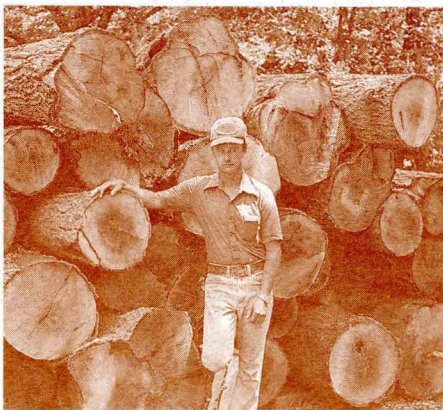
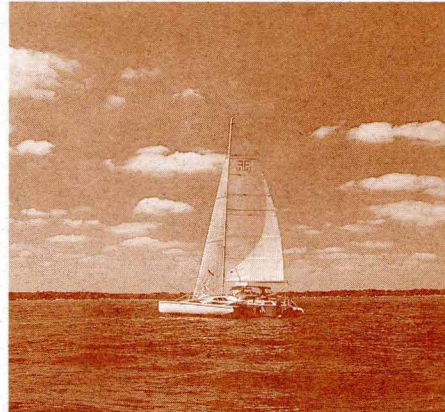
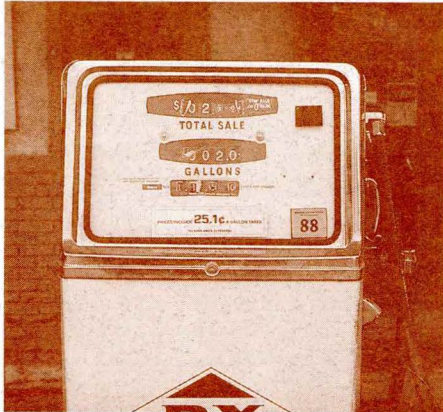
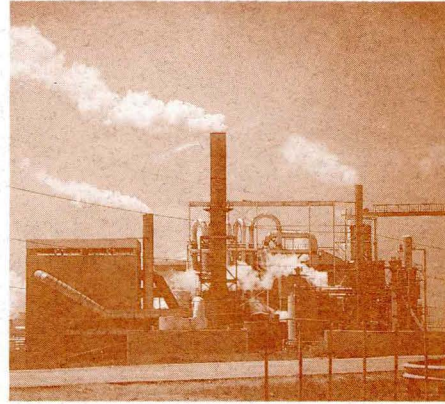
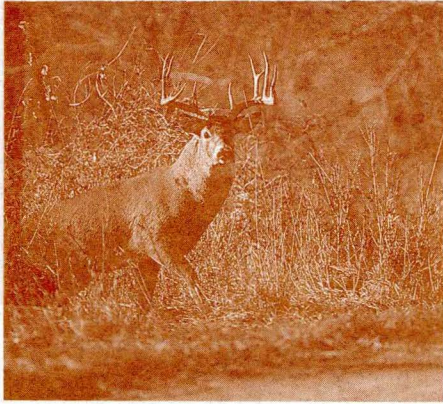


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**Annual Report
Fiscal Year 1990**

**IOWA DEPARTMENT
OF NATURAL RESOURCES**



Larry J. Wilson, Director

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DES MOINES, IOWA 50319

Iowa Department of Natural Resources
Wallace State Office Building
Des Moines, Iowa 50319-0034



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Natural Resource Commission

John D. Field, Hamburg
 Richard C. Young, Waterloo
 (Mrs.) Marion J. Patterson, Cedar Rapids
 Marian Kieffer, Bellevue
 Barbara Nelson, Ruthven
 Thurman Gaskill, Corwith
 Douglas R. Smalley, Des Moines
 Sam Kennedy, Clear Lake (Through
 September 1989)

Environmental Protection Commission

Charlotte Mohr, Eldridge
 Clark A. Yeager, Ottumwa
 Nancy Lee A. Siebenmann, Cedar Rapids
 Mike Earley, Waterloo
 William Ehm, Creston
 Richard Hartsuck, Des Moines
 Rozanne King, Mondamin
 Margaret M. Prah, Sioux City
 Gary C. Priebe, Algona

State Preserves Advisory Board

Paul A. Christiansen, Mt. Vernon
 (Mrs.) Dorothy Baringer, Woodburn
 Robert Kindwell, LeMars
 Ronald Kuntz, Des Moines
 Martha Maxon, Waterloo
 Larry J. Wilson, Des Moines



DIRECTOR'S MESSAGE

Fiscal year 1990 was the year for implementing the environmental groundwork for the final decade of this century. Because the environment has become one of the leading concerns of Iowans, 13 statewide public participation meetings were conducted across Iowa to identify the 15 most important environmental issues in Iowa. These suggestions were then submitted to Governor Branstad to help develop the State's "Environmental Agenda for the 1990s."

During the year we witnessed the beginning stages of the Resource Enhancement and Protection program.

