10. Natural Resources and Environment

USDA's Natural Resources and Environment mission area plays a vital role in the management and conservation of the Nation's land, natural resources, and natural heritage. The USDA Forest Service and the Natural Resources Conservation Service (formerly the Soil Conservation Service) share responsibility for fostering sound stewardship on 75 percent of the country's total land area. The Forest Service oversees the management of 191.6 million acres of public lands, made up of 155 forests and 20 National Grasslands, while the Natural Resources Conservation Service provides direct, technical assistance and conducts a broad range of programs to address farmers' and ranchers' natural resource problems on private lands.

Although the programs of the agencies differ, both agencies are defined by profound land and service ethics which guide their common mission: to promote diverse, healthy and sustainable ecosystems by restoring and sustaining the integrity of soil, air, water, biological diversity, and ecological processes. By making resource management decisions in the context of the full system, the agencies ensure that products, values and services, and uses desired by people are produced in ways that sustain a healthy and productive nation and environment.

Caring for the Nation's land, natural resources, and natural heritage in a sustainable way is a challenging task, a task which depends on each agency's unique and dynamic partnerships. The Forest Service, for example, works closely with State forestry organizations to help private landowners apply environmentally sound practices on the land. Through its cooperative State and private forestry programs, the Forest Service offers technical and financial assistance to protect and improve the quality of air, water, soil, and open space, and encourages uses of natural resources on non-Federal lands, while protecting the environment. The Natural Resources Conservation Service relies on a three-way partnership—with conservation districts, State agencies, and Earth Team volunteers—to deliver technical assistance at the local level.

Both the Forest Service and Natural Resources Conservation Service (NRCS) assist urban and rural communities to restore and enhance the quality of ecosystems and to build capacity for meeting community needs in an environmentally sound manner. The Forest Service and NRCS, along with the Cooperative State Research, Education, and Extension Service and other Federal agencies, have participated in the year-old Urban Resources Partnership Program. The agencies in the program work cooperatively with local communities, governments, organizations, and businesses to deliver services efficiently and effectively in eight pilot cities: Atlanta, Chicago, Denver, East St. Louis, Los Angeles, New York City, Philadelphia, and Seattle. Four partnership projects initiated in FY 1994 included educating children about wetland restoration, planting community gardens, and providing urban forestry and leadership training to women in innercity communities.

The Natural Resources Conservation Service and Forest Service have supported rural development activities through their work in cooperation with conservation districts, Resource Conservation and Development Councils, State rural development councils, and others. The agencies offer guidance about ways to enhance economic well-being and create natural resource-based jobs, while sustaining the environment and its resource base.

As mission areas across the department have developed and implemented reinvention strategies, the Natural Resources and Environment mission area has closely coordinated reorganization and streamlining in the Forest Service and the Natural Resources Conservation Service to help both agencies work better for less and improve customer service. Both agencies have completed strategies—reflecting extensive stakeholder input—to ensure their conservation leadership into the 21st century. The strategies have included significant streamlining and restructuring of headquarters staff and field workforce; development of regional leadership teams to ensure an integrated, comprehensive approach to natural resource management; and a renewed commitment to customer service.

In 1994, the Secretary of Agriculture created the Agricultural Council on Environmental Quality, which is led by the Under Secretary for Natural Resources and Environment. The council's mission is to coordinate crosscutting environmental policies and programs within the department. Some of the policy issues coordinated by the council include pesticides, threatened or endangered species, biomass for energy, and water quality. The council also serves as the departmental liaison with other Federal agencies and nongovernmental organizations.

Forest Service: Caring for the Land and Serving People

The Forest Service considers the American people its owners, customers, and partners in caring for the Nation's natural resources.

The United States has about 1.6 billion acres of forest and range land, under all ownerships. Nearly half of this area, 736.7 million acres, is forest land.

The Forest Service is responsible for managing the 191.6 million acres in the National Forest System. This is 8.3 percent of U.S. land area—about the size of Texas, plus 10 percent.

There are 155 National Forests and 20 National Grasslands in 44 States, the Virgin Islands, and Puerto Rico.

The Forest Service administers statutes that guide:

- Construction of roads and trails, which are built where needed to allow for closely regulated timber harvesting, to give the public access to outdoor recreation areas, and to provide scenic drives and hikes,
- Construction and maintenance of facilities at picnic, camping, water sports, ski, and other areas for public convenience and enjoyment,
- Timber harvesting methods that will protect the land and streams, assure rapid renewal of the forest, provide food and cover for wildlife and fish, and have minimum impact on scenic and recreation values,

- Removal of oil, gas, uranium, and other minerals of strategic importance, as well as geothermal steam and coal,
- Use of national forest and range land as a refuge for threatened and endangered species of birds, animals, fish, and plants, and
- Use of National Forests and Grasslands for livestock grazing.

Mission

The Forest Service's mission is expressed best in its land ethic, which charges the agency to "Promote the sustainability of ecosystems by ensuring their health, diversity, and productivity." This is coupled with the service ethic: "Tell the truth, obey the law, work collaboratively, and use appropriate scientific information in caring for the land and serving people."

These land and service ethics are applied daily to the management of the Nation's forest and range lands through the development and practice of ecosystem management. Simply stated, ecosystem management is the integration of ecological, economic, and social factors in order to maintain and enhance the quality of the environment to meet current and future needs.

Four goals help the agency focus priorities in providing sustainable benefits to the American people. They are to (1) protect ecosystems, (2) restore deteriorated ecosystems, (3) provide multiple benefits for people within the capabilities of ecosystems, and (4) improve organizational effectiveness.

The Forest Service's 1990 Resources Planning Act Program, a long-term strategic plan, set forth four high-priority themes: Enhancing recreation, wildlife, and fisheries resources; ensuring that commodity production is environmentally acceptable; improving scientific knowledge about natural resources; and responding to global resource issues.

Principal Laws

The Forest Service administers the lands and resources of the National Forest System under the National Forest Management Act of 1976, the Multiple Use-Sustained Yield Act of 1960, and the Organic Administration Act which created the National Forest System. The agency also conducts research, provides assistance to private landowners, and assesses the Nation's natural resources under the Renewable Resources Extension Act of 1978 and the Forest and Rangeland Renewable Resources Research Act of 1978.

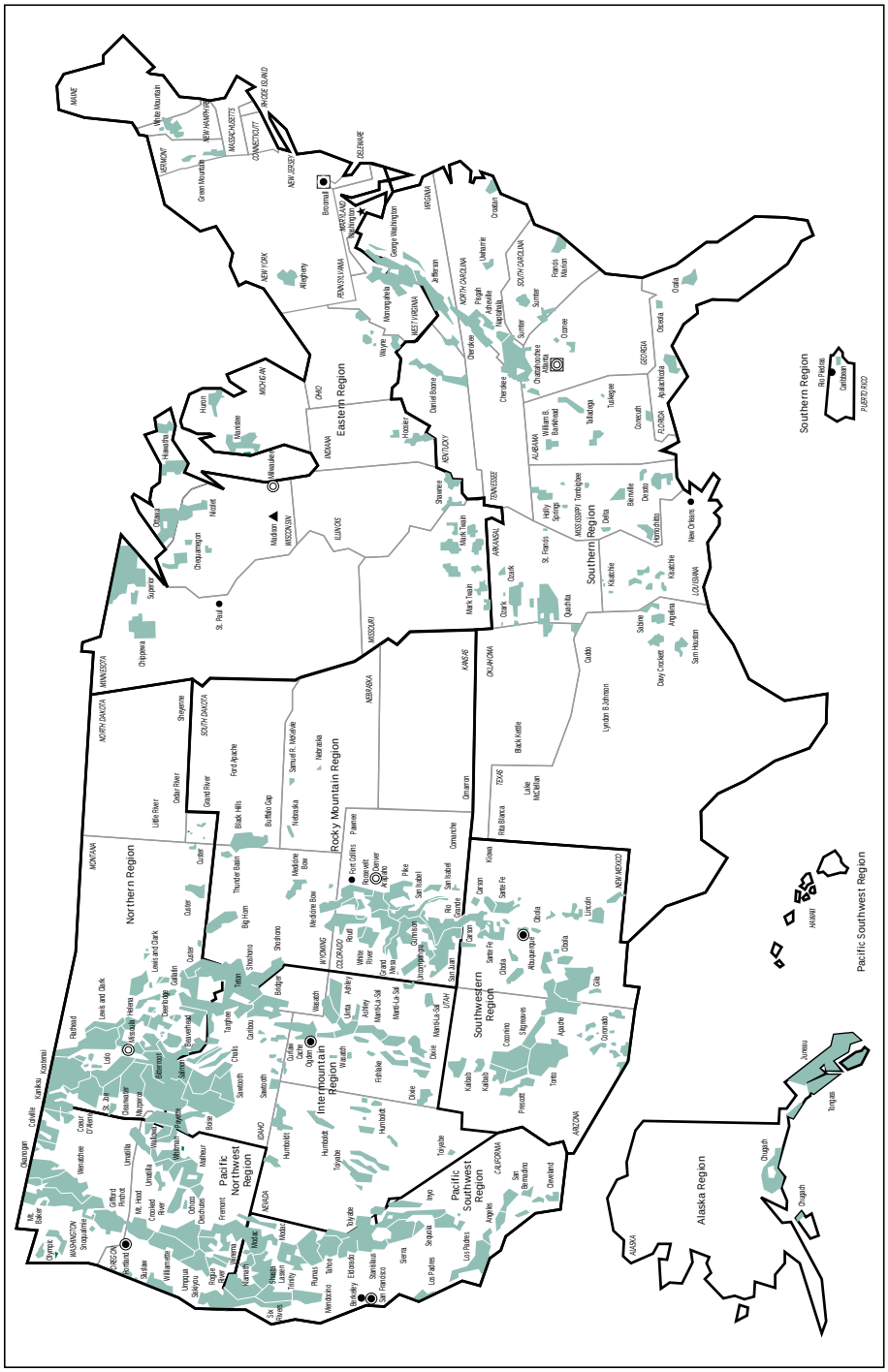
Organizational Structure

The top administrative official of the Forest Service is the Chief, who, through the Under Secretary for Natural Resources and the Environment, reports to the Secretary of Agriculture. The agency is responsibile for administering programs that provide services to the general public and other users in four areas: (1) National Forest System, (2) State and Private Forestry, (3) Research, and (4) International Forestry.

