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FY 1993 Annual Report

**Iowa Department
of
Natural Resources**

Larry J. Wilson
Director

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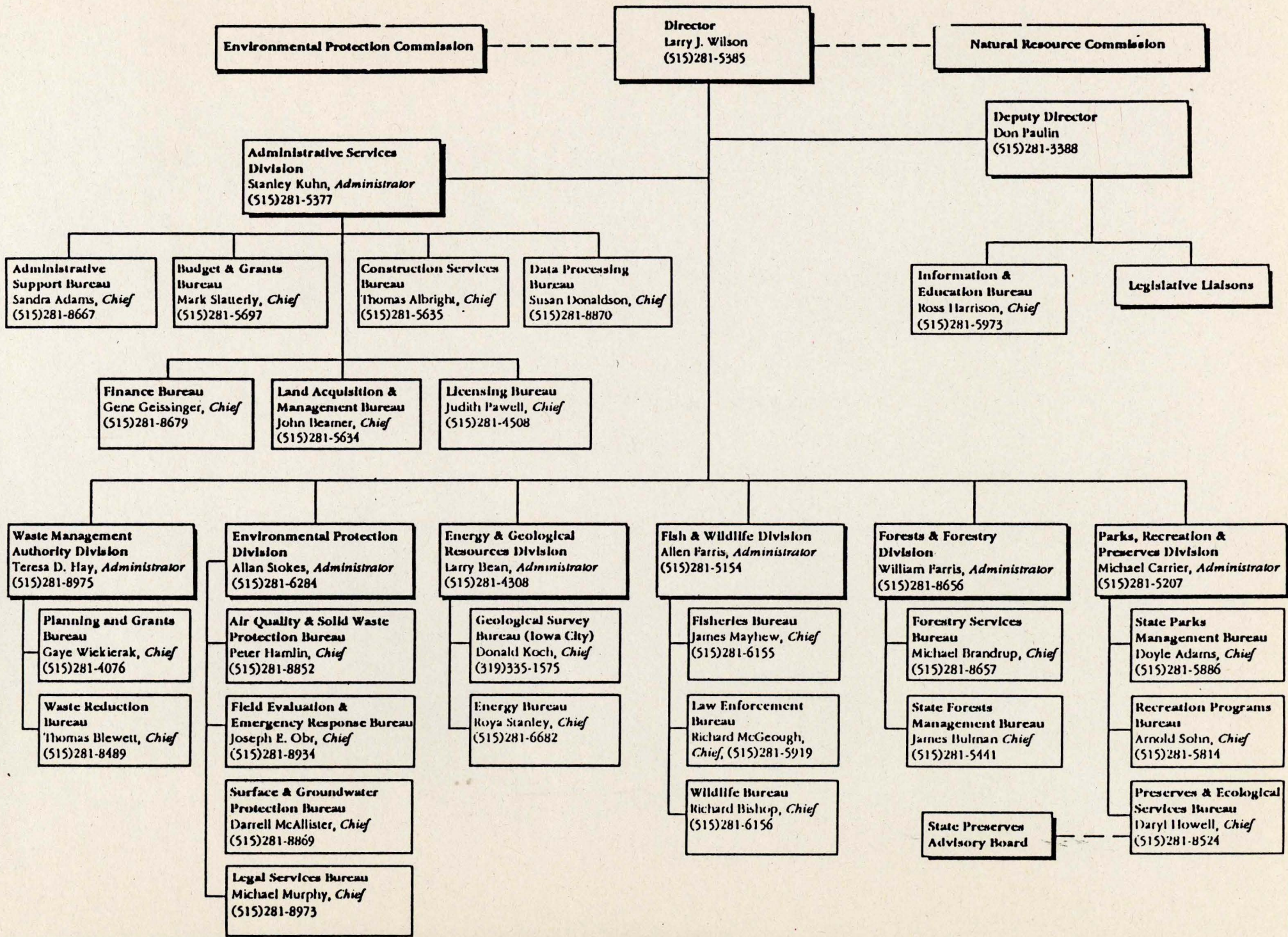


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Director's Message

Fiscal year 1993 added the challenge of record-breaking floods to the management, protection, conservation and development of Iowa's natural resources.

❖ About 1,224 acres were added to the Loess Hills State Forest, making the targeted 17,000-acre land acquisition 44 percent complete. The "Trees for Kids" and "Trees for Teens" programs reached more than 417,096 students and planted more than 64,500 trees. In cooperation with the nine Resource Conservation and Development areas, the third year of the "Rural Development Through Forestry" program distributed more than \$800,000 in matching federal funds to encourage economic development in rural areas through use of Iowa's forest resources.