Resource Enhancement Committees were organized in all 99 counties to oversee REAP projects within each county. And, 17 regional assemblies were conducted to inform Iowans about the REAP program and to gain valuable directives from those attending.

The Waste Reduction Assistance Program got underway. WRAP was created to address the needs of Iowa's larger businesses and industries to reduce the amount of waste they generate through reducing, reusing and recycling the wastes.

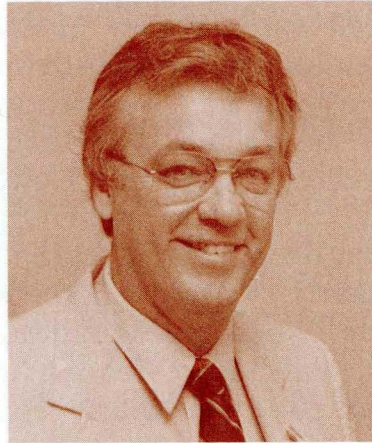
To commemorate the 20th anniversary of Earth Day, schools were provided with educational packets for classroom use and were given trees, free of charge, to plant. The *Trees for Kids* program resulted in more than 31,000 students and teachers participating in the planting of 14,000 trees and shrubs in Iowa.

For the first time, non-residents were allowed to hunt deer and turkey in Iowa.

The Iowa Civilian Conservation Corps Museum at Backbone State Park opened to tell the story of the CCC in Iowa, its accomplishments and what life was like for a "CCCer."

The 1990 Iowa Comprehensive Energy Plan charted a course for the state toward an energy-efficient future. The plan examined Iowa's energy use, showing the economic and environmental consequences of the state's heavy dependence on imported fossil fuels.

The first year of the final decade of this century proved to be challenging, as well as successful. But there is a lot of work ahead. I would like to reiterate what I stated in the "Special Earth Day Issue" of the *Iowa Conservationist* magazine (April 1990). "When we incorporate environmental protection values in our everyday lives, we will have arrived at a turning point for a brighter environmental future. Environmental awareness came from the first Earth Day. Environmental action should be the result of this one. Join us in the 1990s as we each strive to change our lifestyles in favor of the Earth."



Larry J. Wilson

ENVIRONMENTAL ISSUES

GROUNDWATER: Data from the statewide, rural well-water survey showed that about 18 percent of rural, private drinking water wells in Iowa are contaminated with nitrate in excess of the recommended health advisory level of 10 mg/L. Also, about 44 percent of the wells and/or their distribution systems are contaminated with coliform bacteria. However, contamination by nitrate and coliform bacteria occurs most frequently in shallow wells, generally less than 50 feet deep, located in the south-central and western parts of the state. Nearly 14 percent of the wells tested showed low levels of one or more of the 27 pesticides that were measured in the study. Pesticide detections were also more frequent in shallow wells. A 10 percent subset of the 686 sampling sites will be resampled next year with the intent of determining whether or not the 1988 and 1989 droughts influenced the results of the survey. These sites offer an opportunity for long-term monitoring to characterize trends in the quality of rural water supplies.

Emphasis has continued on investigations of groundwater quality and the geologic controls that affect the susceptibility of groundwater to contamination. Significant progress was made on the production of a groundwater vulnerability map to be published next year.

WASTEWATER TREATMENT: Fiscal year 1990 was the last year of the federal construction grants program. The construction grants program assisted communities in constructing wastewater treatment facilities. During the duration of the program, from 1957 to 1990, more than \$1 billion was awarded to 575 communities to improve wastewater treatment facilities.

To replace the construction grants program, the DNR implemented the State Revolving Fund, a low-interest loan program. Since the program began, 20 cities have received loans.

UNDERGROUND STORAGE TANKS: Legislation went into effect requiring underground storage tank owners or operators to demonstrate financial responsibility for personal injury and property damage caused by releases from petroleum underground storage tanks.

The number of reported leaking underground storage tanks greatly increased due to the deadline to apply for funding and state insurance. A total of 1,034 leaking sites were reported, compared to 404 last year.

At the end of the year, there were approximately 22,778 active regulated tanks, and about 3,600 farm and residential tanks under 1,100 gallons that had been registered. An additional 9,000 tanks were closed. The total number of tanks registered was more than 36,000 tanks.

The underground storage tank regulations are having an impact on the discovery of contamination and the closure of older

ENVIRONMENTAL ISSUES

tank systems. Many tank owners are permanently closing their older tanks rather than upgrading them. During the year, 3,094 underground storage tanks were permanently closed.

PUBLIC REPORTS: The number of complaints from Iowa citizens regarding environmental hazards or violations totaled more than 1,800, up 50 percent over the past five years. The increase is likely due to increased public awareness and concern about Iowa's environment. Complaints are investigated and, if found to be valid, result in actions to eliminate the problem. The complaints received most often involved water pollution or improper solid waste disposal, but also included dust complaints, tainted water supplies, odors, toxic air pollutants and hazardous materials.