In the **National Forest System**, the Forest Service operates under the concept of multiple use, providing sustained yields of renewable resources such as water, livestock forage, wildlife habitat, wood, and recreation. The Forest Service is committed

Figure 10-1.

Location of National Forests



to the preservation of wilderness, biodiversity, and landscape beauty, as well as the protection of water, air, and soil quality in its management of these lands.

The lands are protected as much as possible from wildfire, epidemics of disease and insect pests, erosion, floods, and water and air pollution.

In addition, the Agency, under its **State and Private Forestry** program, works with State forestry organizations to help private landowners apply good forest practices on their lands. Through its cooperative State and private forestry programs, the Forest Service offers financial and technical assistance to protect and improve the quality of air, water, soil, and open space and encourages uses of natural resources on non-Federal lands, while protecting the environment.

The **research** arm of the Forest Service conducts extensive research on a wide range of forest-related subjects, to develop new knowledge and science in ecosystem restoration and management, and to enhance and protect productivity on all of America's forests and rangelands, with special attention to long-term natural resource issues of national and international scope.

The Forest Service carries out **international forestry** activities to help promote sustainable development and global environmental stability, particularly in key countries important in global climate change. This mandate includes a national goal for sustainable management of all forests by the year 2000, researching topics with implications for global forest management, and sharing resource management experience with colleagues around the world.

Reinvention

In 1994, the Forest Service completed a comprehensive strategy to transform itself into a new Forest Service of the future. "Reinvention of the Forest Service: The Changes Begin" is a strategic document, but it is also very much a call for action. It asks for energetic and enthusiastic support to accomplish some very complex tasks. The Forest Service has:

- Streamlined the workforce by 10 percent during the past 2 years, and plans to streamline by nearly another 10 percent during the next several years,
- Planned a comprehensive restructuring of national headquarters to enhance corporate, strategic decisionmaking (plans call for streamlining the Washington Office by more than 25 percent this year),
- Created regional leadership teams to promote a more comprehensive, integrated approach to management of National Forests and Grasslands,
- Adopted a customer service pledge that improves the Forest Service's long tradition of customer service,
- Re-engineered several core work processes to provide improved service and better land management (these include forest planning, environmental assessment, and budget planning), and
- Re-engineered some administrative work processes to reduce internal red tape and enhance internal customer service, including small purchasing, staffing, and travel administration.

National Forest Foundation

The National Forest Foundation was authorized by Congress in 1990 to collect and administer donations to further the activities of the Forest Service. The Foundation became operational in 1992. In 1993, it funded three youth forest camps, in Oregon, Washington, and Virginia. These camps served 211 youth from many ethnic backgrounds who were recruited from rural and urban areas. They accomplished more than $334,400 worth of resource projects on national forest lands, and received high school credit for the summer projects.

National Forest System—Conservation and Multiple Use

Lands

The Forest Service is the steward of the 191.6 million acres in the National Forest System. This stewardship includes landownership adjustment to protect and enhance the National Forest System, prevention of unauthorized encumbrances, protection of boundaries and records associated with this land, granting appropriate rights to others when in the public interest, resolution of issues affecting lands, and administration of rights granted to or retained by other agencies, governments, and landowners.

Wildlfe, Fish, and Rare Plants Management

The National Forest System includes 2.3 million acres of fishable lakes, ponds, and reservoirs and more than 197,000 miles of perennial streams.

National Forests and Grasslands support habitats for more than 3,000 species of birds, mammals, reptiles, amphibians, and fish, as well as some 10,000 plant species. The National Forests and Grasslands also provide:

- 80% of the elk, mountain goat, and bighorn sheep habitat in the lower 48 States,
- 28 million acres of wild turkey habitat,
- 5.4 million acres of wetland habitat,
- Habitat for 250 species of neotropical migratory birds, and
- Habitat for more than 280 species of threatened or endangered plants, fish, or wildlife.

In 1994, people made more than 86 million visits to national forests to fish, hunt, and view wildlife, fish, and plants, with a total net value of nearly $4.3 billion. More than $1.7 billion in annual economic benefits result from recreational and commercial harvest of fish resources on National Forest System lands.

The Agency's threatened, endangered, and sensitive species program aims to conserve and restore habitat and thus avoid the need to list additional rare species. Habitat management efforts—in partnership with other Federal agencies, State fish and wildlife agencies, and national conservation groups—are currently underway for salmon, steelhead and cutthroat trout, spotted owl, marbled murrelet, and grizzly bear. Efforts to reintroduce species or increase their numbers are planned in collaboration with the U.S. Fish and Wildlife Service and State agencies for gray wolf, black-footed ferret, California condor, Mexican wolf, thick-billed parrot, and red-cockaded woodpecker.

- ***Key Facts about the Forest Service***
  - *The Forest Service manages 155 national forests for multiple uses.*
  - *There are 191 million acres of national forest land. This is 8.3 percent of the United States' land area—about the size of Texas plus 10 percent.*
  - *The entire Nation has about 1.6 billion acres of forest and range land, under all ownerships.*
  - *The entire Nation has 736.7 million acres of forest land area, not including rangeland, under all ownerships.*
  - *The National Forest trail system is the largest in the Nation, with more than 124,600 miles of trails for hiking, riding, and cross-country skiing.*
  - *The Forest Service provides more recreation than any other Federal Agency.*
  - *Minerals found on Forest Service lands provide more than $3.5 billion in private sector revenue.*

The owners/managers of this forest land are as follows:

- *Federal Government: 249.1 million acres*
- *Forest Service: 139.9 million acres*
- *Bureau of Land Management: 36.6 million acres*
- *National Park Service, Department of Defense, Department of Energy, and other Federal: 72.6 million acres*
- *Non-Federal total: 487.5 million acres*
- *State: 54.7 million acres*
- *Industry, county, municipal, farmer, & other private: 432.8 million acres*

The Forest Service manages—

- *National Grasslands: 3.9 million acres*
- *National Primitive Areas: 173,762 acres*
- *National Scenic-Research Areas: 6,630 acres*
- *National Wild & Scenic Rivers: 4,385 miles—95 rivers*
- *National Recreation Areas: 2.7 million acres*
- *National Game Refuges and Wildlife Preserves: 1.2 million acres*
- *National Monument Areas: 3.3 million acres*
- *National Historic Areas: 6,540 acres*
- *Congressionally designated wilderness—34.6 million acres*

Visitors to the National Forests are attracted by—

- *5,885 campgrounds and picnic areas*
- *328 swimming developments*
- *1,222 boating sites*
- *250 winter sports sites, including 120 downhill ski areas*
- *If all these sites were fully occupied at the same time, they would accommodate 1.8 million persons.*

Key 1994 figures:

- *Recreation use: 330.3 million visitor days (1 visitor day equals 12 hours of recreation use)*
- *Lands burned by wildfire: 530,000 acres*
- *Insect and disease suppression: 1.7 million acres*
- *Watershed improvements: 36,201 acres*
- *Wildlife and fish habitat improvements: 242,761 acres*
- *Reforestation: 492,000 acres*
- *Livestock grazing: 9.4 million animal unit months*
- *Grazing allotments administered: 9,940*
- *Mineral cases processed: 26,539*
- *Timber sold: 3.1 billion board feet*
- *Timber harvested: 4.8 billion board feet (some had been sold in previous years)*
- *Road system: 369,000 miles*

Partnerships

In 1994, more than 3,150 partners joined the Forest Service through the Challenge Cost-Share Program to complete more than 3,000 wildlife and fish habitat improvement projects on national forests and grasslands. Through these partnership efforts, many species have returned to habitats once abandoned. Fragile plant habitats have been identified and protected. Wetlands for waterfowl and other species have been improved by the construction of nesting islands and platforms. Fisheries have benefited from improved cover, construction of fish ladders and barriers, and restoration of watersheds.

Since 1986, wildlife and fish conservation partner contributions of labor, materials, expertise, and cash have approached $106 million, more than matching Forest Service monetary contributions of over $77 million.

Water, Soil, and Air

About 20 percent of the surface water supply in the United States flows from National Forest System watersheds. Three major goals of the Forest Service's watershed management programs are assuring adequate yields of high quality water, sustaining soil productivity, and managing air quality within standards. The task of mapping all the soils of the National Forest System, with the cooperation of the Natural Resources Conservation Service, is about 70 percent completed. The Forest Service improved 24,836 acres of watershed in FY 1994, about 15 percent more than the target amount.

Other significant activities include watershed analyses and watershed restoration work, especially in the Pacific Northwest; participating in water right adjudications in eight Western States; assessing water quality problems from abandoned mines located on most National Forests with assistance from States and other Federal

- ***Key Facts about Water in the National Forest System:***
  - *Watersheds on National Forest System lands total about 3,200*
  - *There are 902 municipal watersheds on National Forest System land, serving 25 million people*
  - *173 trillion gallons of water is supplied by the National Forest System to municipal watersheds annually*
  - *500 remote weather data collection platforms are used in agricultural, fire, weather, and streamflow forecasting*
  - *Burned-area emergency restoration in FY 1994 covered more than 150,000 acres of the 1.5 million acres burned*
  - *88 wilderness areas, covering almost 15 million acres, are classified as Class I (special visibility protection) under the Federal Clean Air Act.*

agencies; and monitoring lichens, lakes, snow, vegetation, and the atmosphere to determine air pollution impacts to wilderness areas.

Forage

National Forest System rangeland is managed to conserve the land and its vegetation while providing food for both livestock and wildlife. Forage production is a primary use of these lands. Under a multiple-use system, grazing areas also serve as watersheds, wildlife habitat, and recreation sites. Grazing privileges are granted on national forests and grasslands within the national forest system. Cattle and sheep graze under permit arrangements, for which a fee is paid by ranchers and farmers. The permittees cooperate with the Forest Service in range improvement projects.

