United States Department of Agriculture
Natural Resources Conservation Service

NRCS Conservation Programs and Assistance

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NRCS Conservation Practices

**All NRCS programs are designed to support farmers, ranchers, and foresters in implementing practices in a systems approach to improve the environment while maintaining or improving a vibrant agricultural sector.

**To address the many varied natural resources and issues, NRCS has over 150 Conservation Practices with detailed Standards and Specifications, e.g.:

-Prescribed Grazing -Fencing -Watering Facility -LS Pond
-Conservation Cropping System -Residue Mgmt -Cover Crops
-Nutrient Mgmt -Irrigation Water Mgmt -Pipeline
-Seeding -Mulching -Erosion Control Structures
-Tree Planting -Upland & Wetland Wildlife Habitat Mgmt -Filter Strips

NRCS key Assistance & Programs

Conservation Technical Assistance (CTA)

Financial Assistance (FA)

- AMA - Agricultural Management Assistance
- CSP - Conservation Stewardship Program
- EQIP - Environmental Quality Incentives Program
  - LCI - Landscape Conservation Initiatives

Easements

- ALE - Agricultural Lands Easements
- HFRP - Healthy Forest Reserve Program
- WRE - Wetland Reserve Easements

Partnerships

- RCPP - Regional Conservation Partnership Program

Other Programs

- CIG - Conservation Innovation Grants
- EWPP - Emergency Watershed Protection Program
- Watershed Rehab - Small Watershed Rehabilitation Program

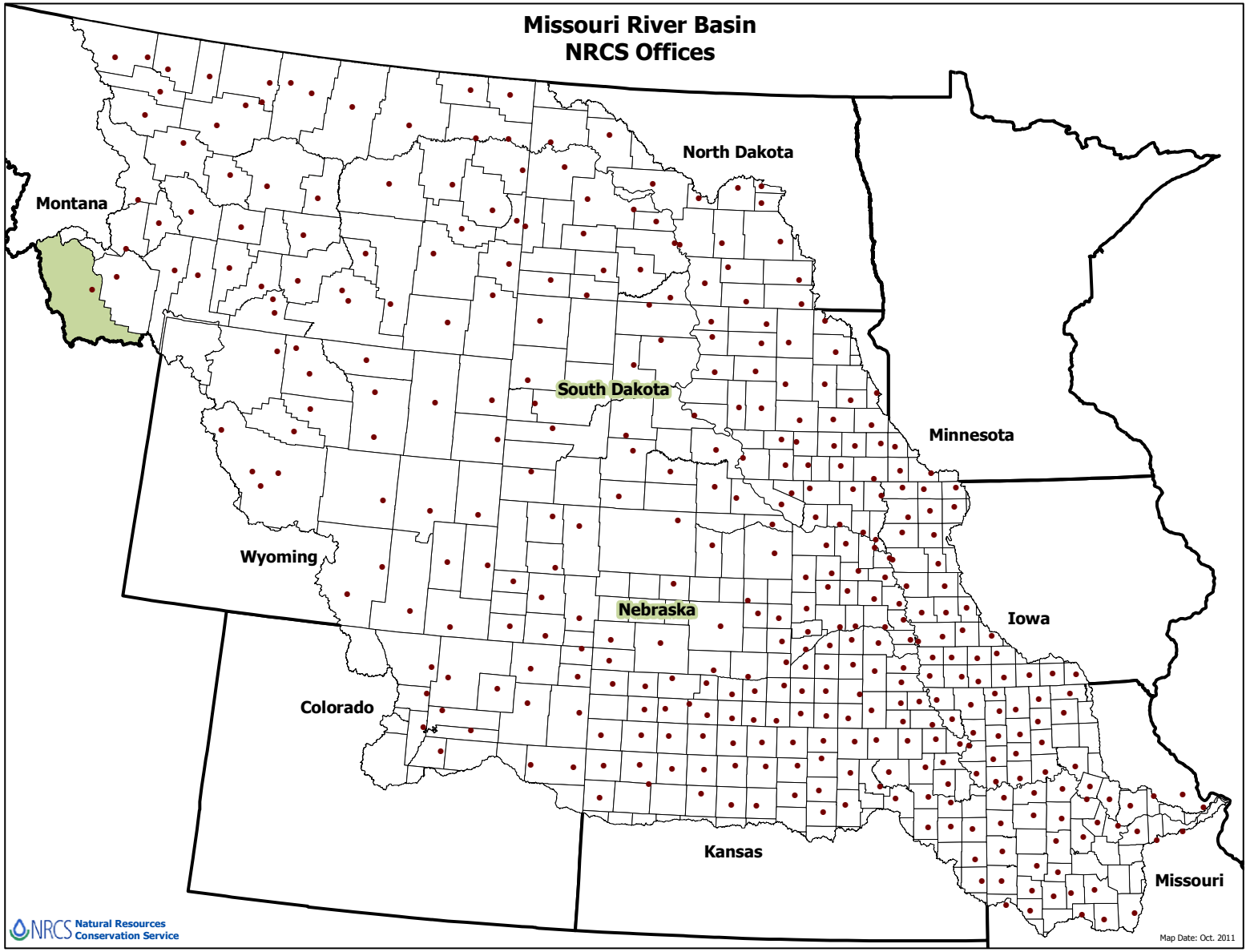
Conservation Technical Assistance (CTA)

The purpose of the CTA program is to assist land-users, communities, units of state and local government, and other Federal agencies in voluntarily planning and implementing conservation systems.

The purpose of the conservation systems is to improve and sustain natural resources, e.g. to reduce erosion, improve soil and water quality, improve and conserve wetlands, enhance fish and wildlife habitat, improve air quality, improve pasture and range condition, reduce upstream flooding, and improve woodlands.

NRCS has Offices & Staff in nearly every county in the nation.

NRCS Staff often live in the communities with the land users they work with, and thus have a strong connection and understanding of the local area.



Agricultural Management Assistance (AMA)

AMA helps agricultural producers use conservation to manage risk and address natural resource issues by providing financial and technical assistance to voluntarily address issues such as water management, water quality, and erosion control by incorporating conservation into their farming operations.

The program pays financial assistance of up to 75 percent of the cost of installing conservation practices.

Available in 16 states where participation in Federal Crop Insurance Program is historically low, including NV, UT and WY of the WSWC.

Conservation Stewardship Program (CSP)

- CSP helps agricultural producers maintain and improve their existing conservation systems and adopt additional conservation activities to address priority resources concerns.
- Participants take additional steps to improve resource condition including soil quality, water quality, water quantity, air quality, and habitat quality, as well as energy.

