

"Take care of the land and the land will take care of you..."

Hugh Hammond Bennett, known as the "father of soil conservation," and first Chief of the Soil Conservation Service, predecessor to the Natural Resources Conservation Service



Ron Nichols



Tim McCabe



Bob Nichols

Related NRCS Websites

NRCS Homepage:
www.nrcs.usda.gov/

NRCS programs:
www.nrcs.usda.gov/NRCSProg.html

Soils information:
www.statlab.iastate.edu/soils/nsdaf/

Technical Information:
www.nrcs.usda.gov/TechRes.html

Water and climate information:
www.wcc.nrcs.usda.gov/wcc.html

Plants database:
plants.usda.gov/plants/

National Resources Inventory (NRI):
www.nhq.nrcs.usda.gov/NRI/

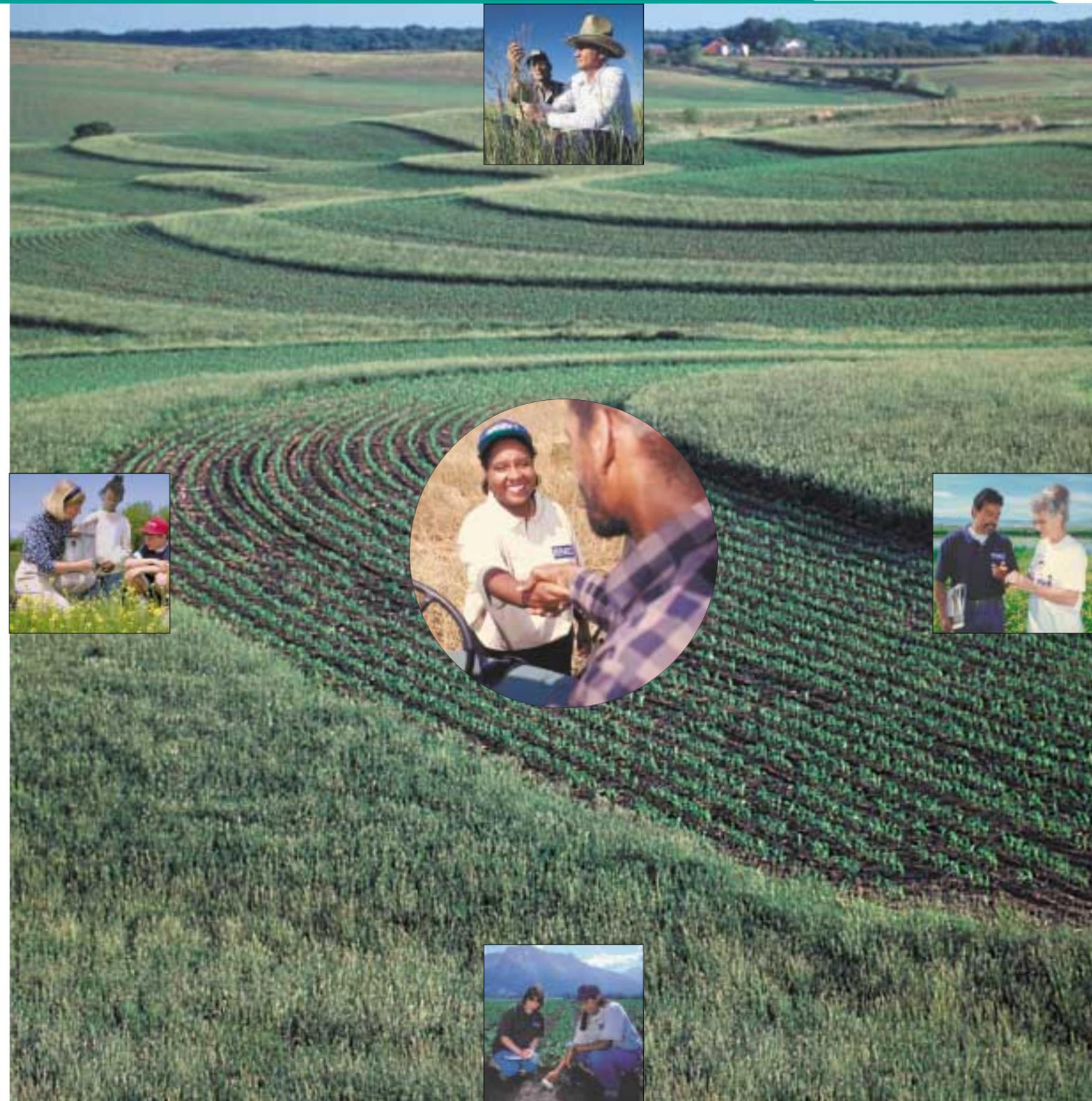
NRCS history:
www.nhq.nrcs.usda.gov/CCS/history/NRCSHist.html

Conservation education:
www.nhq.nrcs.usda.gov/CCS/ConsEd.html

Earth Team volunteers:
www.nhq.nrcs.usda.gov/CCS/ETvol.html

USDA Service Center locator:
offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map

Conservation progress on private land:
www.nrcs.usda.gov/ias



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There are a lot of reasons for public interest—and support—for natural resource conservation on private land.