- ***Key Facts about Rangeland***
  - *9.3 million animal unit months of livestock grazing were recorded on National Forest System lands in FY 1994, and,*
  - *the Forest Service administered 9,413 grazing allotments.*

Minerals and Energy

The Forest Service manages surface operations on mineral lands in the National Forest System. Energy resources on national forest system lands include oil, natural gas, coal, geothermal steam, and uranium. Mineral commodities of strategic importance on these lands are nickel, cobalt, molybdenum, tungsten, and vanadium. Other important commodities include gold, silver, lead, phosphate, barite, and construction materials such as gravel and stone. The Forest Service recommends conservation measures to be followed by the resource extractors. The objective is to permit

- ***Key Facts about the Forest Service Minerals Program***
  - *$3.2 billion of mineral production*
  - *7 million acres prospective for coal (50 billion tons)*
  - *45 million acres prospective for oil and gas*
  - *Substantial geothermal energy potential*
  - *Giant deposits of oil and gas*
  - *World class deposits of coal, platinum, copper, silver, lead, molybdenum*
  - *Largest carbon dioxide (CO_2) project in the country (Bridger-Teton National Forest, WY)*
  - *Largest coal mine in the United States (Thunder Basin Grasslands, WY)*
  - *Only platinum mine in the Western Hemisphere (Custer National Forest, MN)*
  - *Most lead production in the United States (Mark Twain National Forest, MO)*
  - *World-renowned quartz crystals, known for size and cluster quality (Ouachita National Forest, AR)*
  - *One of the largest molybdenum deposits in the world: 10% of the free world's reserves, and more than 1.5 billion tons of ore (Tongass National Forest, AK)*

- ***The following resources are produced annually on National Forest System lands:***
  - *12 million barrels of oil*
  - *325 billion cubic feet of gas*
  - *114 million tons of coal*
  - *500 million pounds of lead*
  - *200 million pounds of copper*
  - *1 million ounces of gold*
  - *20 million tons of sand and gravel*

environmentally responsible prospecting and mining, so there is minimal disturbance and damage to the land and damaged lands are reclaimed.

Timber

Less than half of the national forests' 191 million acres can be classified as commercial forest land, that is, land available for and capable of producing crops of industrial wood. These commercial forests help furnish the Nation with the lumber and plywood needed for housing and industrial uses, and with paper products. Timber management involves preparing sales by selecting the means of harvest that will be appropriate for the particular soil conditions involved and taking the measures necessary to protect the environment.

Table 10-1.

National Forest System lands administered by the Forest Service as of September 30, 1994

State, Commonwealth, or Territory	*National forests, purchase units, research areas, and other areas*	*National grasslands*	*Land utilization projects*	*Total*
		Acres		
Alabama	662,715	0	40	662,755
Alaska	22,053,445	0	0	22,053,445
Arizona	11,250,006	0	0	11,250,006
Arkansas	2,551,017	0	0	2,551,017
California	20,606,994	18,425	0	20,625,419
Colorado	13,867,569	628,379	0	14,495,948
Connecticut	24	0	0	24
Florida	1,136,990	0	0	1,136,990
Georgia	864,063	0	0	864,063
Hawaii	1	0	0	1
Idaho	20,399,384	47,756	0	20,447,140
Illinois	272,492	0	0	272,492
Indiana	193,036	0	0	193,036
Kansas	0	108,175	0	108,175
Kentucky	684,454	0	0	684,454
Louisiana	603,288	0	0	603,288
Maine	53,040	0	0	53,040
Michigan	2,852,991	0	959	2,853,950
Minnesota	2,826,931	0	0	2,826,931
Mississippi	1,155,613	0	0	1,155,613
Missouri	1,490,087	0	0	1,490,087
Montana	16,868,073	0	0	16,868,073
Nebraska	257,653	94,480	0	352,133
Nevada	5,813,980	0	0	5,813,980
New Hampshire	723,296	0	0	723,296
New Mexico	9,189,925	136,417	240	9,326,582
New York	13,750	0	0	13,750
North Carolina	1,240,781	0	0	1,240,781
North Dakota	743	1,105,036	0	1,105,779
Ohio	220,020	0	0	220,020
Oklahoma	255,471	46,286	0	301,757
Oregon	15,549,233	111,352	856	15,661,441
Pennsylvania	513,229	0	0	513,229
Puerto Rico	27,831	0	0	27,831
South Carolina	611,269	0	0	611,269
South Dakota	1,145,277	866,610	0	2,011,887
Tennessee	631,713	0	0	631,713
Texas	637,448	117,531	0	754,979
Utah	8,109,316	0	0	8,109,316
Vermont	354,256	0	0	354,256
Virgin Islands	147	0	0	147
Virginia	1,650,526	0	0	1,650,526
Washington	9,170,370	0	738	9,171,108
West Virginia	1,032,135	0	0	1,032,135
Wisconsin	1,519,364	0	0	1,519,364
Wyoming	8,686,638	571,971	0	9,258,609
Total	187,746,584	3,852,418	2,833	191,601,835

Passport in Time

Through Passport In Time, the Forest Service offers unique, nontraditional recreation experiences such as archaeological excavation, historic structure restoration, and wilderness surveys. These experiences foster environmental stewardship while providing the public with extraordinary experiences.

Passport In Time volunteers have contributed more than $2.5 million worth of time and effort to help preserve our Nation's history by:

- Restoring 45 historic structures,
- Stabilizing 11 National Register eligible sites,
- Evaluating 143 sites for inclusion in the National Register of Historic Places,
- Working at 28 projects in wilderness, and
- Developing 12 heritage interpretive sites.

State and Private Forestry—Providing Assistance to Nonindustrial Private Landowners

The **Forest Stewardship Program** provides technical assistance to nonindustrial private forest landowners to manage their forests for multiple resources. Since 1990, 101,516 landowners have enrolled in the program, and stewardship plans have been prepared for more than 13.2 million acres of nonindustrial private forests.

The **Stewardship Incentives Program** provides cost-share assistance, in cooperation with State Foresters and the Consolidated Farm Services Agency, for landowners to implement Forest Stewardship Landowner Plans on over 378,000 acres annually. This includes 50,138 acres of tree planting annually. Since 1990, stewardship incentives practices have been implemented on more than 1.3 million acres, including 140,239 acres of tree planting.

Forest Health Protection

The Forest Service:

- Emphasizes forest health protection including technical and financial assistance to Federal agencies, American Indian tribes, and (through the State Foresters) to private landowners,
- Conducts insect and disease detection surveys on 155 million acres of Federal lands and 441 million acres of State and private lands in cooperation with State Foresters,
- Participates in the forest health monitoring program with the State Foresters and the Environmental Protection Agency,
- Works with the Animal and Plant Health Inspection Service to protect the Nation's forests from insects and diseases,
- Provides technical assistance in the safe and effective use of pesticides,
- Cost-shares insect and disease suppression projects with States and funds suppression projects on Federal lands, and
- Evaluates and applies new, more efficient and environmentally sensitive technologies for forest health protection.

Table 10-2.

Payment to States from national forest receipts—FY1992-94[1]

State, Commonwealth, or Territory	*FY 1994*	*FY 1993*	*FY 1992*
		Dollars	
Alabama	1,271,055.32	1,390,707.02	1,881,981.22
Alaska	8,782,012.16	3,901,912.71	3,345,950.44
Arizona	3,949,883.28	5,658,379.07	6,125,695.16
Arkansas	4,535,988.40	3,450,850.85	2,141,293.04
California	50,981,328.44	47,060,152.68	59,580,922.17
Colorado	6,318,890.15	5,541,927.06	4,538,913.53
Florida	1,068,081.49	1,570,634.99	1,503,569.12
Georgia	892,851.64	1,240,412.85	1,225,869.10
Idaho	25,227,816.58	22,966,972.68	19,427,079.28
Illinois	37,588.40	46,807.23	40,784.24
Indiana	18,228.06	12,177.50	11,859.68
Kentucky	446,667.89	683,085.08	646,572.27
Louisiana	2,577,223.55	2,417,348.58	3,888,688.27
Maine	32,800.47	40,248.27	30,982.64
Michigan	1,964,052.45	1,897,568.10	1,906,690.24
Minnesota	2,818,868.30	2,667,734.07	2,455,163.33
Mississippi	5,928,308.80	5,930,285.85	6,147,256.79
Missouri	1,235,858.48	871,200.97	1,366,714.82
Montana	14,482,280.68	13,854,903.49	11,839,490.13
Nebraska	67,973.60	39,329.54	44,574.57
Nevada	520,368.09	356,128.64	425,283.05
New Hampshire	480,777.36	589,502.13	454,605.69
New Mexico	1,458,715.36	1,642,149.35	2,007,276.46
New York	7,607.03	2,276.34	1,755.19
North Carolina	678,553.50	786,977.55	722,720.12
North Dakota	94.23	79.01	91.53
Ohio	30,109.51	37,692.65	132,986.34
Oklahoma	595,042.78	457,336.22	247,900.72
Oregon	119,791,067.39	128,866,867.46	136,540,593.13
Pennsylvania	5,301,759.86	4,613,532.38	4,923,027.09
Puerto Rico	25,571.76	12,915.25	17,336.63
South Carolina	1,586,032.17	1,507,617.12	1,701,257.06
South Dakota	2,631,316.84	3,388,926.09	2,983,000.04
Tennessee	385,048.53	505,505.43	511,875.21
Texas	3,599,206.19	3,695,331.74	3,513,039.64
Utah	2,373,290.67	1,738,582.52	1,565,081.26
Vermont	166,768.17	186,170.81	167,641.47
Virginia	820,206.58	667,802.45	530,885.01
Washington	31,913,563.22	30,886,124.04	35,103,924.21
West Virginia	761,339.86	1,259,065.43	1,061,686.74
Wisconsin	1,206,337.52	986,160.40	952,687.17
Wyoming	2,191,880.96	2,355,729.99	2,127,068.13
Total	309,162,415.72	305,785,111.59	323,841,771.93

[1]Data Source: All Service Receipts - ASR-09-3.

Table 10-3.