CSP continued

- Eligible lands include private and Tribal agricultural lands…cropland, grassland, pastureland, rangeland and nonindustrial private forest land.
- Two types of payments through five-year contracts: (1) ***annual payments*** for installing new conservation activities and maintaining existing practices; and (2) ***supplemental payments*** for adopting a resource-conserving crop rotation.

CSP - Future Signups

- CSP is currently being overhauled
- Make program simpler and more transparent
- Rollout for 2016 general signup

Environmental Quality Incentives Program (EQIP)

- The Environmental Quality Incentives Program (EQIP) is a voluntary program that provides financial and technical assistance to agricultural producers through contracts up to a maximum term of ten years in length.
- These contracts provide financial assistance to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland.
- In addition, a purpose of EQIP is to help producers meet Federal, State, Tribal and local environmental regulations.

Environmental Quality Incentives Program (EQIP)

- Owners of land in agricultural or forest production or persons who are engaged in livestock, agricultural or forest production on eligible land and that have a natural resource concern on the land may participate in EQIP.

EQIP Continued

NRCS works with the producer to develop a plan of operations that:

1) Identifies the appropriate conservation practice or activities needed to address identified natural resource concerns on agricultural lands.

2) Helps approved participants implement conservation practices and activities according to an approved EQIP plan of operations. Developed in conjunction with the producer that identifies the appropriate conservation practice or activities needed to address identified natural resource concerns. Conservation practices installed through EQIP are subject to NRCS technical standards adapted for local conditions.

Landscape Conservation Initiatives

NRCS uses landscape conservation initiatives to accelerate the results that can be achieved through voluntary conservation programs.

Most program delivery is driven primarily by grassroots input and local needs.

Landscape conservation initiatives enhance the locally driven process to better address nationally and regionally important conservation goals that transcend localities.

Landscape Conservation Initiatives

Conservation beyond boundaries
– landscape scale resource concerns

Science-based approach
– target vulnerable/valuable areas using a systems vs practice-by-practice approach

Build on existing locally-led efforts and partnerships
– leveraging partner interest and resources

Regulatory certainty for agricultural producers
– use voluntary conservation systems to bring predictability and certainty to ag producers

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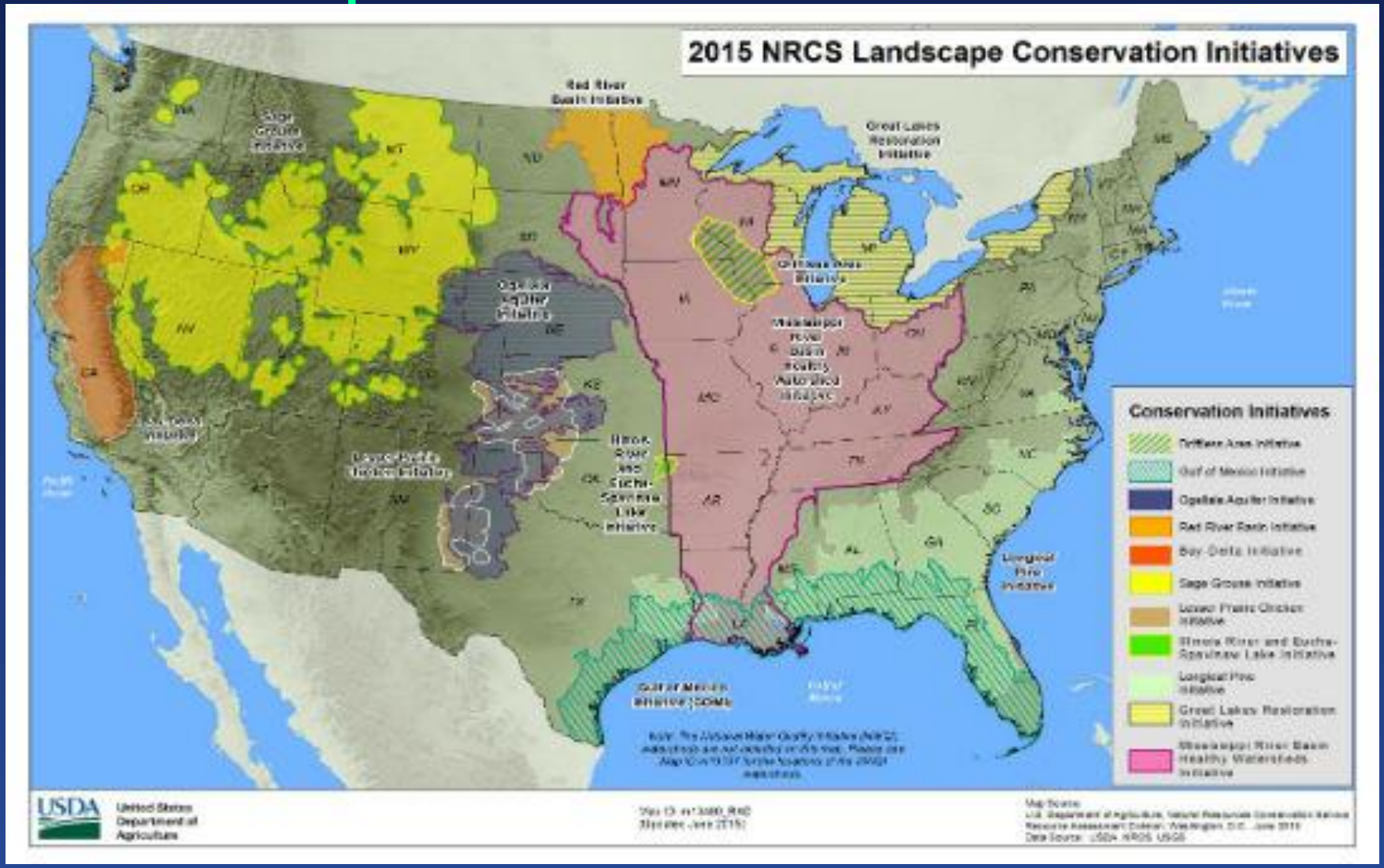
Landscape Conservation Initiatives



National Landscape Initiatives involving WSWC states

Water Quality and Quantity-Based Initiatives, e.g.:

- -Bay Delta Initiative (CA)
- -National Water Quality Initiative (Nationwide)
- -Ogallala Aquifer Initiative (CO, KS, NE, NM, OK, SD, TX, WY)
- -Red River Basin Initiative (MN, ND, SD)

Priority Wildlife Species Initiatives, e.g.:

- -Lesser Prairie-Chicken Initiative (CO, KS, NM, OK, TX)
- -Sage Grouse Initiative (CA, CO, ID, MT, NV, ND, OR, SD, UT, WA, WY)
- -Working Lands for Wildlife (Nationwide)

Ecosystem Based Initiatives, e.g.:

- -Longleaf Pine Initiative (AL, FL, GA, LA, MI, NC, SC, TX, VA)

ACEP – Agricultural Conservation Easement Program

A) ALE - Agricultural Land Easement

- Protect the agricultural use and conserve values of eligible land.
- Farm and Ranch Land Protection Program (FRPP)

- Grassland Protection Program (GRP)

ACEP – Agricultural Conservation Easement Program

B) WRE - Wetland Reserve Easement (formally WRP)

– Restore, protect, and enhance wetlands.