❖ The department's Waste Management Assistance Division's WRAP Program began its third year. Using the expertise of retired industry professionals, WRAP assisted 20 companies in reducing the amount of waste they generate. ❖ Iowa maintained its efforts in the ethanol movement by increasing the number of vehicles in its ethanol fleet to 80, maintaining its status as the country's largest ethanol-powered fleet. The building energy management programs helped public and non-profit agencies identify cost effective energy management improvements, and in 1993 \$47 million worth of improvements were installed, saving \$8 million annually in tax

dollars. ❖ Even while damage assessment and repairs from the 1993 floods were begun, park renovations continued across the state. Four circa 1930 stone cabins were remodeled for year-round use at Pine Lake State Park. After three decades of planning and preparation, the development of Brushy Creek State Recreation Area finally began in March 1993, with the construction of a 690-acre lake. Once complete, the 6000-acre recreation area will offer something for everyone and will serve a large region of north-central Iowa presently lacking such an area. Renovation of Maquoketa Caves State Park continued with work completed on the new campground, shower building and modern rest room, and work begun on several of the area's other buildings, picnic areas and trails. A new guide to Iowa's state preserves was published.

❖ A database of geologic information developed in conjunction with the U.S. Geological Survey's Coal Resources Data System was completed. All DNR divisions have some Geographic Information System capabilities under development, and they are increasing investments to use the computerized technology.

❖ Numerous sportfish improvement projects were accomplished in spite of the extremely wet conditions of 1993 and construction began on 46-acre Deer Creek Lake in Plymouth County. The DNR's hatcheries stocked 300,000 trout, 102 million walleye, 4 million northern pike and 2 million catfish in



Larry J. Wilson

1993. ❖ Approximately 390,000 resident and 41,000 nonresident hunting licenses were sold to hunt pheasants, deer, turkeys and other small game. Funding sources including state habitat and waterfowl stamps, REAP, USFWS and private conservation organizations allowed the acquisition of more than 4,100 acres of new public land at a cost of \$2.9 million. Funding from habitat stamps and the Chickadee Checkoff for the Shelterbelt Cost-Share Program resulted in the establishment of 63, 8-row shelterbelts planted on private land at a cost of about \$68,000. Five young peregrines were hatched in nests from birds released through earlier reintroductions, making them the first falcons to be born in Iowa in 30 years. ❖ Underground storage tank regulations continued to have an impact on the discovery of contamination and the closure of older tank systems. All UST sites had to have leak detection in place and be able to show financial responsibility for any release that causes contamination. ❖ FY1994 will see the continuance of our mission to significantly enhance the quality of life for Iowans by the use, enjoyment and understanding of the state's natural resources.

Environmental Issues

Water Quality.

The floods of 1993 were some of the largest in Iowa's history. Staff from the department's water quality section, which includes the flood-plain management program, worked around the clock with state and local emergency management officials, assisting in flood forecasting and post-flood recovery efforts. The department continues to work with local and state officials on recovery and mitigation projects.

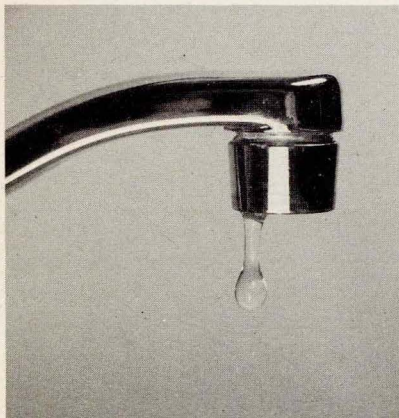
Wastewater Treatment. In 1991 the DNR implemented the State Revolving Fund (SRF), a low-interest loan program, to replace the construction grants program. The construction grants program had assisted communities in constructing wastewater treatment facilities. In FY93 a total of 14 loans were awarded to 13 communities for a total of \$28,131,000 (see listing at right). The interest rate to these communities varied from 4.37 percent to 4.86 percent.

❖ Since the beginning of the SRF program there have been 44 loans awarded to 34 communities for a total of \$72,698,000. ❖ During FY93, 90.3 percent of municipal and 95.4 percent of the industrial wastewater facilities with National Pollution Discharge Elimination System (NPDES) permits were in compliance with their effluent limits.