This land produces most of our food and fiber, provides habitat for fish and wildlife, filters our water, and helps purify our air.

Yet every day brings change—and challenges for conservation. Soil erosion. Crop rotations. Animal feeding operations. Irrigation. Grazing. Urban sprawl. Emergencies such as flooding and wildfires....

When Congress established the Soil Conservation Service—now the Natural Resources Conservation Service—in the U.S. Department of Agriculture in 1935, it recognized the importance of a national role in protecting the Nation’s soil and water resources on private land in a voluntary, incentive-based approach.

This booklet introduces you to who we are today...and to the work being done by many to achieve the Nation’s conservation goal of a healthy and productive land.

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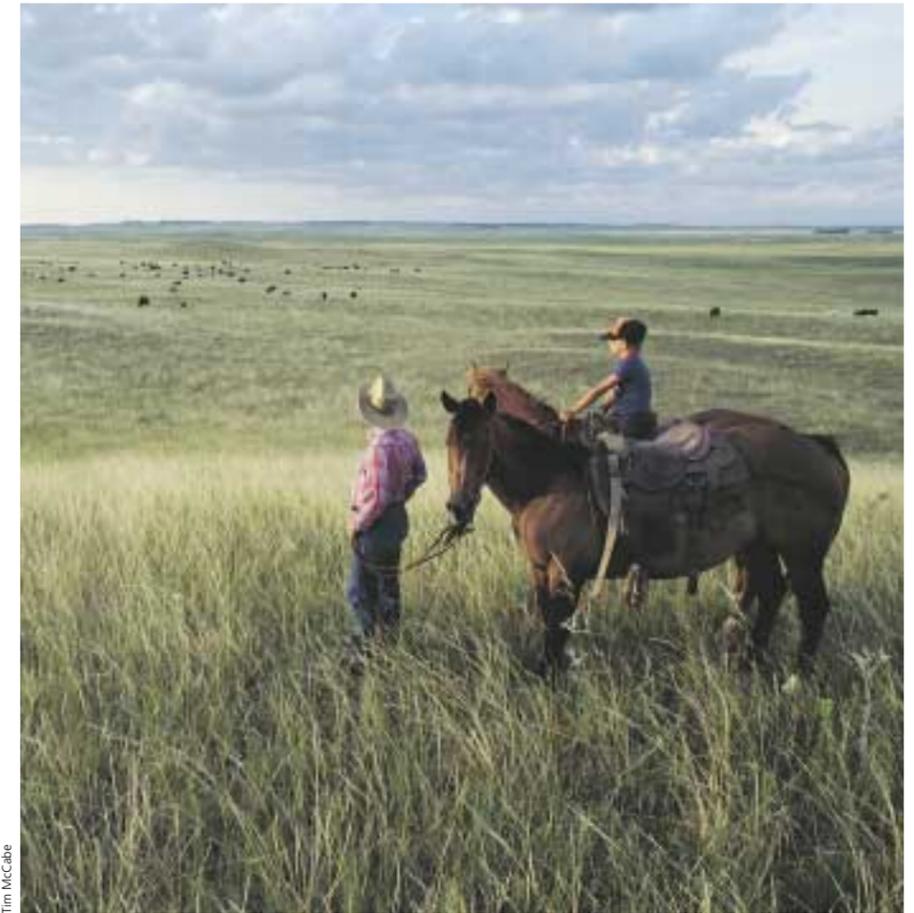
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The Natural Resources Conservation Service

THE Natural Resources Conservation Service (NRCS) is the primary Federal agency that works with private landowners to help them protect their natural resources.

NRCS conservationists spend most of their time on America’s working land—cropland, pasture, rangeland, and forestland—the predominant use of private land in this country. They work in close cooperation with conservation districts through field offices that serve nearly every county in the Nation as well as the Caribbean Basin and Pacific Basin.