The underground storage tank regulations are having an impact on the discovery of contamination and the closure of older tank systems.

ENVIRONMENTAL ISSUES

WASTE: The Waste Reduction Assistance Program (WRAP) was created to address the needs of Iowa's larger businesses and industries to reduce the amount of waste they generate. It addresses all forms of waste reduction opportunities including solid waste and air emissions. Through WRAP, Iowa businesses and industries and large-quantity generators of hazardous wastes receive technical assistance to prevent air and groundwater pollution and reduce production costs by reducing, reusing or recycling wastes generated.

Iowa became one of the first states in the nation to receive approval from the U.S. Environmental Protection Agency for its Capacity Assurance Plan (CAP). This plan is a guideline required by each state to demonstrate that it will have the capacity to manage its hazardous wastes for the next 20 years. To ensure Iowa is able to handle its wastes, the state must meet one or more of the following conditions as outlined by the EPA: develop an interstate agreement with another state that has excess capacity available and will accept the waste; develop capacity within the state's border by siting and building a hazardous waste management facility; and/or implement waste minimization programs that will result in the reduction or elimination of hazardous wastes.

Iowa facilities are permitted to process solid waste are required to prepare a solid waste comprehensive plan that addresses the feasibility of alternatives to conventional land disposal, such as source reduction, recycling and incineration for energy recovery. The Waste Reduction and Recycling Act of 1989 established specific waste volume reduction goals, including a 25 percent reduction by July 1, 1994. This legislation also included bans on materials, such as yard waste, lead-acid batteries and unprocessed tires, from going into the landfill. The requirements for implementation of the comprehensive plan were also



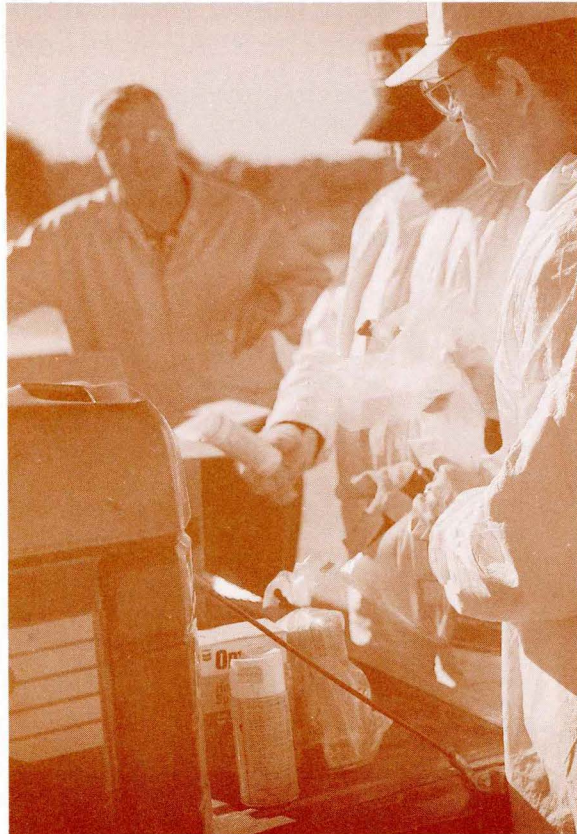
The Waste Reduction Assistance Program (WRAP) was created to assist Iowa businesses and industries in reducing, reusing or recycling wastes generated.

ENVIRONMENTAL ISSUES

strengthened to help ensure successful implementation of the plan. During the year, 34 facilities received approval from the DNR to implement their solid waste comprehensive plans.

Sixteen grants, totaling more than \$1.6 million, were awarded under Iowa's landfill alternatives grant program to promote innovative demonstration projects as alternatives to landfilling. Grants were awarded for waste reduction education programs, community and commercial recycling projects, composting and mulching projects, tire recycling and reuse projects, and expansion of end-use markets for waste paper. Funding for these grants came from the fees paid by landfills on a per-tonnage basis for disposal of waste.

Eleven toxic cleanup days were conducted across the state to collect household hazardous waste from homes and farms for proper disposal. The first Polk County cleanup day was held during the year which became one of the largest, first-time cleanup days ever conducted in the U.S.



Toxic cleanup days were conducted across the state to collect household hazardous waste from homes and farms for proper disposal.

NATURAL RESOURCE LANDS

FORESTS: The State Forest Nursery at Ames and the satellite growing area at Montrose grew and distributed more than five million tree and shrub seedlings. The nursery cooperated with Iowa State University in walnut improvement and root grading projects to increase survival and tree quality. The nursery also cooperated with the Department of Transportation in locating plant materials for DOT's new tree planting program along interstate and primary highways.

Planning and land acquisition continued for the Loess Hills Pioneer State Forest. This planned 17,000-acre forest is located in Monona and Harrison counties. During the year, an additional 738 acres were acquired at a cost of \$459,000; total acreage purchased to date is 4,648 acres. Funding for the recent acquisitions came from the Resource Enhancement and Protection (REAP) fund.