State summary of total recreation use on National Forest System lands by activity—FY 1994

State, Commonwealth, or Territory[1]	*Camping, picnicking & swimming*	*Mechanized travel & viewing scenery*	*Hiking, horseback riding & water travel*	*Winter sports*	*Resorts, cabins & organization camps*
			1,000 RVD's[2]		
Alabama	192.3	116.8	67.0	0.0	0.4
Alaska	371.5	3,687.7	353.7	85.4	163.7
Arizona	7,662.9	13,586.3	2,753.1	345.4	951.1
Arkansas	584.1	532.6	215.1	0.1	24.9
California	15,299.9	23,534.9	5,163.9	4,063.0	8,063.6
Colorado	6,556.3	10,231.6	2,576.5	7,273.5	745.0
Florida	1,716.6	488.6	178.8	0.0	217.0
Georgia	899.5	985.3	389.8	2.2	46.3
Idaho	4,326.1	3,970.3	1,242.6	853.5	603.0
Illinois	248.7	389.2	171.7	1.8	8.2
Indiana	207.6	66.9	68.3	0.3	1.4
Kansas	16.8	27.0	2.8	0.0	1.9
Kentucky	664.8	668.6	255.5	1.0	17.3
Louisiana	185.7	151.4	22.3	0.0	23.4
Maine	22.0	45.8	17.1	4.2	3.6
Michigan	1,570.4	1,581.3	246.0	95.6	117.4
Minnesota	1,877.3	1,052.2	867.3	104.4	458.8
Mississippi	244.8	355.4	119.9	0.0	10.8
Missouri	610.8	575.1	332.3	0.0	10.6
Montana	2,184.7	3,664.3	1,208.0	619.7	412.8
Nebraska	68.5	85.7	20.2	0.4	3.3
Nevada	975.1	1,030.0	390.4	299.2	139.5
New Hampshire	680.9	1,237.2	366.1	631.3	222.2
New Mexico	3,024.8	2,101.4	692.2	791.4	251.5
New York	15.8	5.7	3.4	1.7	0.0
North Carolina	1,604.3	2,223.2	1,089.3	13.8	96.0
North Dakota	14.7	28.0	12.8	0.9	0.0
Ohio	111.7	136.0	78.0	1.0	0.0
Oklahoma	59.6	178.6	49.9	0.0	0.0
Oregon	11,289.5	11,719.1	3,889.7	1,583.9	2,027.7
Pennsylvania	909.5	1,275.6	274.3	19.0	53.7
Puerto Rico	109.2	102.2	23.1	0.0	7.8
South Carolina	261.7	223.6	127.2	0.0	0.8
South Dakota	237.7	2,481.7	183.4	21.9	115.4
Tennessee	1,158.6	881.9	304.3	4.9	97.3
Texas	652.8	450.1	115.0	0.0	26.3
Utah	6,131.2	5,212.5	1,227.7	1,190.1	828.2
Vermont	127.3	288.7	95.0	925.0	74.6
Virginia	1,120.7	1,564.6	459.2	29.0	19.3
Washington	5,165.5	11,490.7	3,384.2	1,090.6	1,119.9
West Virginia	534.7	305.5	146.1	5.4	36.9
Wisconsin	535.9	751.0	120.8	34.9	18.5
Wyoming	2,089.8	2,552.9	1,289.9	384.0	847.7
Total	82,322.3	112,037.2	30,593.9	20,478.5	17,867.8

[1]Unlisted States have no Forest Service recreation programs.
[2]One recreation visitor-day (RVD) is the recreation use of National Forest land or water that

Table 10-3.

Hunting	*Fishing*	*Non-consumptive fish & wildlife use*	*Other recreation activities*	*Total*	*State, Commonwealth, or Territory*[1]
			1,000 RVD's[2]		
160.0	67.2	4.6	77.6	685.9	Alabama
138.2	494.8	42.9	385.7	5,723.6	Alaska
1,079.0	907.2	480.3	4,266.0	32,031.3	Arizona
510.2	101.5	24.9	143.0	2,136.4	Arkansas
1,555.0	3,302.9	527.0	11,023.0	72,533.2	California
1,804.1	1,757.1	173.5	1,055.5	32,173.1	Colorado
233.9	172.5	21.4	128.6	3,157.4	Florida
374.2	191.9	35.8	92.7	3,017.7	Georgia
1,114.2	1,001.9	175.0	951.9	14,238.5	Idaho
129.3	42.5	17.5	70.8	1,079.7	Illinois
67.8	77.0	3.2	16.4	508.9	Indiana
8.3	13.8	2.5	11.3	84.4	Kansas
208.2	210.5	13.3	112.5	2,151.7	Kentucky
106.9	35.9	3.9	34.8	564.3	Louisiana
8.8	5.0	1.4	5.8	113.7	Maine
539.9	545.9	23.0	148.1	4,867.6	Michigan
331.0	861.5	34.6	128.2	5,715.3	Minnesota
398.0	93.2	30.3	96.5	1,348.9	Mississippi
275.6	132.5	19.3	105.0	2,061.2	Missouri
1,086.2	883.8	142.0	1,179.2	11,380.7	Montana
59.5	2.4	2.6	18.1	260.7	Nebraska
161.9	80.6	67.4	215.7	3,359.8	Nevada
37.7	29.0	13.9	24.5	3,242.8	New Hampshire
549.1	322.2	173.1	1,216.7	9,122.4	New Mexico
4.4	1.4	0.8	1.3	34.5	New York
756.0	326.3	39.9	265.0	6,413.8	North Carolina
50.4	1.5	3.0	2.6	113.9	North Dakota
234.9	55.0	5.0	64.2	685.8	Ohio
66.4	20.7	10.2	13.1	398.5	Oklahoma
2,024.1	1,976.4	594.2	1,924.7	37,029.3	Oregon
173.0	182.0	23.4	81.1	2,991.6	Pennsylvania
0.0	0.0	2.2	51.6	296.1	Puerto Rico
210.3	58.7	13.2	60.8	956.3	South Carolina
100.4	127.7	11.9	115.6	3,395.7	South Dakota
246.8	186.3	28.4	81.4	2,989.9	Tennessee
231.7	791.3	24.4	92.3	2,383.9	Texas
889.5	998.9	74.4	876.1	17,428.6	Utah
85.5	24.2	31.4	78.7	1,730.4	Vermont
836.3	352.7	72.3	243.0	4,697.1	Virginia
853.3	420.0	120.2	1,152.5	24,796.9	Washington
224.7	136.6	10.6	50.8	1,451.3	West Virginia
232.6	492.4	9.2	159.2	2,354.5	Wisconsin
603.6	386.1	80.7	406.4	8,641.1	Wyoming
18,760.9	17,871.0	3,188.8	27,228.0	330,348.4	**Total**

aggregates 12 visitor-hours. This may entail 1 person for 12 hours, 12 persons for 1 hour, or any equivalent combination of individual or group use, either continuous or intermittent.

Fire Management

The Forest Service works in cooperation with States and their local wildland fire protection agencies to protect State and private lands nationwide. Fire protection and emergency firefighting programs protect 191 million acres of National Forest System lands and an additional 20 million acres of State and private lands under protection exchanges and agreements.

Federal Excess Personal Property

In 1994 the USDA Forest Service loaned used Federal property to the State Foresters for rural and wildland fire protection that had an original acquisition cost of $112 million. Former military cargo trucks that are built into tanker trucks represent a large portion of the property, along with aircraft, heavy equipment, and shop machinery.

Rural Community Fire Protection

This program to organize, train, and equip rural fire departments in communities with populations under 10,000 is funded at $3.5 million annually. In 1994 these funds were awarded in 3,258 grants that attracted $7.1 million in matching fire department funds. More than 80 percent of the money funded purchases of equipment such as communications devices, nozzles, hoses, and protective clothing.

■ ***Fire Facts USDA Forest Service***

■***Number of fires:***	*Average*	*1994*
Less than 10 acres	*10,593*	*13,374*
10 to 999 acres	*919*	*1,211*
1,000+ acres	*49*	*161*
Total	*11,562*	*14,746*

■***Major causes of fires:***	*Average % of starts*	*Average % of acres burned*
Lightning	*51*	*57*
Human caused	*49*	*43*

■***Acres burned:***	*Average*	*1994*
National Forest protected lands	*379,814*	*1,479,735*

■***Appropriations:***	*Average*	*1994*
Presuppression appropriation	*$156,600,000*	*$190,200,000*
Emergency suppression expenditures	*$162,400,000*	*$757,000,000*
Total	*$319,000,000*	*$947,200,000*
State and private appropriations	*$ 14,556,000*	*$ 17,148,000*

—continued

■***Natural Fuels Treatment:***	*Average*	*1994*
Acres treated	*325,000*	*385,000*
Program cost	*$10,300,000*	*$12,700,000*
	Projected 1995	*Projected 1996*
Acres treated	*458,000*	*>600,000*
Program costs	*$16,400,000*	*$24,500,000*

■***USFS Personnel on Wildfires:***	*Average*	*1994*
Fire management, full time	*1,694*	*1,710*
Fire management, part time	*2,029*	*1,843*
Fire management, temporary	*6,189*	*5,467*
*Other USFS personnel**	*19,000*	*28,000*
*Emergency hire (AD)**	*19,000*	*38,000*
Hotshot crews		*53*
Smokejumpers		*290*
Helitack		*200*
Rappellers		*240*
Type 1 Incident management teams		*18*

■***Resources available from other Agencies (1994):***

	States	*Federal*	*Military*	*International*
Overhead	*2,100*	*1,000*		
Crews	*150*	*30*	*200*	
Engines	*500*	*80*		
Aircraft	*30*	*100*	*32*	*16*
Hotshot crews		*12*		
Smokejumpers		*117*		

■***USFS Aircraft:***	*1994*	*1995*
Under contract		
Airtankers	*30*	*30*
Helicopters	*375*	*375*
Fixed wing	*875*	*875*
Total	*1,280*	*1,280*

Forest Service owned	
Retardant, water & foam delivered	*Gallons*
Airtanker	*26,200,000*
Helicopter	*76,300,000*
Total	*102,500,000*

	Average	*1994*
Flight hours (all aircraft)	*80,000*	*118,700*

■***Federal excess property on loan to States***	*1994*
Original cost	*$410,000,000*
Cooperators	*50 States and 5 Territories*

**Estimated; multiple dispatches cause duplication*

Table 10-4.