Underground Storage Tanks. The underground storage tank regulations continued to have an impact on the discovery of contamination and the closure of older tank systems. The number of reported leaking underground storage tanks totaled 4,467. Six-hundred and forty-two of the sites have completed cleanup. ❖ At the end of

1993, there were approximately 12,360 active regulated tanks on 5,240 sites. This is a decrease of 435 tanks over the past year. During the same period, approximately 2,690 tanks were removed. About 16,520 tanks have been removed since 1988, the year federal regulations went into effect. ❖ By the end of 1993, all UST sites had to have leak detection in place and be able to show financial responsibility for any release that causes contamination. ❖ Development was started on a program to certify laboratories doing UST analytical work. This should be completed by the end of 1994.

Public Reports. Complaints regarding environmental hazards or violations continued at the high rate seen in recent years, totaling 1,915 for 1993. Increased public awareness and concern about Iowa's environment may be part of the reason for the high number of complaints. Water pollution and improper solid waste disposal were the most frequent reports. Complaints also included dust prob-



Wastewater Treatment Loans

The following is a list of the communities awarded construction grant loans for wastewater treatment facilities and the loan amounts.

COMMUNITY	LOAN AMOUNT
Agency	\$ 234,000
Boone	7,320,000
Grinnell	5,855,000
Independence	372,000
Johnston	2,359,000
Kanawha	338,000
Knoxville	1,592,000
LeGrand	500,000
Mason City	4,237,000
Melcher-Dallas	100,000
Ottumwa	4,476,000
Preston	225,000
Sigourney	523,000
Total	\$ 28,131,000

lems; tainted water supplies, odors, toxic air pollutants and hazardous materials. Investigations are made of each complaint and, if found valid, result in actions to eliminate the problem.

Waste. The Waste Reduction Assistance Program (WRAP) completed its third year using the expertise of 12 retired industry professionals, a project manager and other staff to assist 20 companies in reducing the amount of waste they generate. WRAP addresses all forms of waste reduction opportunities including solid waste, hazardous waste and air emissions. To date, the program has provided on-site pollution prevention training workshops to more than 40 client companies.

❖ By-Product and Waste Search Service (BAWSS) is a pro-active waste exchange service for Iowa business and industry. BAWSS has diverted 10,373 tons of material this year at a cost of \$19.50 a ton.

❖ A solid waste comprehensive plan that addresses the feasibility of alternatives to conventional land disposal is required by all Iowa facilities that are permitted to process solid waste. During the year, 35 solid waste comprehensive plans received approval from the DNR. ❖ Through Iowa's landfill alternatives grant program, grants were awarded for a variety of projects and market development. The program is designed to promote solid waste management projects as alternatives to landfilling. Twenty-nine grants were awarded in 1992, totaling approximately \$2.9 million. They were funded through fees paid by landfills on a per-tonnage basis for disposal of waste.

❖ With a grant from the U.S. Environmental Protection Agency, the department continued a contract with Iowa State University to develop a computer bulletin board for recycling. Known as the Mid-



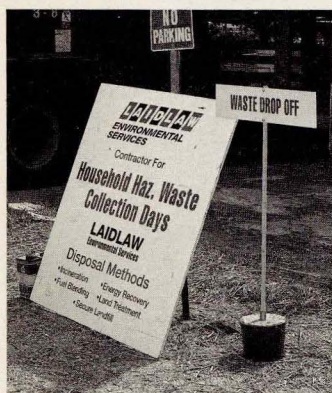
America Recycling and Transportation Network (MARTIN), the system provides recycling market information to 15 midwestern states. It is available to anyone in the United States via a toll-free phone number. The caller may use a computer modem to access the information. ❖ Twenty toxic cleanup days were conducted in the state to collect household hazardous waste from homes and farms for recycling and proper disposal. The hazardous waste contractor collected 204,502 pounds of household hazardous waste. ❖ Technical assistance was provided throughout the year to communities, and approximately 3,000 phone calls were received on the waste assistance hotline. ❖ Used oil collection sites for do-it-yourselfers were established at 850 locations. The bottle deposit law continued to help provide an effective collection rate of 95 percent of the aluminum cans and 85 percent of the glass beverage containers while 70 to 90 percent of the plastic soda bottles were recycled.

Waste Prevention Resources.