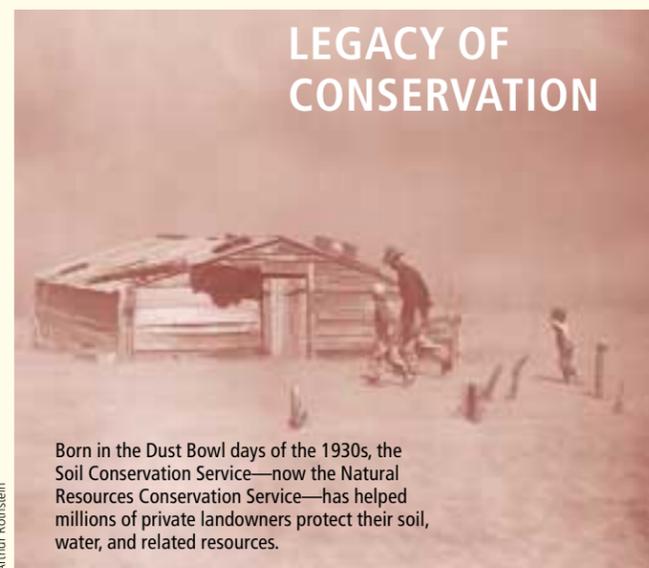
The agency emphasizes voluntary, science-based conservation technical assistance; partnerships; incentive-based programs; and cooperative problem-solving at the community level.



Tim McCabe

NRCS works with farmers and ranchers across the Nation to help them reduce soil erosion and improve water quality.

LEGACY OF CONSERVATION



Arthur Rothstein

Born in the Dust Bowl days of the 1930s, the Soil Conservation Service—now the Natural Resources Conservation Service—has helped millions of private landowners protect their soil, water, and related resources.

Hugh Hammond Bennett—known as the father of soil conservation—began his career as a soil scientist in the early 1900s. His work around the country led him to the conclusion that soil erosion was a national menace that needed to be addressed.

His crusade to protect natural resources resulted in the creation of the Soil Conservation Service, predecessor to the Natural Resources Conservation Service, on April 27, 1935. Bennett headed the agency as its first Chief.

He hired specialists in agronomy, forestry, soil science, biology, engineering, and social sciences.

These specialists worked with farmers to find solutions that benefited the land and fulfilled the landowners’ objectives.

The agency championed the creation of conservation districts to help assist farmers. The first conservation district was formed in Bennett’s native North Carolina on August 4, 1937. Through this emerging conservation delivery system, locally elected citizens established priorities and plans for the district’s work. Today, virtually every county is served by NRCS and local conservation districts.



Tim McCabe

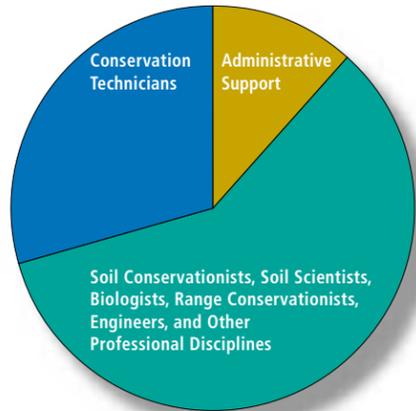


Bob Nichols

“Conservation means a quality of life to the populace of this country. The clean air, the clean water, the wildlife, the aesthetics benefit all of us.”

—Conservation district official

The NRCS Workforce



THE strength of the Natural Resources Conservation Service is its workforce—some 12,000 as of 2000. Most NRCS employees work in USDA’s network of local offices, including those in the Caribbean Basin and the Pacific Basin. The rest work at state, regional, and national offices, providing technology, policy, and administrative support.

NRCS’s dedicated employees are:

- Highly skilled in many scientific and technical fields, including soil science, soil conservation, agronomy, biology, range management, forestry, engineering, geology, hydrology, wetland science, cultural resources, and economics, to name a few.
- Committed to customer service—helping land owners and managers conserve resources
- Committed to diversity—gender, race, physical ability, culture, ethnicity, and the mix of new ideas that flow from such richness.

WE serve all people who live and work on the land. The majority of our technical assistance is to help farmers and ranchers develop conservation systems uniquely suited to their land and individual needs.

Rural and urban communities seek our help in curbing erosion, conserving and protecting water, enhancing fish and wildlife habitat, and solving other resource problems. Local, state, and Federal agencies, policymakers, and special-use districts also rely on NRCS expertise.

American Indian tribes, Alaska Natives, Pacific Islanders, and other native groups work with NRCS on a variety of initiatives that include resource inventories and the adaptation of our conservation programs to fit the special needs of their people and of tribal lands. And countries around the globe seek NRCS technical advice in building their own conservation delivery systems and in coping with severe natural resource problems.

CONSERVATION is the work of many—no one can do it alone. The Natural Resources Conservation Service relies on many partners to help set conservation goals, work with people on the land, and provide services. Our partners are from both the public and private sector and include conservation districts; resource conservation and development (RC&D) councils; local communities; state and Federal agencies; NRCS Earth Team volunteers; agricultural, conservation, and environmental groups; agribusiness; and professional societies.