C) HFRP - Healthy Forest Reserve Program - helps landowners restore, enhance and protect forestland resources on private lands through easements and financial assistance. Available in 12 states, including CA, OK and OR of the WSWC.

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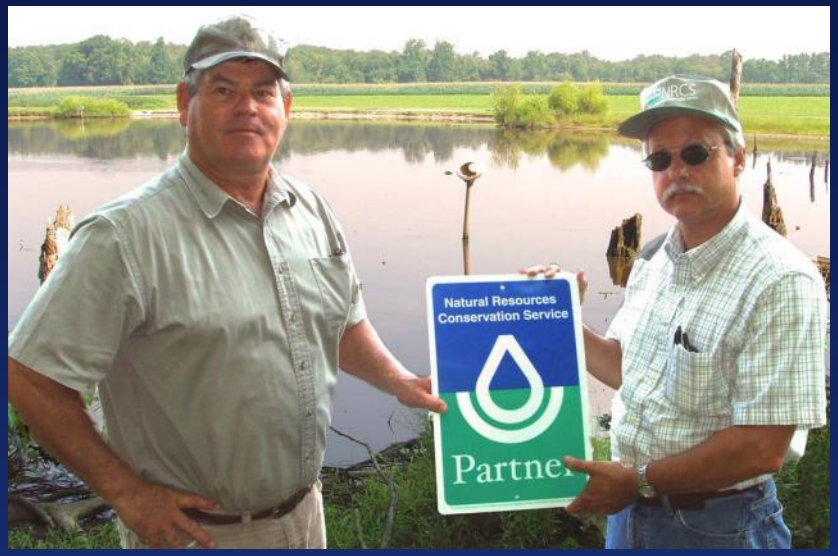
Regional Conservation Partnership Program (RCPP)



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Regional Conservation Partnership Program (RCPP)

RCPP is a new, comprehensive and flexible program that uses partnerships to stretch and multiply conservation investments and reach conservation goals on a regional or watershed scale.

NRCS and state, local and regional partners coordinate resources to help producers install and maintain conservation activities in selected project areas.

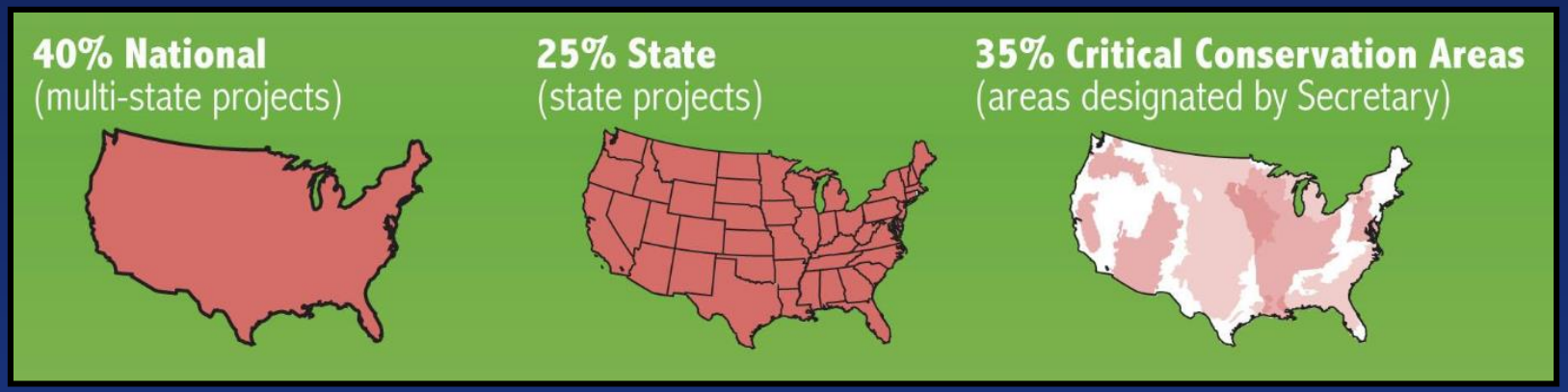
Assistance is delivered in accordance with the rules of EQIP, CSP, ACEP and HFRP; and in certain areas the Watershed Operations and Flood Prevention Program.