Forestry assistance was provided to 19,658 individuals. With the cooperation of landowners, an additional 36,893 acres of forestland were brought under improved management by private landowners. An additional 7,237 acres were planted to trees. State cost-share funding for tree planting and timber stand improvement was made available to Iowa landowners from the REAP program. These cost-share



Through the Trees For Kids program [created to commemorate the 20th anniversary of Earth Day], more than 31,000 students participated in the planting of 14,000 trees and shrubs in Iowa.

NATURAL RESOURCE LANDS

monies made it possible to increase the level of tree planting and timber stand improvement.

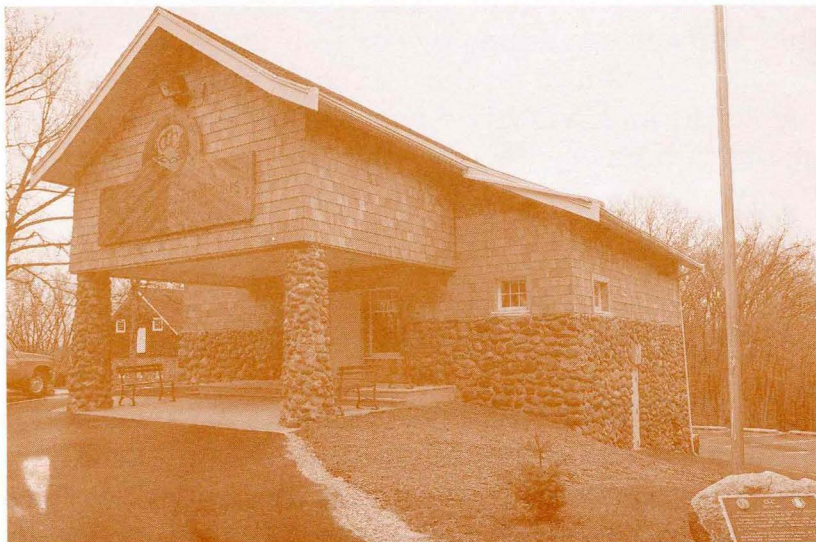
During the year, a revised Iowa forest resources plan identified five, high-priority goals: 1) increased citizen awareness of forest benefits; 2) increase tree planting; 3) improve management of all rural and urban forest resources; 4) increase publicly owned forestland; 5) and expand timber markets and uses.

To commemorate the 20th anniversary of Earth Day, the Iowa Banker's Association and the Iowa Nurserymen's Association joined the DNR in the *Trees For Kids* program. An educational packet was provided for classroom use and trees were provided to schools, free of charge, to plant. More than 31,000 students and teachers participated and planted 14,000 trees and shrubs.

PARKS: The Iowa Civilian Conservation Corps Museum at Backbone State Park opened to tell the story of the CCC in Iowa, its accomplishments and what life was like for a "CCCer." The museum is housed in a renovated former park staff residence at Backbone, Iowa's first state park.

A major study of the buildings and structures constructed by the CCC within the state parks system was completed. The study identified a number of CCC structures and buildings within 14 state parks that are worthy of nomination for National Historic Register status.

A master redevelopment plan for facilities at Pikes Peak State Park was completed during the year. Construction began on



The Iowa Civilian Conservation Corps Museum at Backbone State Park opened. The museum tells the story of the CCC in Iowa.

NATURAL RESOURCE LANDS

a variety of facilities, including two scenic overlooks, walkways, a new rest room and shower building and a large playground area.

Work began on the new entrance roadway at the Mines of Spain State Recreation Area at Dubuque, with completion scheduled for late 1990. Phase one of several developments planned at Mines of Spain, the road will provide improved access to the 1,300-acre area.

Additional land was acquired at the Brushy Creek State Recreation Area. Located south of the area, the 1,600 acres will be used for a variety of outdoor recreation activities and will feature a multi-use trail system as well as an equestrian campground.

A new visitor center opened at Cedar Rock, the Frank Lloyd Wright-designed residence on the Wapsipinicon River near Independence. The center provides an assembly area for tour visitors as well as a place for displays, special programs and staff offices.

PRESERVES AND ECOLOGICAL SERVICES: At the end of the fiscal year, there were 83 state preserves in the state, covering 8,000 acres. The 90-acre Mount Talbot State Preserve in Stone State Park became the newest addition to the preserves system.

A grant of \$10,000 was received from the U.S. Fish and Wildlife Services' *Recovery 2000* program to purchase habitat for the prairie bush clover, a federal and state threatened plant. Three new populations of prairie bush clover, as well as a number of new populations of other state-listed plant species, were located. One such species, kitten tails, is state-listed and is a candidate species for federal listing. *Recovery 2000* is a detailed program to recover 28 species in Iowa and seven other Midwestern states by the year 2000.