America’s conservation districts—about 3,000 in all—are the heart of the conservation delivery system and serve as the “bridge of trust” between NRCS and the private landowner. These units of local government, organized by citizens under state law, operate on the premise that local people know the most about local needs. NRCS and districts are bound together by mutual conservation objectives as well as by legislation and formal agreements between state governors and the Secretary of Agriculture.

Districts do more than link NRCS with their neighbors and with local priorities for soil and water conservation. They support conservation work with district programs—often funded by county and state conservation agency partners—and with their own technical and support staff.

RC&D councils are also locally organized. They receive technical and financial assistance from USDA, partnering with NRCS in cooperation with other USDA agencies. Local people create and organize their own RC&D areas, define and set their own goals, and work with a broad range of public and private entities to achieve their objectives. They work to improve their economy and the environment through the conservation, development, and sustainable use of their resources, both natural and human. RC&D projects provide practical solutions for community development, land conservation, environmental enhancement, and water management. RC&D councils in partnership with USDA help make communities better places to live.

Earth Team volunteers work in NRCS offices and on agency and partnership projects. They work on the land and in conservation education programs in schools and communities across the Nation. In 1999, more than 29,000 volunteers contributed more than 730,000 hours of service. The Earth Team is an opportunity for Americans to share their commitment to service and land stewardship.

NRCS partners with other USDA agencies on resource inventories and to coordinate research and programs, develop conservation technology, and provide information and outreach. NRCS also works closely with other Federal agencies on resource conservation issues.



Tim McCabe

The strength of the Natural Resources Conservation Service is its diverse and technically skilled workforce.



Ron Nichols



Ron Nichols



Tim McCabe

Conservation districts and resource conservation and development councils help set conservation goals, work with people on the land, and provide services at the local level (above).

Earth Team volunteers work on the land and in NRCS offices, sharing their commitment to service and land stewardship (left).

Protecting Natural Resources



Tim McCabe

THE Nation's conservation efforts on private land take many forms. The overriding goal is to ensure a healthy and productive land—sustaining food and fiber production, protecting watersheds and natural systems, enhancing the environment, and improving urban and rural landscapes.

Here are some examples of what is happening around the country in the ongoing work of protecting natural resources.

Cropland

Erosion on cropland dropped dramatically—by more than one-third—from 1985 to 1995. This was a result of increased stewardship by farmers and ranchers and their response to conservation provisions in recent farm bills.

NRCS has helped clients develop and implement conservation plans on 140 million acres of highly erodible cropland under the conservation compliance provision of the Food Security Act of 1985. Technical assistance also was provided to help landowners plant grass or trees to protect another 36 million acres of

“We are completely dependent on productive land for the food we eat. ... To protect our source of food, then, the only sensible, practical thing to do is to protect the productive land we now have.”
—Hugh Hammond Bennett

highly erodible or environmentally sensitive cropland under the Conservation Reserve Program.

The benefits are seen in cleaner water, improved wildlife habitat, enhanced air quality, and land protected from the damages caused by wind and water erosion.

NRCS estimates that soil erosion continues to threaten agricultural productivity on about one-third of the Nation's cropland.

Grazing Land

Covering some 600 million acres, private grazing land is an important natural resource.

About two-thirds of this land is range. The rest is pasture and grazed forest. Grazing land also provides extensive wildlife habitat.

NRCS conservationists help farmers and ranchers improve pasture and range conditions by managing for forage improvement as well as weed and brush control, erosion reduction, and revegetation.

They also help landowners enhance fish and wildlife habitat for economic, recreational, and aesthetic benefits and for the protection of endangered species.

NRCS estimates that grazing land functions are threatened on nearly 55 percent of our range and pasture land. Technical assistance is needed to meet the resource concerns while enhancing the economic stability of grazing operations and the rural communities that depend on them.

In the Northeast, soil conservationists are helping dairies as they move toward intensively managed pasture systems that improve farm economics as well as water quality and wildlife habitat.

In the Southwest, ranchers are demonstrating the power of partnerships. Some 35 ranchers joined together as the Malpai Borderlands Group to take a more comprehensive approach to managing a million acres of rangeland in Arizona and New Mexico, along the Mexican border. They are working with NRCS, the Forest Service, other Federal and state agencies, local conservation districts, environmental groups, and independent scientists.

Animal Feeding Operations

There is growing public concern about confined livestock facilities.

NRCS is working to help an estimated 270,000 animal feeding operations reduce potential threats to the Nation's water sources and to public health and safety by helping owners and operators plan and implement comprehensive nutrient management plans.

These plans require an interdisciplinary effort and address all sources of nutrients, including manure, fertilizers, crop residues, and existing nutrients in the soil, as well as concerns about odors, flies, and airborne drift.