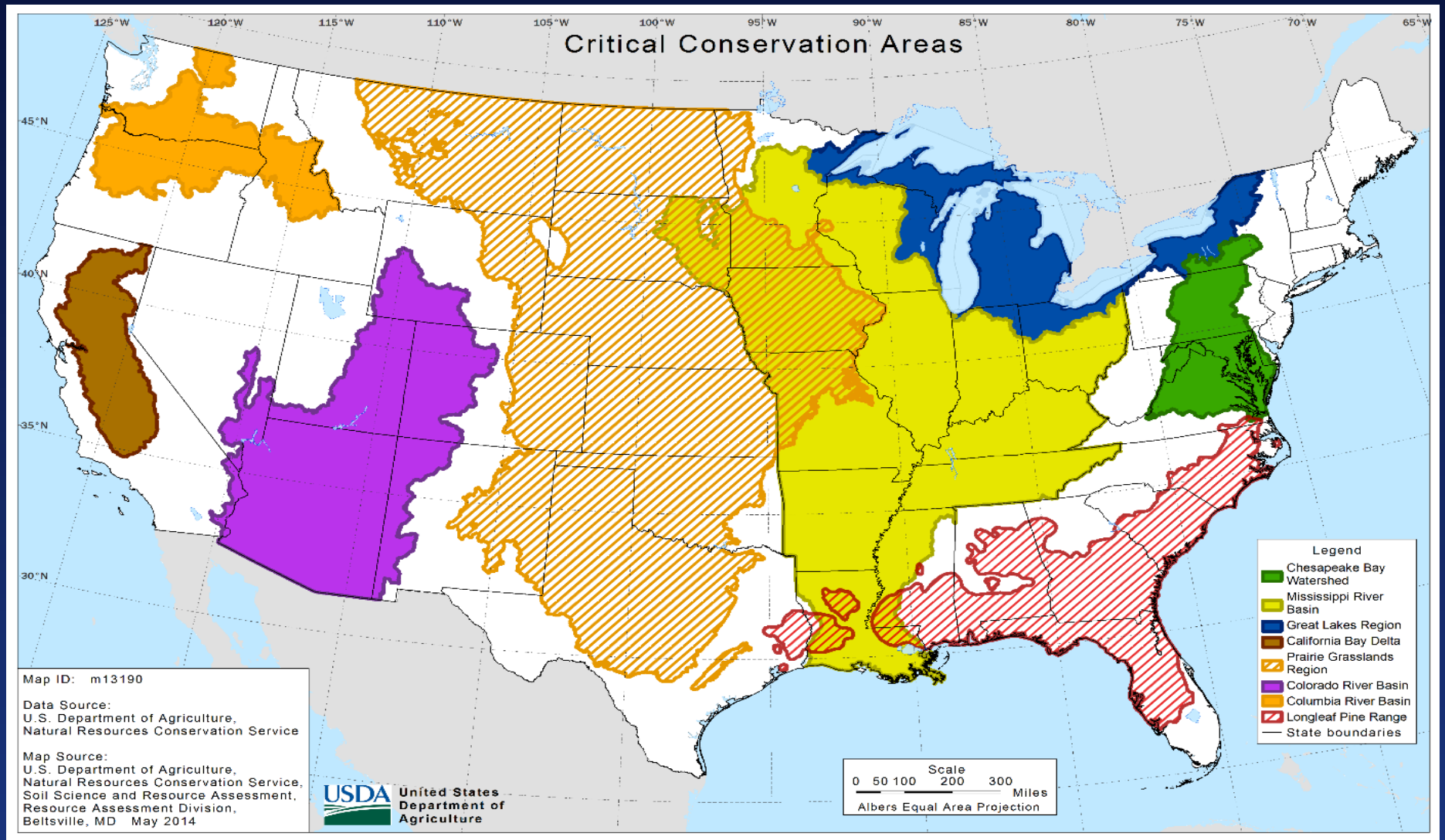
RCPP Funds directed three ways:

1) 40% for projects based on a national competitive process;

2) 25% for a state competitive process administered by the State Conservationist, and;

3) 35% for projects in critical conservation areas.




Critical Conservation Areas
125°W
120°W
115°W
110°W
105°W
100°W
95°W
90°W
85°W
80°W
75°W
70°W
65°W
45°N
40°N
35°N
30°N
Legend
Chesapeake Bay Watershed
Mississippi River Basin
Great Lakes Region
California Bay Delta
Prairie Grasslands Region
Colorado River Basin
Columbia River Basin
Longleaf Pine Range
State boundaries
Map ID: m13190
Data Source:
U.S. Department of Agriculture,
Natural Resources Conservation Service
Map Source:
U.S. Department of Agriculture,
Natural Resources Conservation Service,
Soil Science and Resource Assessment,
Resource Assessment Division,
Beltsville, MD May 2014
USDA United States Department of Agriculture
Scale
0 50 100 200 300
Miles
Albers Equal Area Projection

Conservation Innovation Grants

- CIG is designed to stimulate and accelerate the development and adoption of innovative conservation approaches and technologies. Program funds are used to award competitive grants to non-Federal governmental or nongovernmental organizations, Tribes, or individuals.
- 2015 GIG Awards focused on 1) Natural Resources & Outreach and 2) Environmental Markets, e.g.

-Soil Health
-Air Quality/Energy
-GHG Markets
-Conservation Finance
-Water Quantity
-Nutrient Mgmt
-Water Quality Trading
-Wildlife
-Economics

Emergency Watershed Protection Program (EWP)

- To respond to emergencies created by natural disasters.
- To help people and conserve natural resources by relieving imminent hazards to life and property caused by floods, fires, drought, windstorms, and other natural occurrences.
- 2 components: EWP-Recovery & EWP–Floodplain Easement (FPE)
- Public and private landowners are eligible for assistance, but must be represented by a project sponsor that must be a legal subdivision of the State, such as a city, county, township or conservation district, and Native American Tribes or Tribal governments.
- NRCS may pay up to 75 percent of the construction cost of emergency measures. The remaining 25 percent must come from local sources and can be in the form of cash or in-kind services.