Habitat for the endangered blue-spotted salamander was protected through a DNR request to the Department of Transportation to modify a highway design scheduled for construction in Blackhawk County.

Prairie management activities were continued or initiated at Stone, Dolliver and Lake Ahquabi state parks and at Brushy Creek and Mines of Spain state recreation areas.

TRAILS AND WATERWAYS: Legislation requiring the registration of all-terrain vehicles went into effect, with approximately 300 ATVs registered by the end of the year. The registration fees will fund the development of land where ATVs can be legally ridden.

During the year, 34 DNR-funded boating access projects and 32 cost-share projects with counties and cities were initiated at various locations throughout Iowa. These projects will provide additional access to boating waters and also include expanded or improved

NATURAL RESOURCE LANDS

facilities at these sites. The DNR also placed 24 new courtesy boat docks on state-owned areas.

The following four rivers, totaling 290 miles, were designated as protected water areas by the DNR: portions of the Upper Iowa River, the Wapsipinicon River, the Middle Raccoon River and the Little Sioux River. The purpose of the protected water area program is to maintain existing natural and scenic qualities of selected lakes, rivers, marshes and their adjacent land areas. Funding for implementation of the protected water areas program will come from REAP.

OPEN SPACES: The Resource Enhancement and Protection (REAP) program got underway with \$25 million allocated during the fiscal year. Resource Enhancement Committees were organized in all 99 counties to oversee REAP projects within each county. Additionally, 17 regional assemblies were conducted to inform Iowans about the REAP program and to gain valuable directives from those attending. Major DNR projects which received REAP funding included land acquisition for Loess Hills Pioneer State Forest and Brushy Creek State Recreation Area, Pine Lake dam restoration and Green Island Wildlife Management Area development.



One of the major DNR projects which received REAP funding was for land acquisition for the Loess Hills Pioneer State Forest.

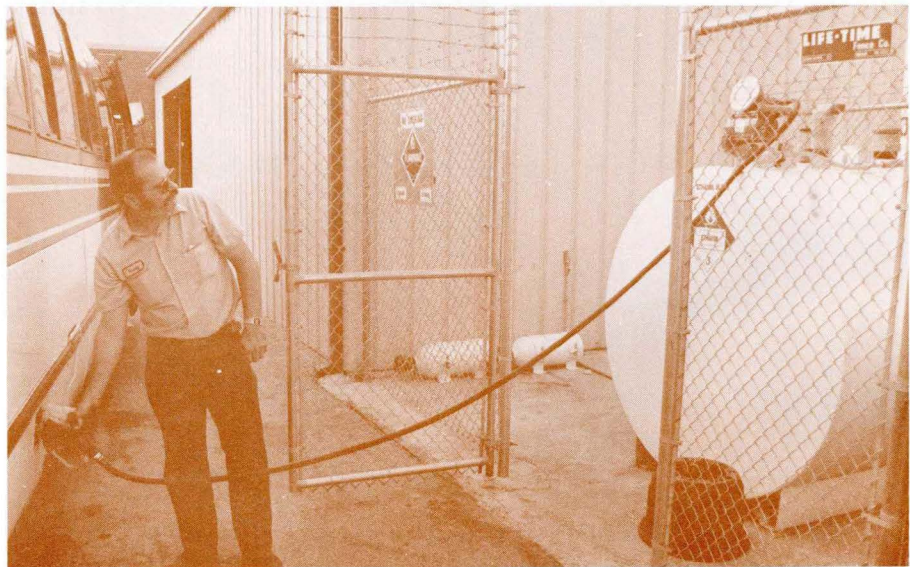
ENERGY

- Buildings and Engineering Excellence--developing and operating programs for energy management in buildings and to enhance our state's energy engineering capacity; and
- Transportation and Planning--addressing needs for transportation efficiency and preparing energy plans.

Existing needs in energy efficiency and renewable resources were addressed during the year. Among the accomplishments were:

- Continued expansion of building energy management programs for schools, hospitals, state agencies, local governments and non-profit associations;
- Progress in making telecommunications function as an energy-saving alternative to traditional transportation systems;
- Further efforts to diversify the state's energy resource base, particularly programs for ethanol, municipal solid waste and wood and wood waste as energy sources; and
- Public education efforts through Earth Day, the Iowa Energy Leadership Awards program and numerous publications, making the link between energy use and environmental quality.

14



Two energy goals include transportation efficiency and expanded use of ethanol gasoline. Here, the two are joined -- the Cedar Rapids' Bus Department uses ethanol in their buses.

FISHERIES AND WILDLIFE

FISHERIES: The DNR acquired 1,758 acres at Deer Creek Lake, Lost Grove Lake, Whitewater Lake and Lake Shawtee at a cost of \$1.8 million. The sites for Deer Creek Lake, Lost Grove Lake and Whitewater Lake have evolved out of a desire by the DNR to develop quality fishing and recreational lakes in high-population areas. All land is now acquired for Deer Creek Lake. The site for Lake Shawtee was chosen as the best site in southwest Iowa after 33 potential lake areas had been studied. Funding came from license fees and Dingell-Johnson federal aid funds.