The Local Government Waste Reduction Guide for Business

Environmental Issues

assists city, county and regional planners, and recycling coordinators in evaluating various alternatives to manage Iowa's business and industry wastes. More effective waste management can help the state meet its waste reduction goals. The guide provides local government officials with numerous, low-cost waste reduction opportunities for the business community or planning region. ❖ Five solid waste management videos were professionally produced. The videos, targeted to Iowans from ages five through adult, promote reduction and recycling of general household wastes, household hazardous wastes and business wastes. Each video offers a unique, dramatic story encouraging viewers to change their waste-producing habits as well as encouraging wise use of Iowa's natural resources. The videos are available from a variety of local sources and the DNR. ❖ The *Iowa Needs A Cleaner Planet* waste prevention, public awareness campaign concluded its three-year, award-winning, multi-media public service announcements. With combined effort between the Des Moines Advertising Professionals, the Iowa Newspaper Association and the DNR this campaign's primary goal encouraged all Iowans to recognize the powerful impact of their positive activities in regard to our environment. ❖ Professionals from various agencies provided pro bono services ranging from the development of fresh concepts and creative copy to the careful execution of each public service announcement, to reach more than two million Iowans during the campaign. The pro bono services totaled \$354,358 and accounted for 11 times the DNR's financial investment towards the ongoing environmental campaign.



Energy

Iowa's energy future was once again the focus for FY93. The DNR's energy bureau helped Iowa's state facilities, local governments, schools, hospitals and private colleges make investments that will save tax dollars, and continued its efforts to diversify the state's energy resource base.

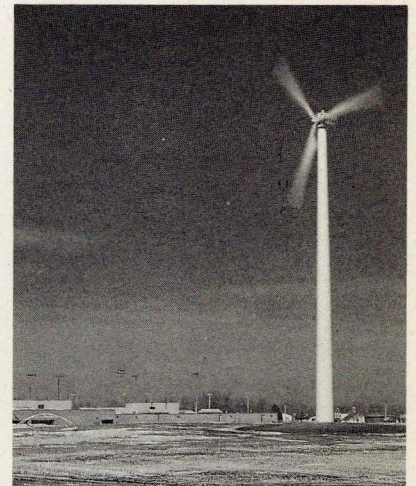
Progress On Efficiency. Iowa's building energy management programs helped public and non-profit agencies across the state save tax dollars through saving energy. At the end of FY 93, \$113 million worth of cost effective energy management improvements had been identified in state facilities, local governments, schools, hospitals, and private colleges. Of the improvements identified, \$47 million worth had been installed which save \$8 million annually in tax dollars. ❖ Public sector agencies in Iowa are encouraged to complete life-cycle cost analyses on all new construction or major renovation. Life-cycle cost analysis is a comparison of the lowest first-cost building options versus higher first cost building options over the life-cycle of the building. This comparison will show the total cost of the building including the initial cost, energy costs and maintenance costs for all of the options. During FY93, 13 life-cycle cost analysis reports were reviewed. The reports indicated that as a result of constructing the public buildings based on lowest life-cycle cost rather than lowest acquisition cost, savings of \$3.67 million will be realized during the next 25 years. ❖ Energy savings continued to pay for themselves, as in the case of the Iowa Department of Transportation Ames complex.

The DOT was using a million dollars worth of energy every year, and needed more than a million dollars worth of improvements. With the assistance of the energy management programs, DOT made the improvements and is now saving \$250,000 per year -- a reduction of 25 percent. ❖ During FY93 the building energy management program's concentration was on customer service. Customer input and focus groups helped to refine and improve all phases of the program and allowed the DNR to specifically target those approaches that appeared the most promising. This new evaluation process had remarkable results, almost doubling this year's enrollment in the program. ❖ New partnerships have been formed with the Iowa Energy Bank Program, particularly with Iowa investor-owned utilities and municipal utilities. For example, in Spencer the municipal utility worked with the Energy Bank to provide audits, technical assistance and rebates to the city, county, school district and municipal hospital.

Iowa Grown Fuels. In FY93 Iowa-grown fuels were enhanced when the energy bureau helped to launch the Governors' Ethanol Coalition, a 19-member council created to provide input into national energy policy on behalf of ethanol. Iowa's own policy on ethanol has served as a model for the group's efforts to formulate a national ethanol policy. Being a national leader will reap direct benefits for Iowa, including the ability to gain funding and to represent Iowa's interests in national energy policy. ❖ The state of Iowa maintained its efforts in the ethanol movement by increasing the number of vehicles in its ethanol fleet to 80, maintaining its status as the largest ethanol-powered fleet in the