Watershed & Rehabilitation Program Overview

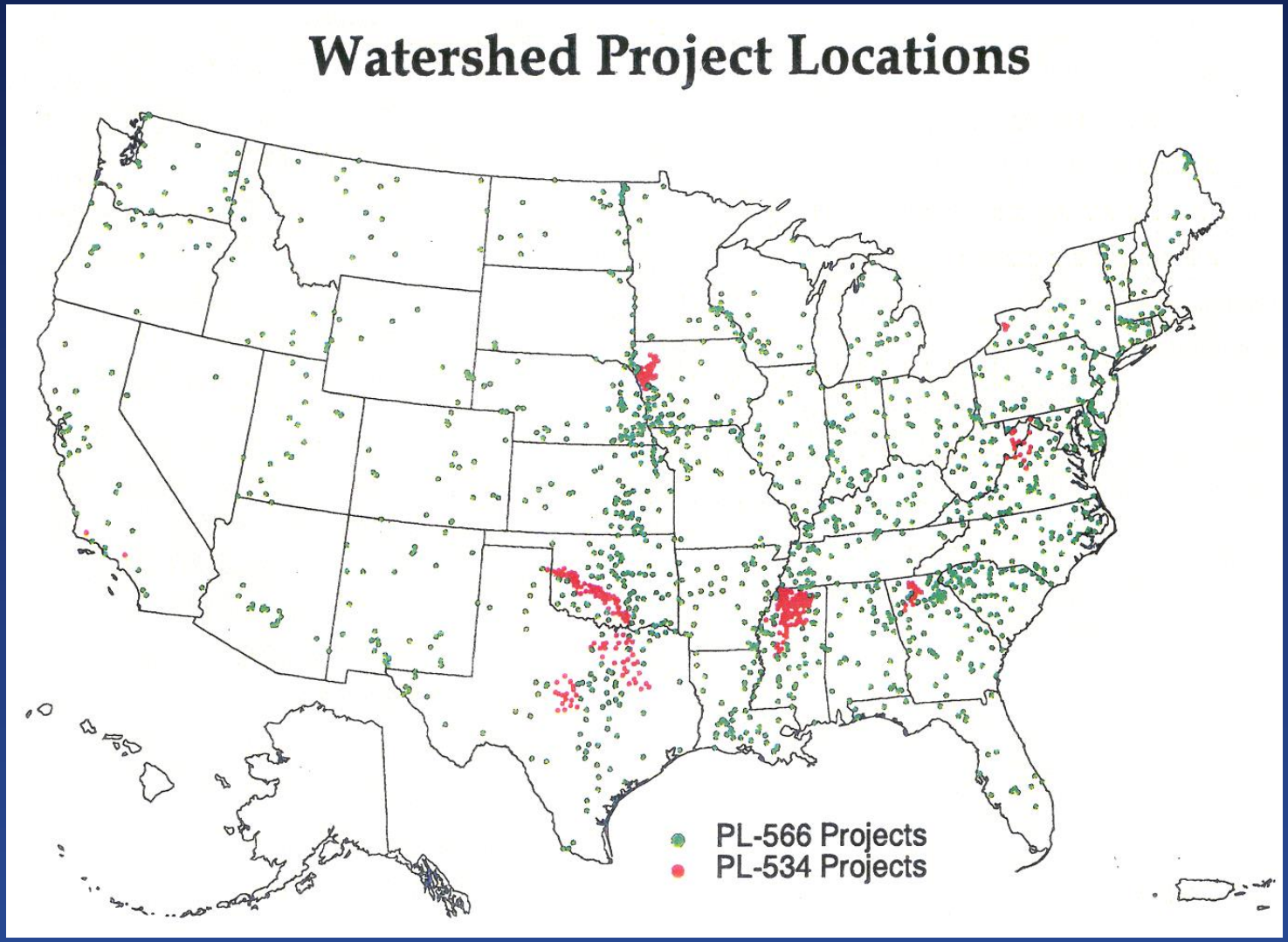
* NRCS Assistance has Constructed >11,800 Dams in 47 States Since 1948

* These provide ~$1.5 Billion in Annual Benefits, such as:
  - Reduced Flooding
  - Erosion Damages
  - Recreation
  - Water Supplies
  - Wildlife Habitat

* Many of these Dams **are** Nearing the End of Their 50-Year Design Life

* Congress authorized NRCS to provide assistance to project sponsors in Rehabilitating their Aging Dams

The Watershed & Rehab Program Overview



Watershed Rehab, Water Supply & Climate Resiliency

Last year, NRCS made changes to the watershed rehabilitation program to allow for projects that helped increase water supply. Half of this year's dam assessments, including 15 in drought stricken California, will assess the feasibility of using watershed rehabilitation funds to mitigate drought. Over 80 projects in the Planning stage can consider increasing water storage capacity when the dam is being rehabilitated, thereby bolstering resilience to climate change for their local communities.

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After the Fire: Resources for Recovery

After the Fire: Resources for Recovery

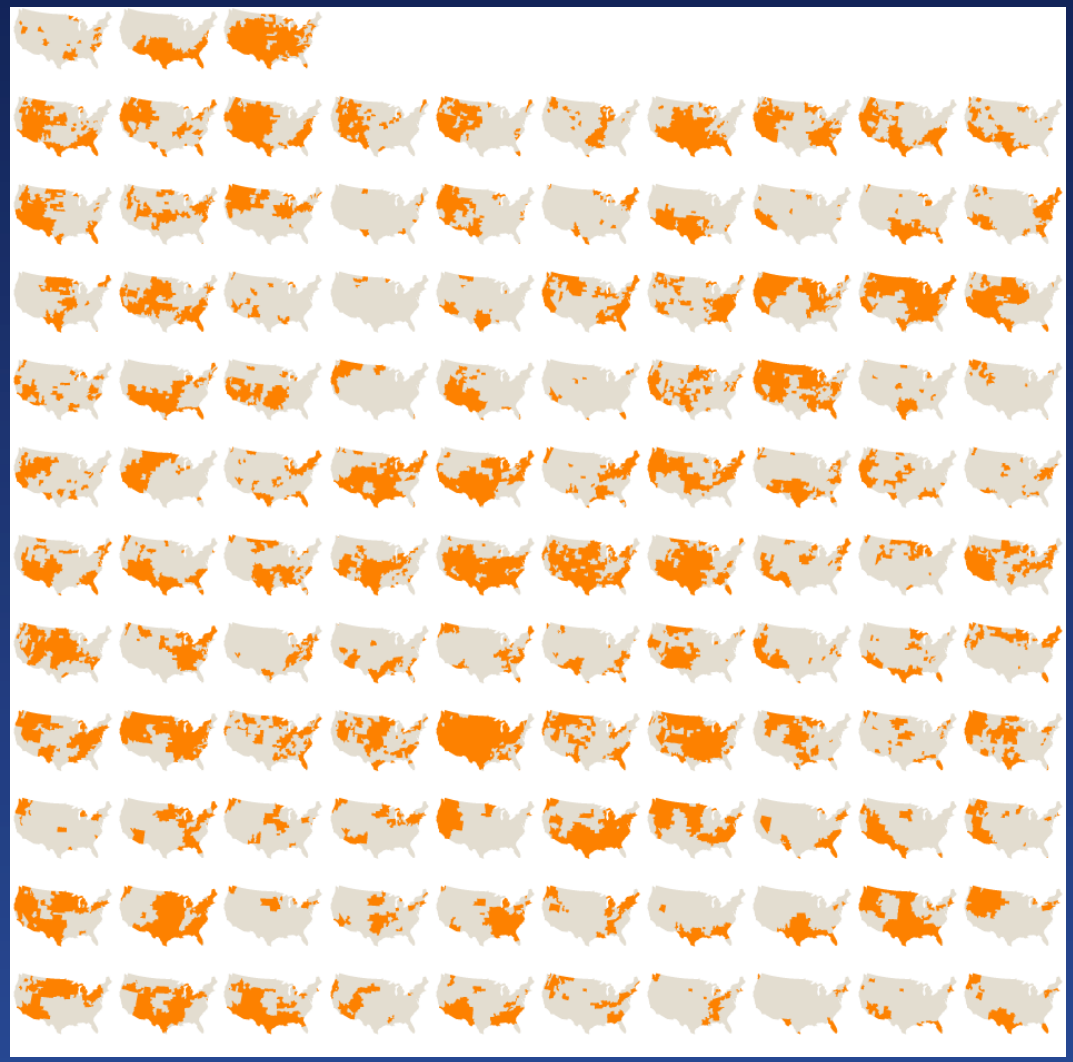
NRCS can assist producers with damaged grazing land as well as farmers, ranchers and forestland owners who find themselves in emergency situations caused by natural disasters.