Commercial harvest and sport catch of catfish on the Mississippi River continued to increase. This reflected more abundant catfish populations and larger fish as a result of a 15-inch size limit imposed on commercial take of catfish in 1984. Commercial take during fiscal year 1990 amounted to about 800,000 pounds from the Mississippi River.

A 15-inch minimum on walleye and a 14-inch minimum on black bass were imposed on the Mississippi River on that portion of Iowa that borders Wisconsin. This regulation was imposed in cooperation with Wisconsin.

During the year, a total of 255 acres of land and trout streams on Hewitt Creek, Clear Creek and Pine Creek were acquired for public fishing.

Beaver Lake in Dallas County, a public fishing lake of 34 acres, was completed.



Anglers generate \$6 million in revenue for Iowa each year.

FISHERIES AND WILDLIFE

Fish population renovation projects occurred on Little Wall Lake, Indian Lake, North Colyn and Brown's Slough, Lower Pine Lake, Beaver Lake and Brown's Lake.

Habitat improvement projects occurred on 11 coldwater streams, Meadow Lake, Don Williams, Lake Anita, Cold Springs, Lake Manawa, Green Valley, Lake Darling, Lake Hannen, Iowa Lake, Macbride Gustafson Lake, Nelson Park Lake, Indian Lake and Upper and Lower Pine Lakes.

Other developments during the year included fish cleaning facilities at Big Creek, Clear Lake and Lake Macbride; fishing piers at Big Creek and Beaver Lake; summer aeration system at Viking Lake; winter aeration system at Center Lake; fish barrier structure at Black Hawk Lake; preliminary design for a fish culture development research facility at Rathbun Hatchery; and design for multi-level water intake structure at Rathbun Hatchery completed.

WILDLIFE: During the year the DNR, in cooperation with the U.S. Fish and Wildlife Service, acquired approximately 1,000 acres of land under the Prairie Pothole Joint Venture for wetlands and upland nesting cover at a cost of about \$1 million. The DNR also acquired an additional 1,230 acres of land for PPJV implementation using revenue from state habitat and duck stamps, REAP and private funds.

DNR biologists worked with about 100 landowners to restore 120 basins on private land. The restoration totaled 340 acres of restored wetlands. In addition, 370 acres of wetlands were restored on public land.

For the first time, non-residents were allowed to hunt deer and turkey in Iowa. A total of 930 non-residents took 455 deer, bringing the annual harvest to a record 99,712 deer. A total of 194,611 residents hunted. The fall harvest of 5,300 turkey was taken by 14,855 resident and 157 non-resident hunters. During the spring season, 28,947 resident and 241 non-resident hunters harvested 8,117 turkeys.

An estimated 211,500 resident and non-resident pheasant hunters harvested 1.44 million pheasants, up from the previous year of 1.1 million birds.

The number of fur-bearing animals taken during the year by trappers and hunters was the lowest in 20 to 30 years, due to a low demand for fur and fur products.

Funding from habitat and duck stamps, turkey trade, REAP and private sources was used to acquire 2,690 acres of wildlife management and public hunting and trapping lands.

The river otter reintroduction program continued

FISHERIES AND WILDLIFE

LAW ENFORCEMENT: During the year, a total of 527 calls were processed through Iowa's Turn-In-Poachers program. These calls resulted in 85 citations issued in 42 cases. The citations were issued for illegal taking and possession of deer; falsifying deer license; shooting shotgun slugs from roadway in deer hunting zones one, two and 10; illegal sale of deer meat; and use of citizen-band radios and vehicles to pursue deer. Other citations issued included shooting of hen pheasants; hunting after hours; illegal possession of furbearers; taking of fish under minimum length limits; and exceeding possession limits for fish. A total of \$4,150 was approved for reward payment.

Conservation officers investigated 48 hunting accident, four of which were fatal. The majority -- 18 -- occurred during the pheasant hunting season.