Acres of State and private lands burned—FY 1993

State, Commonwealth, or Territory	Acres protected	Lightening fires	Person-caused fires	Total fires	Acres burned
		Number			
Alabama	25,726,491	57	4,334	4,391	33,188
Alaska	134,000,000	105	430	535	120,233
Arizona	22,447,000	98	736	834	109,294
Arkansas	18,604,989	89	2,039	2,128	26,589
California	32,057,391	150	6,629	6,779	110,531
Colorado	25,958,109	153	1,114	1,267	3,526
Connecticut	2,390,000	3	101	104	349
Delaware	557,000	0	12	12	415
Florida	25,380,158	1,162	3,518	4,680	80,484
Georgia	27,279,400	513	8,663	9,176	33,602
Guam	81,643	0	1,187	1,187	3,202
Hawaii	3,306,300	0	98	98	6,000
Idaho	6,025,690	120	136	256	1,443
Illinois	10,670,000	10	608	618	3,242
Indiana	7,328,000	2	323	325	1,893
Iowa	7,612,000	5	980	985	7,782
Kansas	46,400,000	82	2,246	2,328	40,325
Kentucky	11,663,883	9	1,059	1,068	18,126
Louisiana	18,931,000	10	3,474	3,484	36,036
Maine	17,743,000	79	668	747	1,640
Maryland	3,400,000	21	530	551	2,802
Massachusetts	3,581,000	21	5,129	5,150	5,250
Michigan	20,600,276	1	232	233	903
Minnesota	22,800,000	7	1,273	1,280	18,293
Mississippi	16,800,000	12	3,666	3,678	36,285
Missouri	42,350,000	28	2,966	2,994	31,952
Montana	49,679,599	104	150	254	8,267
Nebraska	49,083,520	42	531	573	8,840
Nevada	20,600,270	50	53	103	2,414
New Hampshire	4,987,200	3	549	552	224
New Jersey	3,150,000	10	1,501	1,511	2,667
New Mexico	42,500,000	304	902	1,206	192,699
New York	18,336,406	15	195	210	623
North Carolina	18,710,381	198	4,503	4,701	25,304
North Dakota	31,878,661	10	374	384	7,992
Ohio	5,822,095	5	583	588	2,805
Oklahoma	5,944,557	15	2,327	2,342	59,225
Oregon	15,536,626	178	642	820	2,845
Pennsylvania	19,541,000	12	641	653	3,318
Puerto Rico[1]	829,107	0	337	337	1,291
Rhode Island	433,000	2	134	136	227
South Carolina	12,558,258	235	5,118	5,353	34,086
South Dakota	43,556,390	23	91	114	2,832

—continued

Table 10-4 continued.

Acres of State and private lands burned—FY 1993

State, Commonwealth, or Territory	Acres protected	Lightening fires	Person-caused fires	Total fires	Acres burned
		Number			
Tennessee	25,668,400	19	2,053	2,072	15,542
Texas	22,123,000	28	1,338	1,366	21,306
Utah	15,000,000	122	160	282	13,950
Vermont	4,623,000	5	166	171	354
Virginia	13,458,062	48	881	929	3,723
Washington	12,500,000	89	551	640	2,203
West Virginia	12,594,000	1	824	825	10,024
Wisconsin	18,898,000	8	945	953	1,365
Wyoming	29,108,929	55	248	303	4,628
Total	1,050,813,791	4,318	77,948	82,266	1,162,139

1994 Fire Season

In 1994, 14,746 fires burned 1,479,735 acres of National Forest System lands. The annual average is 11,562 fires and 379,814 acres. Forest Service-contracted air-tankers and helicopters dropped 102.5 million gallons of retardant, water, and foam on the fires.

Fuels Treatment

In 1994, 385,000 acres of National Forest System lands received treatment for naturally generated fuels, compared to the 325,000 acres normally treated.

Rural Community Assistance

The Forest Service implements the national initiative on rural development in coordination with the USDA Rural Business and Cooperative Development Service and State rural development councils. The goal is to strengthen rural communities by helping them diversify and expand their economies through the wise use of natural resources. Through economic action programs, the Forest Service provides technical and financial assistance to more than 850 rural communities that are adversely affected by changes in availability of natural resources or in natural resource policy. Pacific Northwest rural community assistance provides economic adjustment assistance to 147 communities affected by the President's Forest Plan for the Pacific Northwest. This community assistance was part of a larger, multi-agency effort to target resources for rural areas with acute economic problems.

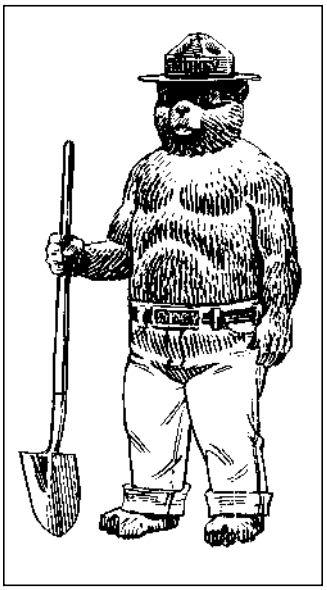
Urban and Community Forestry

The Forest Service provides technical and financial assistance to more than 7,740 cities and communities in all States, the District of Columbia, and Puerto Rico for the purpose of building local capacity to manage their natural resources.

Natural Resource Conservation Education

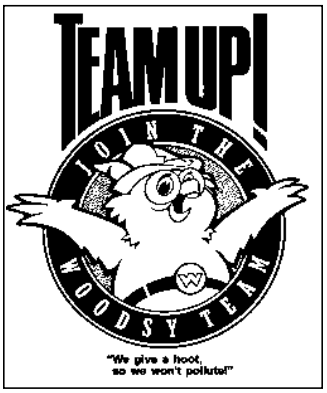
The Forest Service supports a lifelong learning process that promotes the understanding of ecosystems and natural resources—their interrelationships, conservation, use, management, and values to society. The program includes support for the delivery of Project Learning Tree with a network of 400,000 teachers.

Smokey Bear. In 1994, Smokey Bear celebrated 50 years of forest fire prevention. The Forest Service began a forest fire prevention program during World War II, and in 1944, a bear was introduced as the program symbol. In 1950, a bear cub survived a forest fire in the Lincoln National Forest, New Mexico, and after being nursed back to health, came to live in the National Zoo in Washington, DC, as the living fire prevention symbol.



Smokey Bear

Woodsy Owl. Woodsy Owl is a colorful and fanciful character who was designed to be especially appealing to young children. Woodsy Owl is recognized by over 83 percent of all American households and is considered to be America's leading symbol for environmental improvement. Woodsy was created in response to increased public awareness of environmental problems during the late 1960's and early 1970's. The Woodsy Owl campaign was officially launched by the USDA Forest Service on September 15, 1971. In June 1974, Congress enacted a law establishing "Woodsy Owl" as a "symbol for a public service campaign to promote wise use of the environment and programs which foster maintenance and improvement of environmental quality."



Woodsy Owl

Research

Forests are critical to the global environment and the global economy. They are the source of food, raw materials, shelter, and income for millions, and provide sanctuary for people and habitat for wildlife. Forests filter and protect water supplies and absorb carbon dioxide from the atmosphere. Agency research today is conducted in areas requiring urgent policy and management action, including sustainable development, biodiversity, economic and social values, ecological management, and forest health.

Established in 1876, Forest Service research has developed into the world's largest single source of natural resource information. It includes:

- More than 700 scientists whose work is aimed at the productivity, health, and diversity of the temperate, boreal, and tropical forests,

- Seven Regional Experiment Stations and one National Forest Products Laboratory comprising 77 research lab locations, many collocated with universities, and
- Gateways for collaborative research in the tropics, through the International Institute of Tropical Forestry in Puerto Rico and the Institute of Pacific Islands Forestry in Hawaii.

The Forest Service Research program provides:

- More than 2,700 publications per year, and numerous presentations at symposia and workshops,
- Collaboration with university, industry, and other scientists; nongovernmental organizations; managers; and policymakers for work that transcends the abilities of any single organization,
- More than $20 million per year in domestic grants, cooperative agreements, and contracts for research partnerships, and
- Key data bases for enhancing forest health, productivity, and conservation.

The Forest Service provides scientific and technological information to manage the Nation's forests and associated ecosystems. This includes studies in vegetation management, watersheds, fisheries, wildlife, products and recycling, insects and diseases, economics, forest and rangeland ecology, silviculture, fire ecology, fire prevention, insects and diseases, ecosystem functioning, and recreation. For example, activities include:

- Restoration of degraded wetlands,
- Protection and restoration of endangered or sensitive native fish, such as Pacific and Atlantic Salmon, and
- Development of strategies to conserve bird populations, in partnership with the National Fish and Wildlife Foundation.

Research priorities include:

- Forest inventory and analysis across the United States and forest health monitoring in 18 States,
- Global change research, to learn how climate change interacts with pollution, drought, and forest health,
- Recycling and wood use, to solve technical problems that hinder wastepaper recycling and to develop new products from agricultural and wood fibers and byproducts, and
- Large-scale ecosystem studies, for example on restoring mixed-oak forests in southern Ohio, evaluating impacts of silvicultural treatment on biological diversity in northern hardwood forests, and protecting watersheds, riparian zones, and biological diversity in the Rio Grande Basin.

International Forestry

The Forest Service international program advances sustainable management of forest ecosystems in other countries in ways that also benefit the United States. Drawing on the skills of its resource managers and scientists, the Forest Service is a global conservation leader and the main advocate in the U.S. government for sustainable forest management based on scientific principles. The United States is the world's largest importer of wood, and it exports more than $18 billion worth of wood

products each year. The Forest Service helps to develop international policies and guidelines that support U.S. business internationally.

The Forest Service is instrumental in preventing forest pests, such as the Asian gypsy moth and the sirex wood wasp, from entering the United States. In cooperation with Latin American countries, the Forest Service protects the habitat of migratory birds—250 out of 750 bird species in the U.S. migrate to other countries. The Forest Service develops and shares new technology with other countries, including technologies for forest utilization, monitoring forest resources, and understanding the role of forests in global climate change.

Human Resource Programs

Human Resource Programs provide job opportunities, training, and education for the unemployed, underemployed, elderly, young, and others with special needs, simultaneously benefiting high-priority conservation work. These programs are a major part of the Forest Service work force. In FY 1994, these programs included 120,889 participants.

Job Corps Civilian Conservation Centers

Through an agreement with the U.S. Department of Labor, the Forest Service operates 18 centers on Forest Service lands. The Job Corps program is the only Federal residential, education, and training program for the Nation's disadvantaged youth.