Burned areas are at greater risk for erosion and mudflows and EWP-type services can help. **EWP** can mitigate potential hazards to life and property using such items as concrete barriers and debris basins, mulching, straw wattles and other damage control measures.

EQIP programs can provide long-term support to repair livestock fencing, remove dead or dying trees, clear dense brush, install new livestock water facilities, and other agricultural services.

Drought and Building Resiliency

Areas Under Moderate to Extreme Drought Over Time



Note: Precipitation measured in June of each year.

Source: *The New York Times*, from data from the National Climatic Data Center, National Oceanic and Atmospheric Agency

Drought and Resiliency

When in Drought -- CA example:

Three Priorities --

1) Protecting soils made vulnerable due to water cut backs.
2) Protecting drought-impacted rangeland.
3) Stretching every drop of irrigation water using improved hardware and management.

Drought and Resiliency

Building Resiliency for Drought:

Some key techniques & things to do --

1) Improve Soil Health, esp. Soil Microbes & Soil Organic Matter
2) Recharge Groundwater, Base Flows and Soil Moisture
3) Improve Irrigation Efficiency
4) Develop a Grazing Strategy, & include a Drought component

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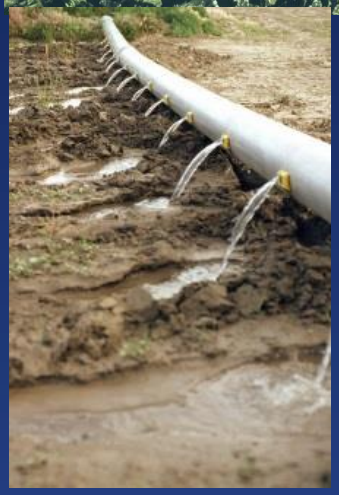


2012 Drought Comparison: Grassland

Two different land management conditions on similar soils within 10 miles of each other.
Central Nebraska, July 2012, D3-D4 drought category.

Long-term, severely over utilized grassland

Well managed grassland

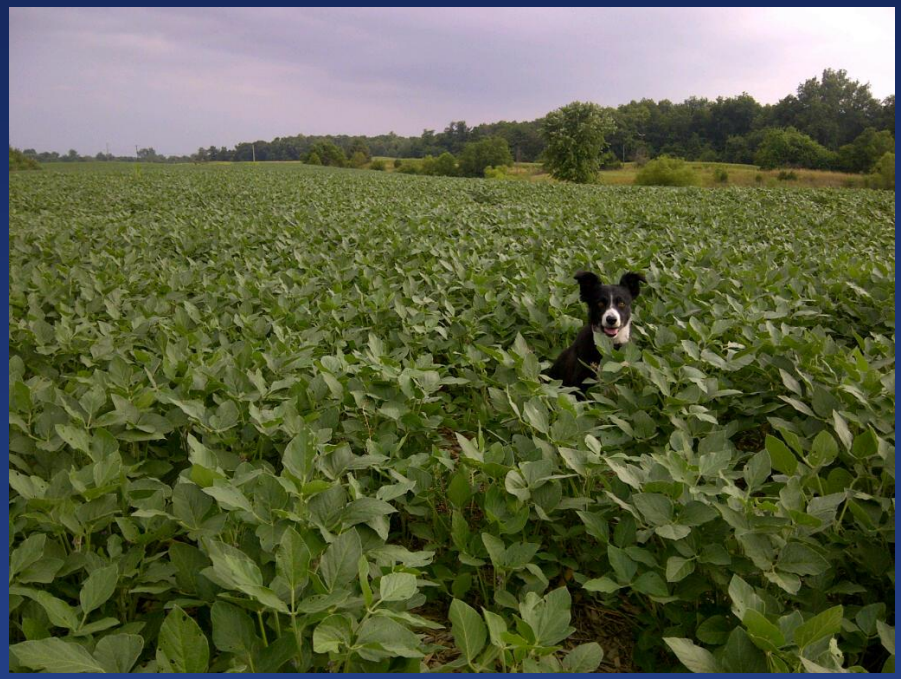
2012 Drought Comparison: Soybeans

Greencastle, Indiana, July 2012—Side-by-Side Fields

Conventional Till using minimum / vertical till

vs

11-year Continuous No-Till plus 5 years of Cover Crops



Neighboring land in Zimbabwe, Africa showing how management makes a difference

No-till Water Savings, inches

Tillage per trip	0.5-0.75
Evaporation	2.5 - 5.0
Infiltration	2.0 – 6+
Total Savings	**5.0 – 12+**

Estimated

Soil Permeability

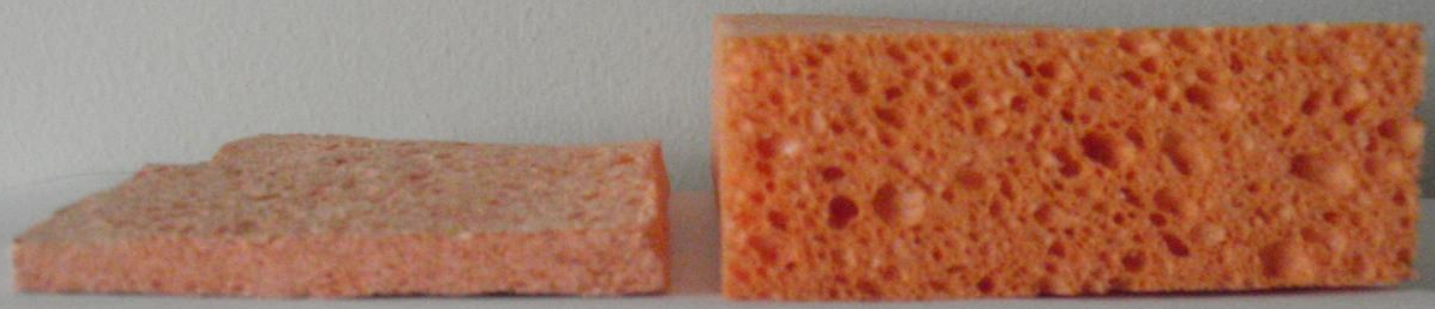
A 25+ year study by University of Nebraska

Disk-Disk	**0.4 in/hr**
Ridge-till	**1.5 in/hr**
Slot-plant (No-Till)	**4.0 in/hr**

A <u>ten-fold</u> difference in infiltration rate between a double disk system and a continuous no-till system!