Effective solutions usually involve a combination of structural and management practices that are influenced by animal diets; geographic features of the landscape; weather patterns; animal numbers; community issues; local, state, tribal, and Federal regulations; and available technology.



Larry Rana

Conservation systems are designed to meet the needs of the land and landowners. Contour stripcropping helps slow runoff (above).

Much of the cropland in Puerto Rico (left) is on steeply sloping land and requires special attention to erosion management.



Jack Dykinga

Rangeland (left) makes up about two-thirds of the Nation's private grazing land and provides much of the Nation's wildlife habitat.

Demonstration projects and comprehensive nutrient management plans on farms are among efforts underway to help animal feeding operations improve the health of the Nation's waters (right).



Tim McCabe

“Clean water is essential to our communities. Conservation ensures clean water from the source and avoids expensive treatments... The best legacy we can leave our children and communities is clean water.”

—Town mayor

An innovative agricultural water quality program helps provide clean drinking water for New York (below) and eliminates the need for a new multi-billion-dollar filtration plant.



Water Quality

Farmers and ranchers work closely with USDA to protect and improve water quality. As they improve nutrient and pesticide management and reduce soil erosion, they reduce pollutants that would otherwise end up in lakes and streams.

One of the most innovative—and unique—water quality programs is in the New York City watershed. It has a three-fold purpose: (1) providing quality drinking water for half the population of New York State, (2) eliminating the need to build a multi-billion-dollar water filtration plant, and (3) helping the agriculture community protect the farm and forest soils of the watershed.

Instead of building a water filtration plant, New York City officials are supporting agricultural stewardship in the watershed as the preferred way to provide the city its water supply. Protecting drinking water at its source costs only a fraction of the cost of building and maintaining a filtration plant. Through

a comprehensive approach, farmers are receiving assistance to implement conservation systems that safeguard water quality, as well as farm business plans to sustain a profitable operation.

This program is a good example of collaboration among groups with diverse interests, including farmers, local soil and water conservation districts, the Cooperative Extension System/Soil and Water District County Project Team, NRCS, Cornell University, the New York State Soil and Water Conservation Committee, and the New York City Department of Environmental Protection.

Aging Dams

One of our Nation’s growing concerns is the safety of aging dams in upstream watersheds.

Local communities, with assistance from NRCS, have constructed more than 10,000 upstream flood-control dams since 1948. These watershed projects provide flood control, municipal and irrigation water supply, recreation, erosion control, and wildlife habitat enhancement on more than 130 million acres in the Nation.

Many small flood-control dams are coming to the end of their 50-year design life and may need rehabilitation to maintain the benefits they provide and to protect the communities that have built up below them.



Pat McGrane

An estimated 2,200 of the older dams have rehabilitation needs—some significant—as they reach the end of their 50-year design life.

Many dams are in a far different setting than when they were originally constructed. Population has grown, development has occurred upstream and downstream from the small dams, and land use changes have taken place.

NRCS is working with local communities to rehabilitate dams in pilot projects in several states.

Wetlands

Wetlands are among the most productive ecosystems in the world. They provide countless economic and environmental benefits to communities around the country. They reduce flood damage, provide fish and wildlife habitat, filter pollutants from water, and recharge aquifers. They also provide fishing, hunting, and recreational opportunities.

To protect this important resource, Federal agencies with wetlands responsibilities have adopted a goal for a net gain of 100,000 acres each year by 2005. This

includes restoration as well as reducing the diking, draining, and filling that have eliminated more than half of the Nation’s wetlands since colonial settlement.

In recent years, farmers and ranchers have worked with NRCS and voluntarily enrolled more than 900,000 acres in the Wetlands Reserve Program to restore the valuable national treasure of wetlands.

In addition, NRCS is working at the local level to provide more flexibility for small wetlands in a common-sense approach to wetlands protection and to provide voluntary programs for wetlands restoration.

Wetlands filter pollutants from water and provide welcome habitat for wildlife.



Bob Nichols



Tim McCabe



Tim McCabe

Many landowners are voluntarily restoring and protecting wetlands with NRCS assistance.



Bob Nichols

NRCS snow surveyors (above) measure mountain snowpack and forecast seasonal runoff in streams and rivers. This information is used to make sound water management decisions.

Water Supply Forecasting and Drought Monitoring

Conserving and managing scarce water supplies is a priority in many parts of the country.

In the West, most of the available water comes from melting mountain snowpack. Irrigation water management is critical to achieving the most efficient use of this valuable and limited resource. NRCS continuously monitors mountain snowpack and climate using the 650 station SNOTEL (SNOwpack TELelemetry) network to forecast water supplies.

Monitoring soil moisture and assessing drought risk are NRCS activities supported by using climate information collected by the expanding NRCS SCAN (Soil Climate Analysis Network) comprised of 49 stations in 32 states.