- ***Key facts about Job Corps Civilian Conservation Centers***
  - *18 Job Corps Centers, 15 coed*
  - *7,976 enrolled, ages 16-24*
  - *$88 million budget*
  - *$20.2 million work accomplishment*
  - *80 percent placed*
  - *Average starting salary, approximately $6.50 per hour*
  - *42 percent minorities*

Senior Community Service Employment Program

This program is designed to provide useful part-time employment and training for persons aged 55 and over.

- ***Key facts about the Senior Community Service Employment Program:***
  - *5,476 older workers participated*
  - *$26.8 million budget*
  - *$41 million work accomplishment*
  - *Only Federal agency among 10 National sponsors*
  - *40 percent females*
  - *16 percent placed*
  - *$1.53 return on dollar invested*

Youth Conservation Corps

In this summer employment program, persons aged 15-18 accomplish projects that further the development and conservation of natural resources of the United States.

- ***Key facts about the Youth Conservation Corps:***
  - *766 enrollees, ages 15-18*
  - *$1.7 million operating costs*
  - *$2.5 million work accomplishment*
  - *$1.48 return on dollar invested*
  - *3 percent females*

Volunteers in the National Forests

This program allows organizations and individuals to donate their talents and services to help manage the Nation's natural resources.

- ***Key facts about Volunteers in the National Forests :***
  - *93,726 volunteers have participated, including 207 international volunteers and 311 Touch America Project volunteers, aged 14-17.*
  - *$36.8 million work accomplishment*
  - *1 million volunteers reported since the 1972 legislation*

Hosted Programs

Hosted programs provide conservation training and work opportunities on National Forests or in conjunction with Federal programs. Programs are administered through agreements with State and county agencies, colleges, universities, Indian tribes, and private and nonprofit organizations. The program has had 12,796 participants, with work accomplishment valued at $18.8 million.

Youth Forest Camps

Through a partnership with the National Forest Foundation, the Forest Service operated five youth forest camps during the summer of 1994. These camps provided jobs, work training, and environmental education for persons aged 14-20.

- ***Key facts about Youth Forest Camps :***
  - *149 participants*
  - *Work valued at $407,000*
  - *5 camps operated (Oregon, Washington, Virginia, Maine, and Colorado)*
  - *48 percent females*

- ***Key facts about law enforcement and investigations, FY 1994:***
  - *154,881 incidents or violations of Federal laws and regulations were reported. These violations resulted in many millions of dollars in damages and losses to National Forest System property and resources.*
  - *Nearly 630,667 cannabis plants were eradicated from 8,485 sites on the National Forests.*
  - *1,392 individuals were arrested for producing and distributing illicit controlled substances on the National Forest System.*
  - *About 180 special agents and 433 full-time uniformed law enforcement officers performed investigation and enforcement activities that are unique to the National Forest System and its resources.*

Law Enforcement and Investigations

The objective of the Forest Service law enforcement program is to protect the natural resources, Federal property, agency employees, and National Forest System visitors and their property. The program focuses on activities such as vandalism, archaeological resource violations, timber theft, wildland arson, and the cultivation and manufacture of illegal drugs.

Forest Service drug control efforts continue to focus on detection, apprehension, and prosecution of persons responsible for illegal drug activities on the forests. Drug enforcement efforts resulted in the seizure of several million dollars worth of assets and the destruction of several billion dollars worth of drugs.

In FY 1994, 479 cooperative law enforcement agreements allowed the Forest Service to cooperate with State and local law enforcement agencies and with other Federal agencies to increase protection of and service to forest visitors. About 203 drug control agreements were set up between the Forest Service, State and local law enforcement agencies, and other Federal agencies or task forces to work cooperatively in eliminating illegal drug activities on the National Forest System.

Natural Resources Conservation Service: A Productive Nation in Harmony with a Quality Environment

As USDA's lead agency for conservation technical assistance, the Natural Resources Conservation Service (NRCS) (formerly the Soil Conservation Service) works closely with other USDA agencies involved in conservation priorities, including the Consolidated Farm Service Agency; the Agricultural Research Service; the Forest Service; and the Cooperative State Research, Education, and Extension Service. Through these agencies, USDA administers a wide range of programs to address this country's natural resource challenges as they affect private lands in agricultural and other uses.

- ***NRCS Major Accomplishments in FY 1994***
  - *Decisionmakers receiving technical services:* *1.1 million*
  - *Acres treated annually through conservation technical assistance:* *63.1 million*
  - *Tons of soil erosion reduced through conservation technical assistance:* *244 million*
  - *Acres mapped by NRCS:* *25.4 million*
  - *Number of soil surveys ready for publication:* *53*

Our well-being depends on healthy, productive, and diverse ecosystems and their sustainable use. Just as soil, water, and habitat are interrelated, the programs that address these resources are interrelated, and programs that help one resource also benefit others. If you stop erosion, for example, you also enhance soil productivity and protect water and air quality. Improving the environment can enhance the economic health and future of communities throughout the United States.

The mission of NRCS is to provide leadership and administer programs to help land owners and land users conserve, improve, and sustain our natural resources and the environment, while enabling the United States to continue serving as the world's preeminent producer of food and fiber.

A Partnership Approach to Resource Conservation

For six decades, NRCS employees have worked side-by-side with landowners, conservation districts, State and local governments, and urban and rural partners to restore and enhance the American landscape. The agency helps landowners and communities take a comprehensive approach in conservation planning, going beyond soil to an understanding of how all natural resources—soil, water, air, plants, animals—relate to each other and to humans. The agency works to solve the natural resource challenges on the Nation's private lands—reducing soil erosion, improving soil health and rangeland health, protecting water quality and supply, conserving wetlands, and providing fish and wildlife habitat.

Most NRCS employees serve in USDA's network of local, county-based offices, including those in Puerto Rico and the Pacific Basin. The rest are at State, regional, and national offices, providing technology, policy, and administrative support. They serve all people who live and work on the land. Nearly three-fourths of the agency's technical assistance goes to helping farmers and ranchers develop conservation systems uniquely suited to their land and their ways of doing business.

The agency helps rural and urban communities curb erosion, conserve and protect water, and solve other resource problems. 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 conservation programs to fit the special needs of their people and their land. Also, countries around the globe seek NRCS advice on 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. NRCS relies on many partners to help set conservation goals, work with people on the land, and provide services. In addition to local conservation districts, State conservation agencies, and other State and Federal agencies, the partners include NRCS Earth Team volunteers, AmeriCorps members, agricultural and environmental groups, and professional societies.

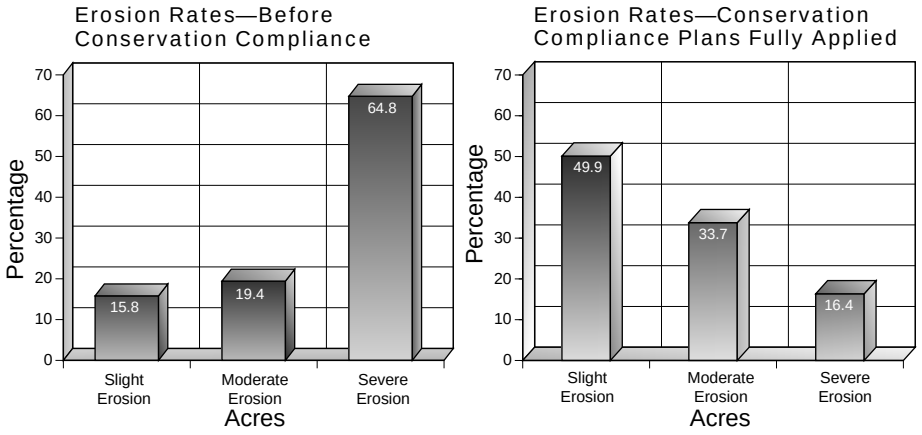
Conservation Technical Assistance

NRCS provides conservation technical assistance to land users, communities, units of State and local government, and other Federal agencies in planning and implementing natural resource solutions to reduce erosion, improve soil and water quantity and quality, improve and conserve wetlands, enhance fish and wildlife habitat, improve air quality, improve pasture and range conditions, reduce upstream flooding, and improve woodlands. The purpose of applying these solutions is to sustain agricultural productivity and protect and enhance the natural resource base. This assistance is based on voluntary local landowner cooperation and recognizes the value of educational, technical, and financial assistance.

The 1985 Food Security Act, as amended by the Food, Agriculture, Conservation, and Trade Act of 1990, calls for NRCS to implement the following provisions: highly erodible land, wetland (swampbuster), Wetlands Reserve Program, and Conservation Reserve Program. NRCS technical field staff make highly erodible

Figure 10-2.

Soil erosion rates before and after the 1985 Food Security Act



Farmers have made tremendous progress in the last 10 years in reducing soil erosion on the Nation's most highly erodible cultivated cropland.

Categories of erosion
- Slight: Erosion rates at or below tolerable levels
- Moderate: Erosion rates between one and two times tolerable levels
- Severe: Erosion rates more than two times above tolerable levels

SOURCE; USDA Natural Resources Conservation Service, Conservation Compliance 1994 Status Reviews, preliminary data as of February 9, 1995

land and wetland determinations, and they assist land users in developing and implementing necessary conservation plans. NRCS is also the lead Federal agency for delineating wetlands on agricultural lands for purposes of complying with the provisions of the Food Security Act and Section 404 of the Clean Water Act. NRCS administers the following five cost-share programs:

1. Wetlands Reserve Program
2. Great Plains Conservation Program
3. Colorado River Basin Salinity Control Program
4. Water Bank Program, and
5. Forestry Incentives Program.

NRCS also provides technical assistance to individuals and groups participating in the Agricultural Conservation Program and Conservation Reserve Program.

Soil Surveys

NRCS conducts soil surveys cooperatively with other Federal agencies, land-grant universities, State agencies, and local units of government. Soil surveys provide the public with local information on the uses and capabilities of their soil resource. Soil surveys are based on scientific analysis and classification of the soils, and are used to determine land capabilities and conservation treatment needs. The published soil survey for a county or designated area includes maps and interpretations, with explanatory information that is the foundation of resource policy, planning, and decisionmaking for Federal, State, county, and local community programs.