UNL, SCREC, Clay Center, NE

Soil is similar to a Sponge

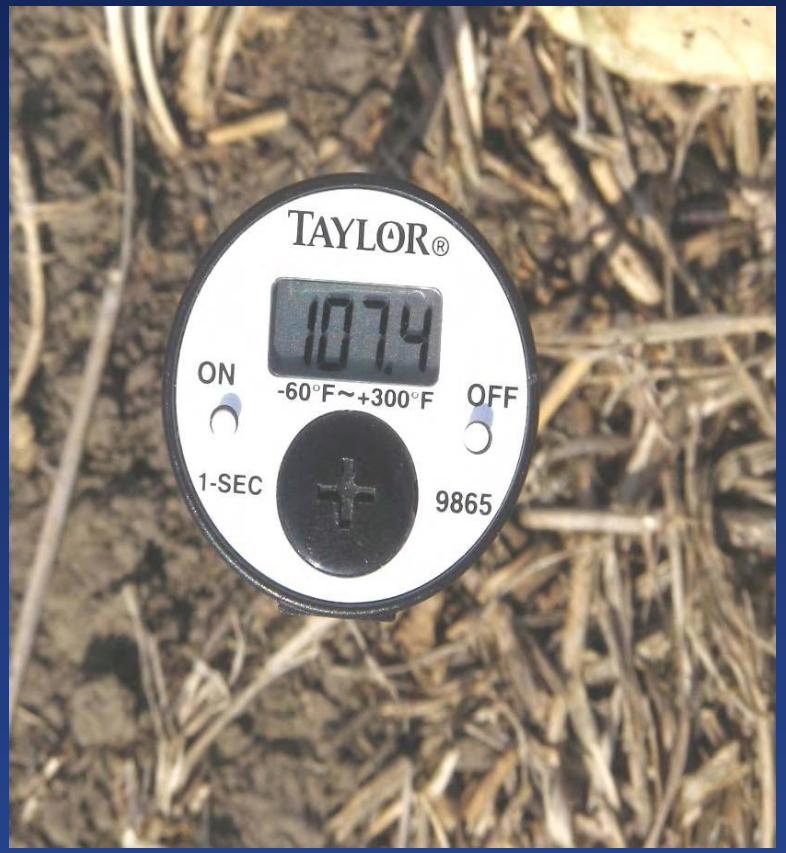


Unhealthy Soil
Dried Out
Compacted and Hard
Narrow, Restricted Pore Spaces
Resists water infiltration
Bleached-out, faded color

Healthy Soil
Moist
Spongy and Soft
Large, Open Pore Spaces
Water infiltrates easily
Brighter, richer color

The Menoken Farm 2006 - We Manage Soil Temperatures With Armor and Crop Canopy.

Cover Crop Combination



Cover Crop Monoculture

Healthy Soil impacts the Water Cycle

Implementing Soil Health Practices re-establishes hydrology closer to natural conditions

**Increases Rainfall and Air Infiltration Into the Soil*

***Increases Recharge of Ground Water**

**Increases Recharge of Base Flows to Streams*

***Increases Water Holding Capacity and Drought Resiliency of Soil**

**Reduces Runoff and Flooding*

***Restores conditions closer to historic conditions**

Ecosystem Disturbance & Degradation
(Desertification & More)

Dramatic Changes to Water Infiltration, Water Runoff and the Hydrologic Cycle have occurred due to human-induced disturbances.

Beginning before 1900, a large percentage of precipitation has been switched from infiltration which produced groundwater and base flow recharge to instead being runoff and overland flow.

Water Retention and Infiltration Structures Lost

> 80-98% (5-40 million) of beaver dams lost

> 53% (120 million acres) of wetlands lost (1980 data for the lower 48 U.S. states)

Soil Health and Infiltration Lost, Compaction Increased, Runoff Increased on 85% or more of the land

> 5% native vegetation converted to hard-surfaced urban communities*

> 25% native vegetation converted to more compacted cropland*

> 55% native vegetation grazed at different and/or more intense level with more compacted grasslands*

(*using Missouri River Basin as example)

Land Alterations over past 200-300 years.

Hydrologic conditions and processes have been dramatically altered
…resulting in less groundwater recharge, more runoff, more soil erosion
…leading to desertification, and water quality issues.

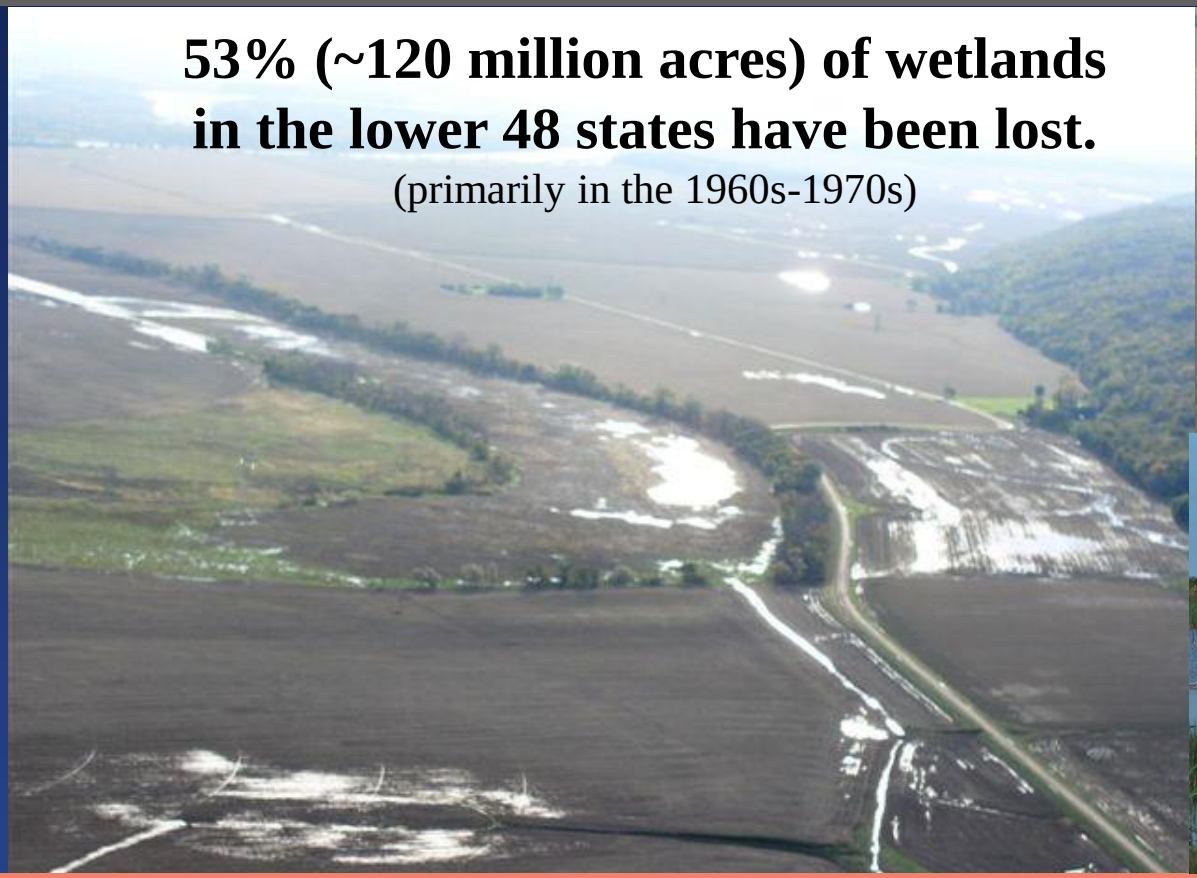
Beaver and beaver dams reduced by an estimated 80-98% (approximately 5-40 million dams lost). (Primarily by 1850s)