A full spectrum of water and climate information is available from the National Water and Climate Center webpage, including near real-time SNOTEL and SCAN climate information, water supply forecasts, state climate maps, historical digital datasets, and climate summaries.

When natural disasters such as floods (right) and wildfires strike, NRCS can provide assistance through the Emergency Watershed Protection program to relieve imminent threats to life and property.



Ken Hammond

“Without Emergency Watershed Protection funds, the problems caused by flooding would only have worsened. The roads would have been impassable and the debris clogging the bridge would have dammed up and washed out the road and bridge.”

—Tribal member

Major sectors of the economy—agriculture, industry, recreation, and government—base their water management plans on NRCS water supply forecasts, climate products, and drought risk assessments.

Disaster Response

When natural disasters strike, NRCS can respond immediately through the Emergency Watershed Protection (EWP) program.

EWP is a recovery program designed to relieve imminent threats to life and property caused by floods, drought, fires, windstorms, and other natural disasters.

NRCS helps local officials assess damages and works with project sponsors to remove debris from stream channels, reshape eroded streambanks, repair drainage facilities, reseed damaged areas, and purchase floodplain easements. The agency provides both technical and financial assistance.

NRCS and the Federal Emergency Management Agency also work with communities on projects that reduce their vulnerability to natural disasters.

Air-Related Problems...and Solutions

With growing concern about the relationship between air quality and agricultural production, USDA is involved in identifying needed research and helping producers meet the requirements of air quality regulations.

Sources of potential agricultural air pollution include wind erosion, tilling and harvesting operations, burning, livestock production, and machine operations. Agriculture also has a tremendous potential to improve air quality through proper land stewardship and carbon storage.

NRCS has a variety of agricultural practices and systems that can be used to address air pollution concerns. For example, soil conservation practices are credited with a dramatic reduction in the amount of dust in the air in the Southern High Plains, site of some of the worst dust storms in U.S. history. Researchers at Texas Tech University reported that improvement was due to increased conservation efforts in response to conservation provisions in the Food Security Act

of 1985. Community benefits included less wind erosion, improved soil productivity and water quality, less dust haze, and fewer respiratory problems.

Carbon Storage

NRCS is working to integrate the management of greenhouse gases into conservation planning and application. Crop residue management, for instance, has significant potential for storing carbon, and improving management of manure handling and livestock operations can significantly reduce greenhouse gas emissions.

Several projects are in development to quantify the amount of greenhouse gas reduction that can be attributed to improved management. The agency is also conducting studies to establish a carbon baseline for the various soils in the United States.



Crop residue management has significant potential for storing carbon and thereby helping to mitigate the impact of greenhouse gases while improving the health of the soil (left).

Tim McCabe

“We’ve got to do a better job of helping private forest tracts remain economic. We are getting squeezed into selling off pieces of land to get a decent return. And so the trend for years has been for more and more people to own smaller and smaller forest pieces.”

— Forest landowner

Maintaining Agriculture in Rapidly Growing Areas

Some of the Nation’s most valuable and productive farmland is located in urban and developing areas.

Although not considered a threat to food production nationally, urbanization and unplanned development lead to the fragmentation of agricultural land and the loss of prime farmland in growing areas. Once developed, productive farmland is lost forever.

NRCS provides assistance through the Farmland Protection Program to protect important farmlands from urban encroachment, maintain open space, and sustain rural economic stability and development. The program provides conservation easements that limit conversion to nonagricultural uses on prime, unique, and other productive soils.

NRCS monitors loss of farmland through its National Resources Inventory and works with other Federal agencies that have development projects that impact farmland under the Farmland Protection Policy Act.

NRCS also provides conservation technical assistance to communities to help them with natural resource planning, protection, and management. Specifically, NRCS can assist with soils and resource inventories, conservation planning assessments, project planning and design, open space and greenway planning and management, erosion and sediment prevention and control, conservation education, and plant materials selection.

Private Forest Land

NRCS provides technical assistance in the rapidly growing field of agroforestry—the blending of agricultural and forestry production to develop conservation practices such as windbreaks, riparian forest buffers, alley cropping, silvopasture, and treating waste water.

NRCS works through its partnerships with conservation districts and state forestry agencies to encourage private owners to develop management plans for their forests. It is estimated that only about 5 percent of the forests owned by more than 9 million people have management plans, yet almost half of the Nation’s

timber supply in 1992 came from these lands. Ownership of these forest lands is becoming increasingly fragmented. If present trends continue, by the year 2010, 95 percent of the private forest ownerships will be less than 100 acres in size, making forest management more difficult.

Conservation buffers, such as field windbreaks, filter strips, and riparian buffers, provide many environmental and economic benefits.



