<input type="text" value="50.00"/>	0.50	<input type="text" value="50.00"/>	2.00	<input type="text" value="0"/>	0.00
Forage Harvest Management (511) ac		<input type="text" value="25.00"/>	1.75	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00
Irrigation System, Surface and Subsurface (443) ac		<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="20.00"/>	1.60
Irrigation System, Tailwater Recovery (447) ac		<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="20.00"/>	1.60
Irrigation Water Conveyance, Pipeline, Low-Pressure, Underground, Plastic (430EE) ft		<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00
Irrigation Water Conveyance, Pipeline, Rigid Gated Pipeline (430HH) ft		<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00
Irrigation Water Management (449) ac		<input type="text" value="60.00"/>	4.20	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="60.00"/>	4.80
Nutrient Management (590) ac		<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00
Pest Management (595) ac		<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00
Residue Management, Mulch Till (329B) ac		<input type="text" value="0"/>	0.00	<input type="text" value="50.00"/>	0.50	<input type="text" value="50.00"/>	2.00	<input type="text" value="0"/>	0.00
Residue Management, Seasonal (344) ac		<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00
Structure for Water Control (587) cfs		<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00	<input type="text" value="0"/>	0.00

[Save](#) [Close](#)

Percent Cultivated Cropland, 1997



Number of 2003 and 2004 CEAP Sample Points Drawn Per Common Resource Area



Field Operations to Performance Outcomes

Customer Contact



Technical Assistance Provided

Conservation Journal, WebTCAS, Toolkit, Protracts, PRS

PHYSICAL EFFECT exported from CRAs, Conservation System Guides



OUTPUTS (e.g. Tons of sediment estimated to be reduced)

NRI-CEAP utilizes information to refine outcome models

CEAP Outcome

A happy, healthy environment