Water that was once held in storage, slowed-down, and/or retained, now runs down the watershed at a much accelerated rate, carrying with it greater amounts of ‘pollutants’, creating ‘flashier’ storms, and desertifying watersheds.

Land Alterations over past 200-300 years.

Hydrologic conditions and processes have been dramatically altered
…resulting in less groundwater recharge, more runoff, more soil erosion
…leading to desertification, and water quantity & water quality issues.

53% (~120 million acres) of wetlands in the lower 48 states have been lost.
(primarily in the 1960s-1970s)



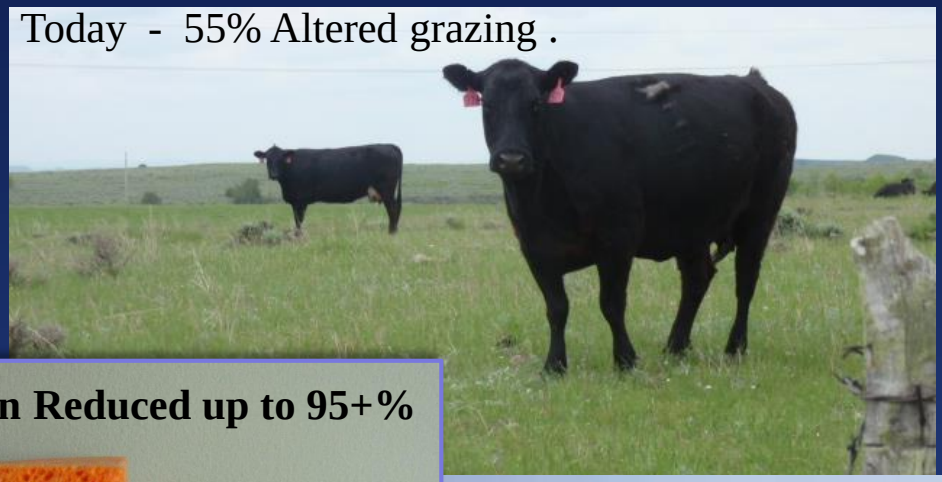
Water that was once held in storage, slowed-down, and/or retained, now runs down the watershed at a much accelerated rate, carrying with it greater amounts of ‘pollutants’, creating ‘flashier’ storms, and desertifying watersheds.

Land Alterations over past 200-300 years.

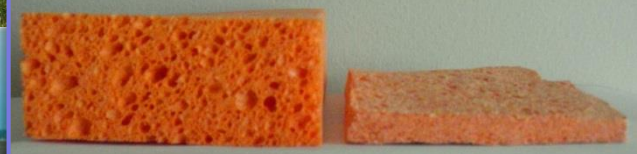
Hydrologic & atmospheric conditions & processes have been dramatically altered …resulting in more soil compaction, runoff, & soil erosion, and less groundwater recharge and GHGs sequestered…leading to desertification, climate change, and water quantity & water quality issues.

Pre-human - nearly 100% diverse grasslands .

Today - 55% Altered grazing .



Infiltration Reduced up to 95+%



Today - 25% Altered to cropland.

Today - 5% Altered to urban.

Reduced Vegetative Cover and More Compacted Soils

(largely by 1900)

Soil Organic Matter has been "burned up", soil compaction has increased and the degraded soil has less space for air and water to move and be held. Due to reduction in water infiltration into the soil, runoff of water overland has greatly increased which has in turn greatly accelerated sheet-rill-gully soil erosion.

A landscape example…

- By **increasing the water absorption** of all of the cropland in the Mississippi River Basin by just **one-half inch** (through improved soil quality), that water retention would be the equivalent of…

A landscape example…

- The amount of water that flows over Niagara Falls in 83 days.

Infiltration Demonstration

YouTube video on infiltration entitled “Soil lessons in a minute: benefits of no-till farming” (1:13 min) at http://www.youtube.com/watch?v=Rpl09XP_f-w

Soil Health is the Foundation *to addressing many of our ecosystem problems and creating a much healthier ecosystem, including:*

- Restoring the biological system
- Restoring the hydrological system
- Restoring the atmospheric system

http://soils.usda.gov/sqi/

5 Soil Health Principles

1. Armor - Keep The Soil Covered
2. Minimize Soil Disturbance
3. Crop Diversity
4. Continual Live Plant
5. Livestock Integration

Farmer-to-Farmer Networking Groups

WHY:

*** *To accelerate conservation on the ground and improve the ecosystem* ***

NEEDS:

a) Group Facilitator/Coordinator

b) Meeting Space

c) Light Refreshments (e.g. coffee, tea, cookies)

d) Meet 4-12 times/year (as group decides)

Questions?

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For more information on NRCS or Soils, see

NRCS Home Page: http://www.nrcs.usda.gov/
NRCS Soil Quality web link: http://soils.usda.gov/sqi/

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