Lynn Beets



Tim McCabe

Some of the Nation’s most valuable and productive farmland is located near urban and suburban areas. Once developed, the many benefits of productive farmland are lost, including economic, social, and environmental values.

Developing a management plan on private forestland helps landowners meet their objectives while restoring or maintaining resource quality. NRCS works with conservation districts and state forestry agencies to provide assistance to landowners.



Lynn Beets

NATIONAL RESOURCES INVENTORY

THE NRCS issues a report periodically on condition and trends of natural resources on private land.

Called the National Resources Inventory (NRI), it provides the most comprehensive and statistically reliable data of its kind in the world. It measures trends in soil erosion by water and wind, wetland losses, prime farmland soils, irrigation, and land use changes at national and state levels.

GOOD science and practical technology are at the heart of good land management and sound conservation policy. The Natural Resources Conservation Service is a key source of resource technology for practical use on the land.

This technology includes:

A national cooperative soil survey coordinated at state and local levels. This most fundamental of all resource data is essential to understanding how land use affects water and air and the health of animals, plants, and people. Soil surveys alert landusers to the potential for soil degradation and agrichemical leaching and runoff, to the presence of prime farmlands and wetlands, and to the suitability of soils for specific agricultural, forestry, recreation, urban development, and engineering uses. Many soil surveys are now published on CD-ROM and are available on the World Wide Web. In addition to making and publishing soil surveys, NRCS, in partnership with the National Cooperative Soil Survey, has developed technical standards for soil surveys, such as the National Soil

Survey Handbook, the Soil Survey Manual, Interpretation Guidelines, and the newly revised Soil Taxonomy, as well as laboratory procedures manuals. These are used as the international standard for soil surveys.

Technical standards for conservation practices that address such areas as erosion control; animal waste management for poultry, livestock, and fish farming operations; irrigation water management; air and water quality improvement; stream corridor restoration; wetlands conservation and restoration; and flood control and streambank stabilization. These standards are adapted in NRCS field office technical guides to fit local conditions. Technical standards are the foundation for conservation planning for many land uses and for proper installation of conservation systems on the land.

A plant materials program that introduces new ways to use plants for revegetation, land stabilization, and landscape enrichment. More than 500 conservation plants have been developed as a result of the work of NRCS and cooperating agen-

cies. These plants perform specific conservation tasks on farms, ranches, highway embankments, shorelines, streambanks, wetlands, and reclaimed surface-mined land. The program focuses on using native plants for solutions to environmental problems. Typical work includes developing soil conservation practices, restoring areas infested with noxious and invasive plants, restoring wetlands, and protecting threatened and endangered species. NRCS operates or provides technical assistance through 26 plant materials centers around the country.

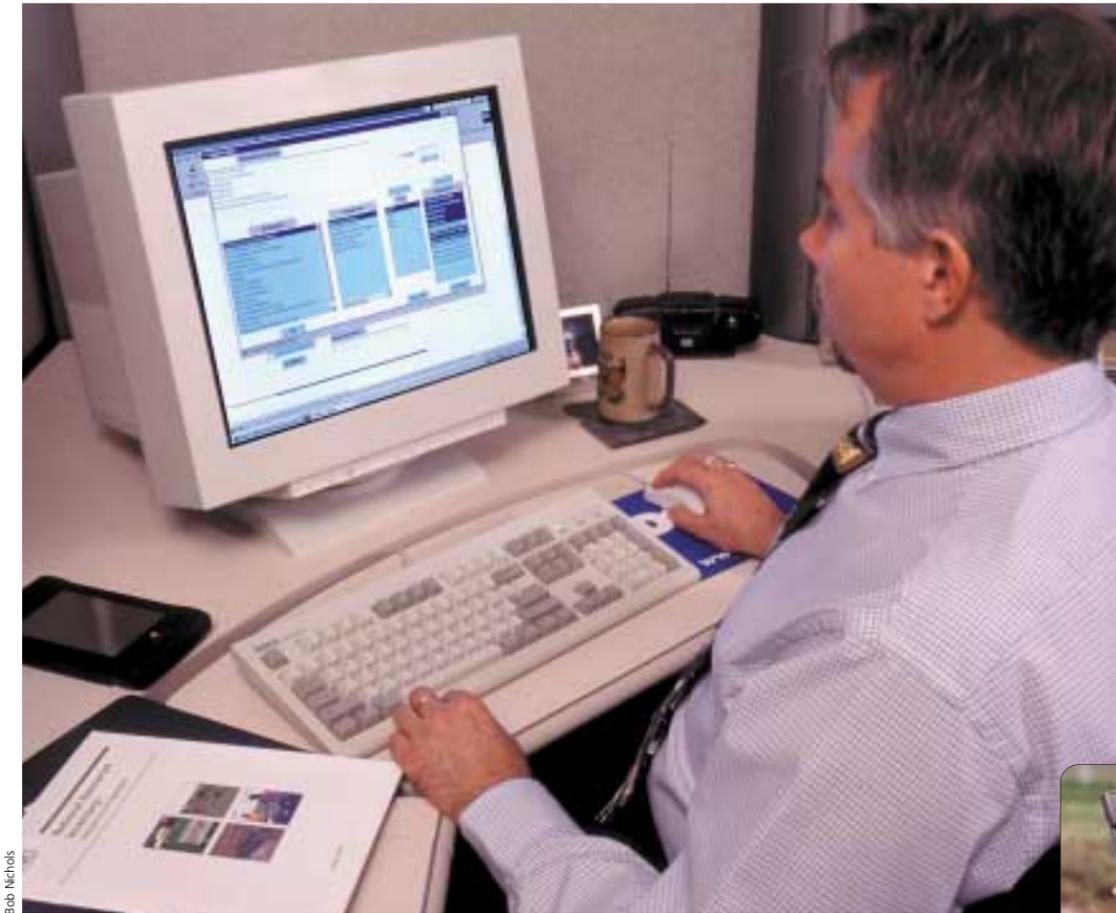
Computer models for predicting soil erosion by wind and water, agricultural nonpoint-source pollution of water, the effects of grazing practices on rangeland health, and the effects of management decisions on farm and ranch economics.