Liquidated Damages -- \$74,000 Collected

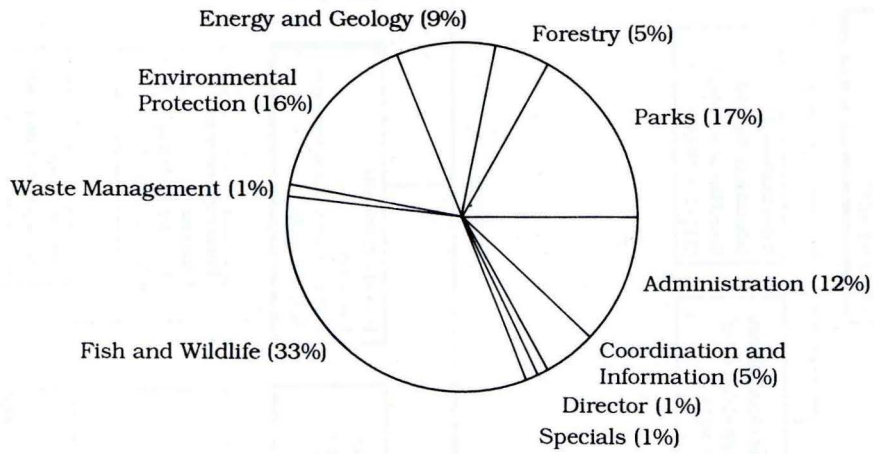
Specie	Number of Violations
Deer	97
Fish	202
Upland Game	67
Raccoon	48
Waterfowl	43
Furbearer	36
Turkey	13
Rabbit	10
Squirrel	6
Other	9
TOTAL	531

Education and Recreation Classes

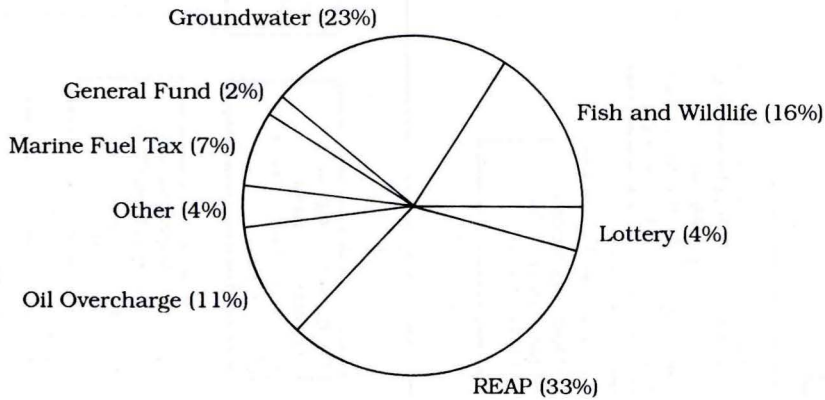
	Hunter Education	Snowmobile Safety	Boating Safety	Fur Harvester
Instructors Certified	182	6	8	50
Classes Conducted	396	34	10	5
Students Trained	10,291	307	1,019*	60

*includes 910 home-study

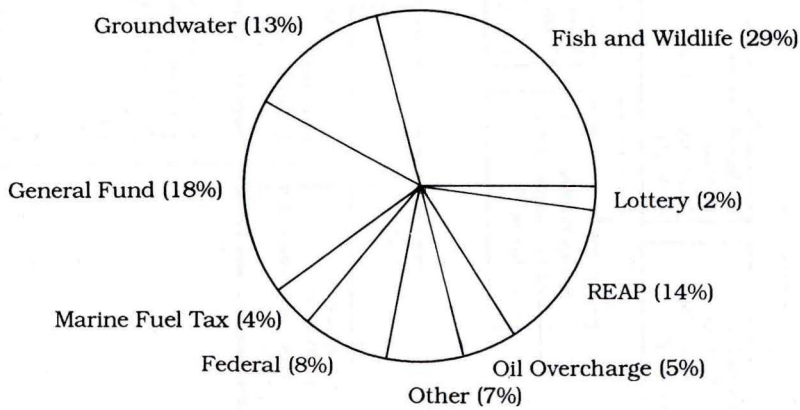
OPERATIONAL EXPENDITURES
by Division
\$44,474,062