Snow Survey and Water Supply Forecasts

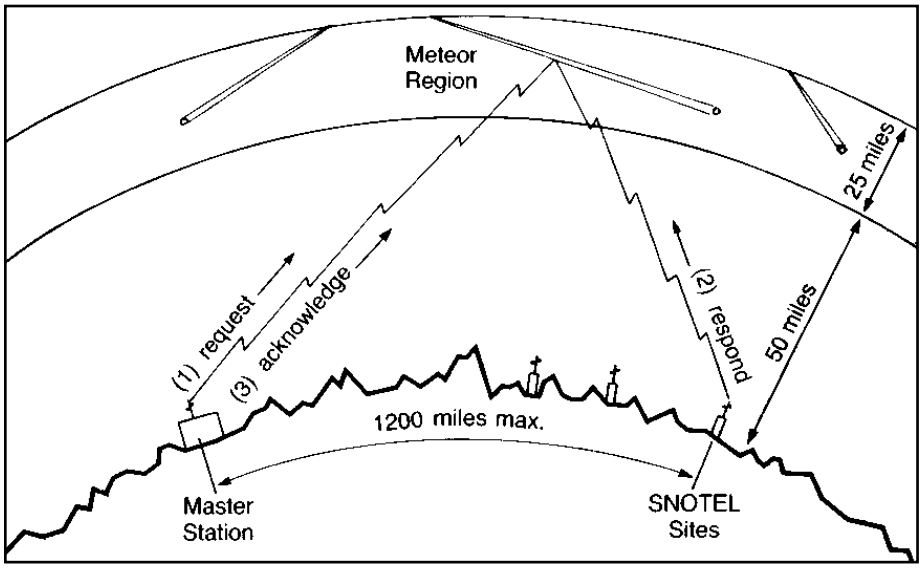
NRCS field staff collect data from more than 1,200 remote high mountain sites to provide Western States and Alaska with vital information on future water supplies. The data are assembled and analyzed and water yield forecasts are made. Forecasts provide estimates of annual water availability, spring runoff, and summer stream flows. Water supply forecasts are used by individuals, organizations, and State and Federal agencies to make decisions relating to agricultural production, fish and wildlife management, municipal and industrial water supply, urban development, flood control, recreation power generation, and water quality management. The National Weather Service includes them in their river forecasting function.

Plant Materials Centers

NRCS employees at 26 Plant Materials Centers assemble, test, and encourage increased plant propagation and usefulness of plant species for biomass production, carbon sequestration, erosion reduction, wetland restoration, water quality improvement, streambank and riparian area protection, and coastal dune stabilization, and to meet other special conservation treatment needs. The work is carried out cooperatively with State and Federal agencies, commercial businesses, and seed and nursery associations. After species are proven, they are released to the private sector for commercial production. In 1993, NRCS developed cultivars that were turned over to others to produce plant stock that generated $211 million in revenue for private sector nurseries and seed companies.

Figure 10-3.

Snow surveys and meteor burst technology



Water supply forecasting is enhanced by automated snow survey data collection through a snowpack telemetry (SNOTEL) network. This figure depicts the meteor burst technique used to transmit data from remote SNOTEL sites.

Billions of sand-sized meteorites enter the atmosphere daily. As each particle heats and burns in the region 50 to 75 miles above the Earth's surface, its disintegration creates a trail of ionized gases. The trails diffuse rapidly, usually disappearing within a second, but their short lifespan is adequate for SNOTEL communications to be completed.

The process has three major steps: (1) master stations request data from remote sites; (2) sites respond by transmitting their current data; and (3) finally a master station acknowledges receipt and signals the site transmitter to stop. This complex exchange, taking place in a fraction of a second, is possible thanks to microprocessors.

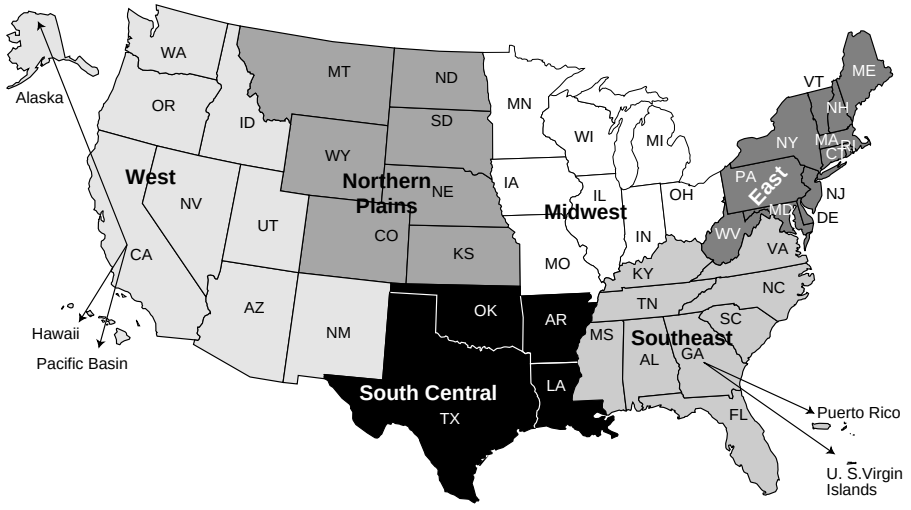
Wetlands Reserve Program

The Wetlands Reserve Program is a voluntary incentive program to assist owners of eligible land to restore and protect wetlands. The primary objectives of the program are to preserve and restore wetlands, improve wildlife habitat, and protect migratory waterfowl. Wetland restoration improves water quality and provides flood water retention, ground water recharge, open space, and esthetic values.

The Secretary of Agriculture uses program funds to purchase long term and permanent easements that provide for the restoration and protection of wetlands. Eligible lands include farmed wetlands, prior converted wetlands that have a history of food and fiber production, limited areas of natural wetland that significantly add to the

Figure 10-4.

Wetlands Reserve Program Acreage by NRCS Region[1]



Region	[2] 1992 Recorded Acres (rounded)	[3] 1994 Accepted Acres (rounded)
East	50	700
Southeast	17,400	17,300
Midwest	7,750	19,600
Northern Plains	0	6,700
South Central	12,700	24,400
West	4,300	6,300
TOTALS	42,200	75,000

1 1995 WRP expanded to all States. Signup was March 30-June 30, 1995; landowners offered 570,000 acres during the signup.

2 1992 Pilot WRP program offered in nine States through September 1993. Figures are recorded official easements; 6,000-8,000 additional acres in process.

3 1994 program expanded to 20 States with signup from February 28-March 11, 1994.

values of the easement area, riparian corridors that connect protected wetland areas, and associated upland buffer areas. The easements require the landowner to agree to the implementation of restoration and protection actions on the easement area. Compatible use of the easement area may be allowed by NRCS where such use is fully consistent with the long term protection and enhancement of the wetland values of the easement. Technical assistance is provided mainly by NRCS and the U.S. Fish and Wildlife Service.

Program participants who sell permanent easements receive one lump sum easement payment, not to exceed the agricultural value of the land. They also receive restoration cost share funding of 75 to 100 percent. Participants who sell

nonpermanent easements receive 50 to 75 percent of the easement payment amount that would have been paid for a permanent easement on the same site and 50 to 75 percent of the restoration cost share. Title clearance and associated legal expenses are covered by NRCS. Actual implementation of the restoration practice may be undertaken in a variety of ways (for example by the landowner, by the landowner contracting for the work, or by NRCS entering into a cooperative agreement with a conservation district or other appropriate entity to accomplish the work).

After two signups in 1992 and 1994, the Department had about 110,000 acres enrolled in the program. Another 100,000 acres are expected to be enrolled in 1995 in the first nationwide signup.

Watershed Planning

NRCS provides assistance to local communities in watershed planning in response to requests by sponsoring local organizations. The agency works with sponsors to develop watershed plans that meet sponsors' priorities and provide natural resource benefits.

Small Watersheds Projects

NRCS provides technical and financial assistance—in cooperation with local sponsoring organizations, State agencies, and other public agencies—to voluntarily plan and install watershed-based projects on private lands. The program empowers local people or decisionmakers, builds partnerships, and requires local and State funding contributions. The purposes of watershed projects include watershed protection; flood prevention; water quality improvements; soil erosion reduction; rural, municipal, and industrial water supply; irrigation water management; sedimentation control; fish and wildlife habitat enhancement; and creation and restoration of wetlands and wetland functions.

Emergency Watershed Protection

Under the Emergency Watershed Protection program, NRCS provides assistance to reduce hazards to life and property in watersheds damaged by severe natural events. An emergency exists when floods, fire, drought, or other natural causes result in life or property being endangered. During the past 8 years, the program has been needed and used in an average of 26 States per year. Emergency work includes establishing quick vegetative cover on denuded land, sloping steep land, and eroding banks; opening dangerously restricted channels; repairing diversions and levees; and other emergency work. The emergency area need not be declared a national disaster area to be eligible for technical and financial assistance. Emergency watershed protection is applicable to small-scale, localized disasters as well as disasters of national magnitude. NRCS provides technical and financial assistance for disaster cleanup and subsequent rebuilding; restoration of stream corridors, wetlands, and riparian areas; and urban planning and site location assistance to the Federal Emergency Management Agency when relocating communities out of floodplains. Local people are generally employed on a short-term basis to assist with disaster recovery.

Watershed Operations

Under the Flood Control Act of 1944, NRCS is authorized to administer watershed works of improvement. Flood prevention operations include planning and installing works of improvement and land treatment measures for flood prevention; for the conservation, development, utilization, and disposal of water; and for the reduction of sedimentation and erosion damage. This may also include the development of recreational facilities and the improvement of fish and wildlife habitat. Activities are authorized in 11 specific flood prevention projects covering about 35 million acres in 11 States.

Colorado River Basin Salinity Control Program

This is a voluntary incentive program that supports the objectives of the Nation's commitment to the 1973 International Boundary and Water Commission Agreement concerning the quality of water in the Colorado River delivered downstream to users in the United States and Mexico. The program calls for identifying salt source areas; developing conservation plans; and implementing salinity control measures such as improvement of on-farm irrigation water management, related laterals, and erosion management practices. The Federal Government provides financial and technical assistance to landowners to plan, install, and maintain needed soil and water conservation practices, including replacement of incidental fish and wildlife values. It also conducts research, demonstration, and education activities and evaluates program effectiveness. The program provides for up to 70 percent Federal cost-sharing, with reimbursement of 30 percent of NRCS cost-share funds by the States. The program is authorized in the seven Colorado River Basin States, with current emphasis on projects in Colorado, Nevada, Utah, and Wyoming.