Geographic Information Systems to graphically compile and analyze information from various data sources. The computerized GIS shows how pieces of our environment interact. NRCS uses GIS to help landowners, resource managers, and policy makers analyze and visualize the effects of various land use decisions. We are also linking our unique soils data base, National Resources Inventory, and other data sets with the resource data of other agencies to take full advantage of GIS technology.

A National Science and Technology Consortium to acquire, develop, and transfer technology to meet natural resource conservation needs on private land. Areas of expertise include biological conservation science, cartography and geospatial analysis, economics, conservation engineering, grazing lands, natural resources inventory and analysis, plant data, social science, soils, soil mechanics, water and climate, water management, wetlands science, watershed science, and wildlife habitat.

“The main thing is that technology, such as GIS, is a tool for helping solve a problem.... The whole idea is that better information leads to better decisionmaking.”

—University GIS project manager



Bob Nichols

Increasingly, the condition and trends for natural resources are available online through agency websites (left). NRCS provides this information at national, regional, and state levels. It is based on data collected in the field, using current technology such as the Global Positioning System and handheld personal data assistants (below).



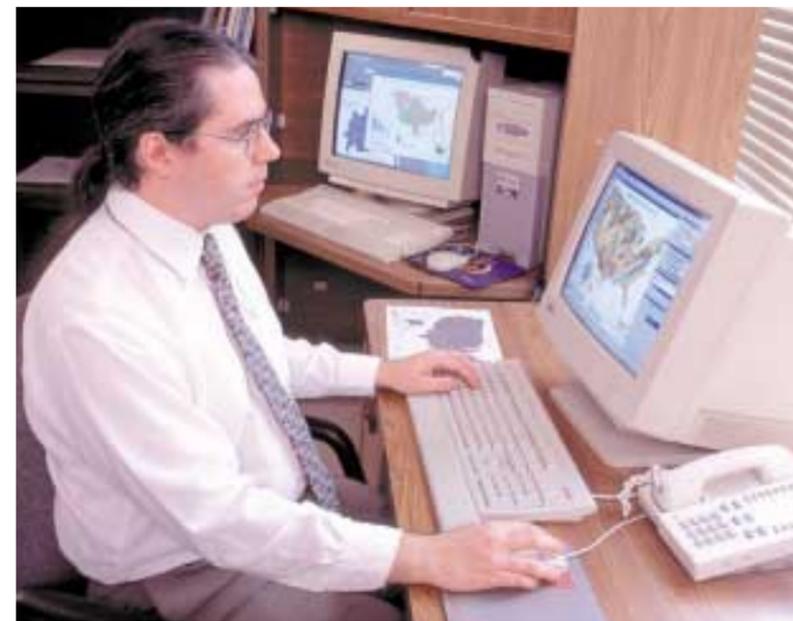
Bob Nichols

NRCS conducts soil surveys, providing the most fundamental of all resource data. These data are used by landusers, policymakers, and others to help make informed, resource-based land management decisions (above).

More than 500 conservation plants have been selected and released by plant materials centers (right) as a result of the work by NRCS and cooperating agencies.



Bob Nichols



Bob Nichols

NRCS uses Geographic Information System (GIS) technology (left) to analyze natural resources data.



Lynn Betts