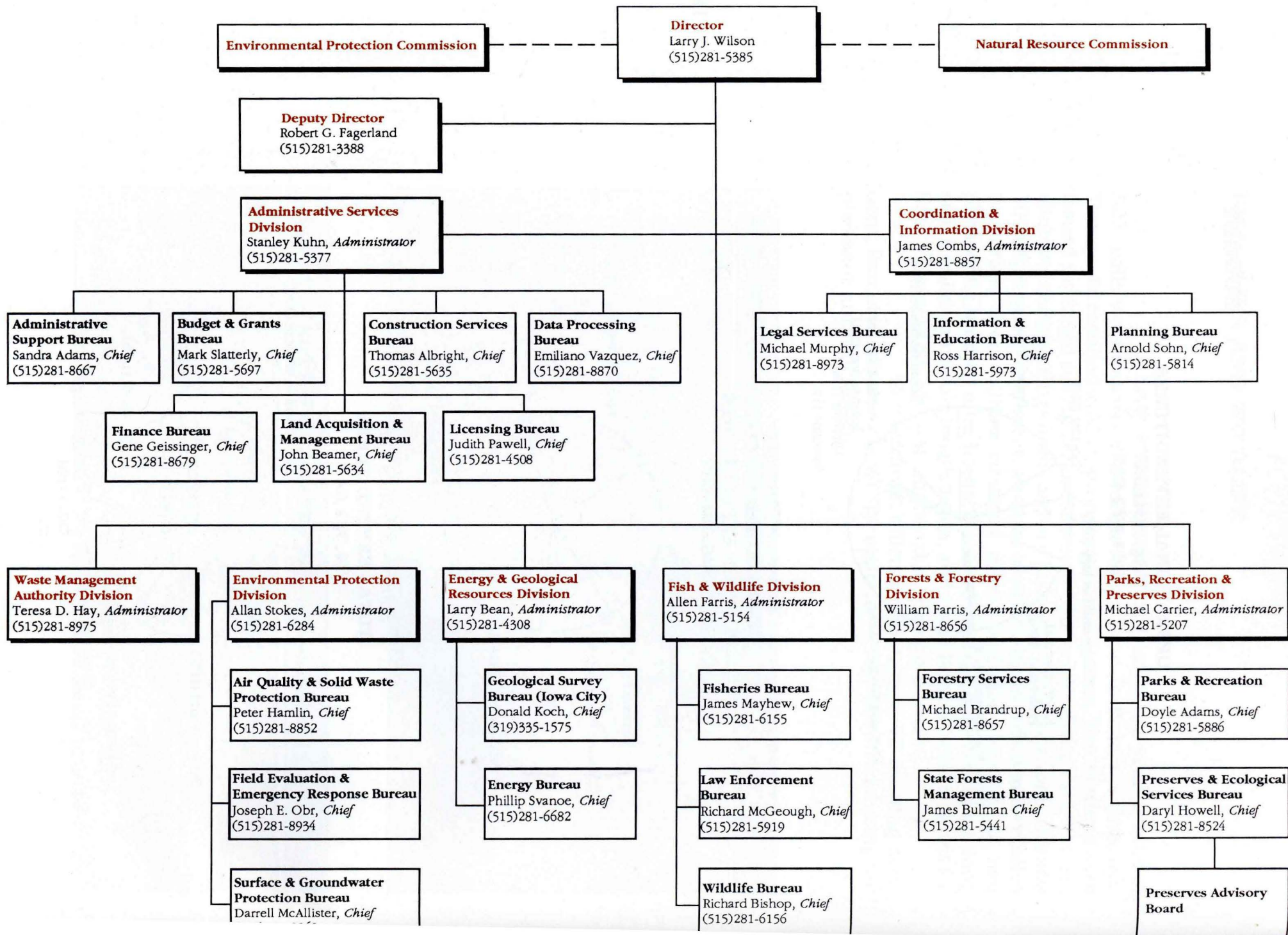


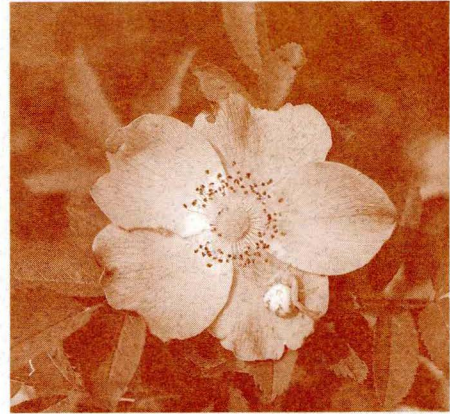
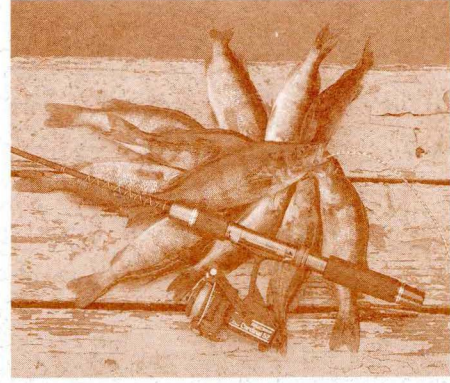
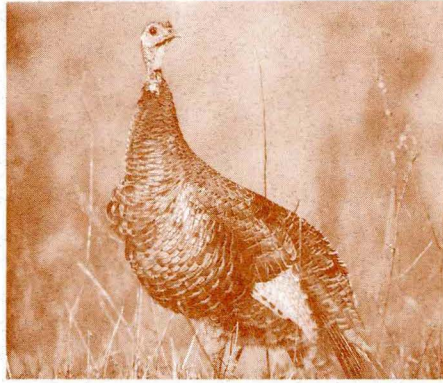
Sources of Funds For
CAPITAL AND SPECIAL
PURPOSE EXPENDITURES
\$29,887,587



Sources of Funds For
TOTAL EXPENDITURES
\$74,361,649







Upper left: Iowa wild turkey; upper right: Perch fishing; middle left: Landfill; middle right: Iowa's state flower, wild rose; bottom right: Peregrine falcon.



FRONT COVER :

Upper left: White-tailed deer; upper right: Air pollution; middle left: Gasoline pump; middle right: Iowa boating; bottom left: Iowa's forest resources.