Table 10-5.

Major Accomplishment	*Grand Valley, CO*	*Uinta Basin, UT*	*Big Sandy, WY*	*Lower Gunnison, CO*	*McElmo Creek, CO*
Salt load reduction (cumulative) - tons	63,074	77,549	22,313	18,878	2,238
Deep percolation reduction (cumulative) -acre/feet	17,429	56,001	8,582	5,880	2,238
FY 1994 contracts approved	69	113	9	56	39

Forestry Incentives Program

The objectives of this program are to increase the Nation's production of sawtimber and pulpwood on nonindustrial, private forest lands; to decrease expected shortages and rising prices of timber; and to help ensure effective use of available forest lands. Program objectives are met by providing cost-share and technical assistance to landowners to encourage voluntary installation of forestry practices. The program shares up to 65 percent of the cost incurred by the landowner for tree planting and timberstand improvement.

Water Bank Program

The objectives of this program are to preserve and improve migratory waterfowl and wildlife-related resources, conserve surface water and reduce runoff and soil and wind erosion, improve flood control, contribute to improved soil moisture, enhance landscape esthetics, and promote comprehensive water management planning. Ten-year agreements are established between NRCS and landowners and operators in important migratory waterfowl nesting, breeding, and feeding areas for the conservation of wetlands.

River Basin Surveys and Investigations

NRCS cooperates with other Federal, State, and local agencies in conducting river basin surveys and investigations, flood hazard analysis, and flood plain management assistance to aid in the development of coordinated water resource programs, including the development of guiding principles and procedures. Cooperative river basin studies are made up of agricultural, rural, and upstream water and land resources to identify resource problems and determine corrective actions needed. These surveys address a variety of natural resource concerns including water quality improvement, opportunities for water conservation, wetland and water storage capacity, agricultural drought problems, rural development, municipal and industrial water needs, upstream flood damages, and water needs for fish, wildlife, and forest-based industries. Flood plain management assistance includes the identification of flood hazards and the location and use of wetlands. NRCS represents USDA on river basin regional entities and River Basin Interagency Committees that coordinate work among Federal Departments and States.

Great Plains Conservation Program (GPCP)

This program offers long-term solutions to natural resource problems in the 10 States comprising the Great Plains region. NRCS helps farmers, ranchers, and others make and implement conservation plans to bring improved economic and social stability to the Great Plains area. This is accomplished by accelerating the conversion of cropland not suited for continuous cropping to less intensive uses; preventing deterioration of cropland and rangeland; enhancing fish, wildlife, and recreation resources; and promoting better land management. Farmers and ranchers participating in the program contribute nearly 60 percent of the costs.

GPCP is a special program targeted to total conservation treatment of entire farms or ranches having severe soil and water resource problems. Program participation is voluntary and is carried out by applying a conservation plan on the entire

operating unit. GPCP has been effective in addressing the needs of small and limited resource farmers and providing assistance to American Indians. In addition to significantly reducing erosion and sediment, the program addresses water quality problems and provides wildlife and other environmental benefits.

Resource Conservation and Development (RC&D) Program

This program is initiated and directed at the local level by volunteers. It is regional and encompasses multiple communities, various units of government, and grassroots organizations. The program serves as a catalyst for these civic-oriented groups to share knowledge and resources in a collective attempt to solve common problems facing their region. The RC&D Program offers aid in balancing an area's environmental, economic, and social needs. Assistance is obtained from the private sector, corporations, and foundations, and all levels of government contribute to the program. This combination of local leadership and coordination of State and Federal resources is an efficient way for communities to achieve local goals cooperatively. In FY 1994, RC&D areas completed 1,984 projects and donated 415,000 hours of time. Every dollar of NRCS Federal technical and financial assistance devoted to local projects was matched by $13 from other sources. In mid-1995 there were 277 authorized RC&D areas involving 2,016 counties across the country.

National Resources Inventory

Every 5 years, NRCS issues a report card on how well the Nation is sustaining natural resources on nonfederal land. Called the "National Resources Inventory," or

Figure 10-5.

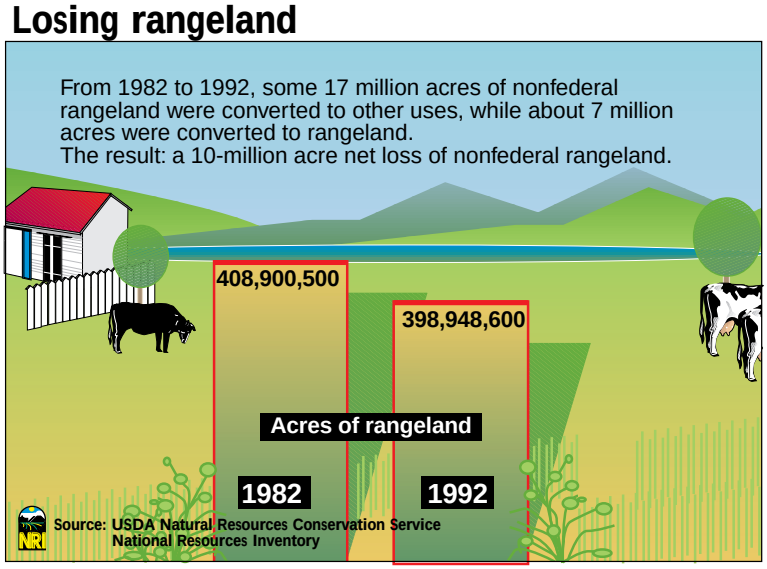
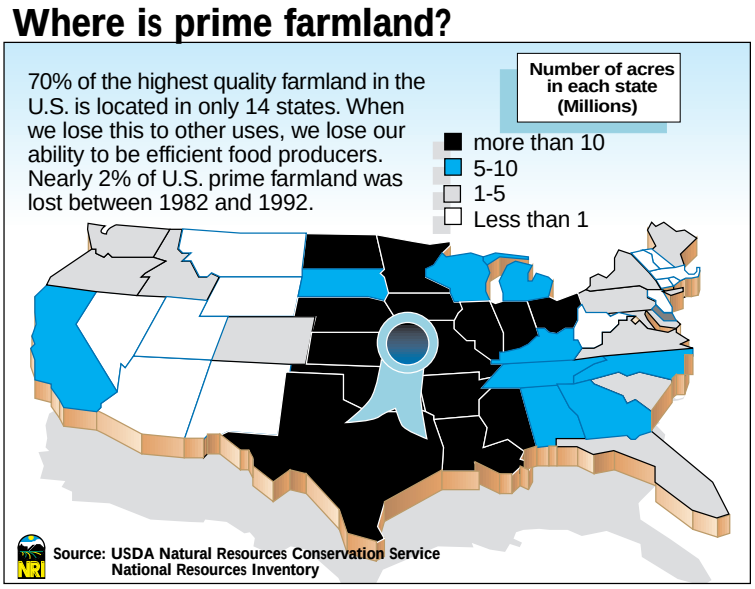


Figure 10-6.



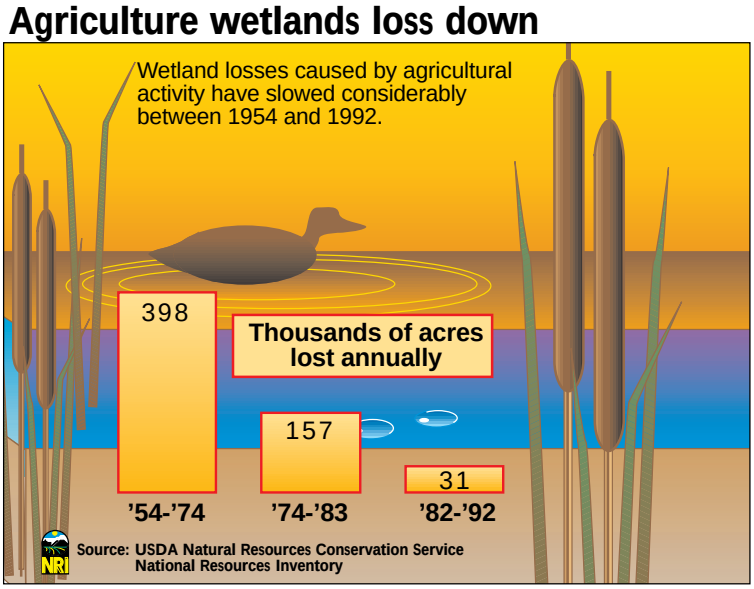
NRI, this report card contains the most comprehensive and statistically reliable data of its kind in the world. It measures trends in soil erosion by water and wind, wetland loss, changes in prime farmland acreage, irrigation, and conservation treatment needs at national and State levels.

In 1994, NRCS released the NRI data comparing resource conditions and trends in 1982 and 1992. Key findings include the following:

- Between 1982 and 1992, the Nation's cropland acreage decreased by about 9 percent (from 421 million to 382 million acres), most of it going into the Conservation Reserve Program; rangeland acreage decreased by about 2 percent (from 409 million to 399 million acres); and developed land increased by 18 percent (from 78 million to 92 million acres).
- The average annual rate of soil erosion for the Nation dropped substantially between 1982 and 1992, largely due to the success of the Nation's farmers in meeting the conservation provisions of the 1985 Farm Bill.
- From 1982 to 1992, 6 million acres of prime farmland—the Nation's best agricultural land—was lost, primarily due to rural and urban development.
- Wetland loss due to agriculture has slowed significantly.

The NRI contributes to resource appraisals authorized by the Soil and Water Resources Conservation Act of 1977. These RCA appraisals, led by NRCS, are the basis for USDA's National Conservation Program as well as farm and environmental legislation.

Figure 10-7.



In 1994, NRI data and analytical software were made available to the public on CD-ROM for the first time. To obtain the NRI database, Data Analysis Software, and spatial data sets, contact: NRCS National Cartographic and GIS Center, Fort Worth Federal Center, Bldg. 23, Room 60, P.O. Box 6567, Fort Worth, TX 76115-0567; or telephone (817) 334-5559, Extension 3135.