country. ❖ A soydiesel project was developed with the WACO and Washington Community school districts which resulted in the first formal testing of soydiesel school buses in Iowa. Four school buses will use a blend of up to 70 percent soy and 30 percent diesel fuel. Soydiesel is a derivative made from soybean oil and petroleum-based diesel fuel. ❖ In FY93 a switchgrass study was launched. The study is a five-year analysis of the growth, harvest and storage of switchgrass, a perennial prairie grass that can be used for biomass energy production. Proper preservation methods such as ground or shed storage are being investigated to maximize switchgrass as an energy resource. Test plots and applications are underway at the Chariton Valley Resource and Conservation Development Inc. in southern Iowa. ❖ With continued support from the energy bureau, the Spirit Lake School District's wind turbine project was successfully implemented. This innovation in energy utilization led to recognition from across the nation. It is proving to be a cost-effective measure and confirms there are alternatives to traditional energy use. The wind turbine serves the double purpose of being an energy source and an educational tool.

Planning For Energy Emergencies. A regional conference brought together utilities, state and local governments, and federal emergency officials for the purpose of teaching officials how to better handle emergencies, should they arise. The affair included simulations of emergency events to enhance the preparedness skills of those participating.



Natural Resource Lands

Forests.

The State Forest Nursery at Ames and the satellite nursery at Montrose grew and distributed approximately 3.3 million bareroot conservation tree and shrub seedlings to private landowners and government agencies in Iowa. The nursery cooperated with the Iowa Department of Corrections (DOC) to provide work opportunities for residents and inmates at DOC facilities at Newton and Fort Madison. Nursery facilities were also made available to Iowa State University Forestry Department researchers in a cooperative effort to reduce the use of pesticides in nursery production. ❖ Land acquisition continued at Iowa's newest state forest -- Loess Hills State Forest located in Monona and Harrison counties. During the year an additional 1,224 acres were purchased at a cost of \$735,300. To date 44 percent of the targeted 17,000-acre

project has been acquired. In addition, construction of a service building was completed on land donated to the DNR by the City of Pisgah. Both the service building and land acquisition were funded through the Resource Enhancement and Protection program (REAP). ❖ Forestry assistance was provided directly to 8,884 individuals by 12 district foresters, resulting in an additional 38,430 acres being brought under improved forest management and 7,829 acres of new tree plantings. A total of 338 training and educational sessions for Iowa woodland owners and businesses were conducted. District foresters promoted the division's forest stewardship program through management planning, promotion and cost-share assistance administration with a focus on conversion of CRP lands into permanent forest cover. ❖ The division's urban forestry program, in cooperation with the Iowa Urban and Community Forestry Council, provided technical assistance to 247 Iowa communities, including completion of 50 comprehensive community tree inventories and management recommendations. An estimated 117,000 trees were planted in Iowa communities. Under contract with the division, Trees Forever, a special program of the Iowa Natural Heritage Foundation, provided community volunteer coordination for 285 citizen groups across the state. Iowa State University Extension, also under contract, provided up-to-date publications on tree varieties and community tree ordinances in addition to continuing the "Master Urban Tree Manager" training. ❖ The forestry division cooperated with the Iowa Department of Economic Development (IDED) for the second year in distributing, within the state, more than



\$162,800 in tree planting 50-50 matching grants funded by the U.S. Small Business Administration. Using 55 Iowa small businesses, this popular program assisted 23 community, county and state projects in planting 2,500 landscape-sized trees on public areas. The division also distributed an additional \$105,000 in U.S. Forest Service grants to 10 Iowa communities to develop neighborhood forestry programs and to plant trees on public areas.

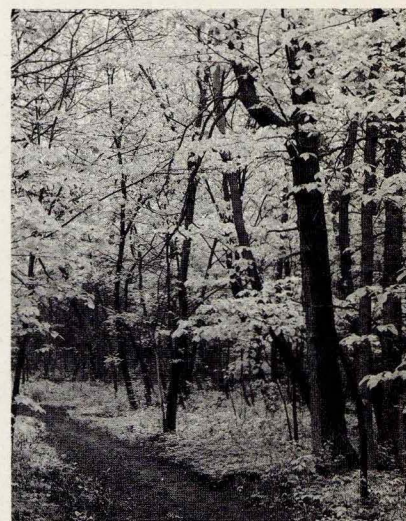
❖ The "Trees For Kids" program, a cooperative tree education and planting program for elementary and middle schools, successfully completed its fourth year, and the companion program, "Trees For Teens," reached more than 480 high schools. The Iowa Nursery and Landscape Association, Iowa Bankers Association, Telephone Pioneers and Peoples Natural Gas joined the DNR in providing educational materials for classroom use and landscape trees to plant free of charge. More than 3,240 teachers and 417,096 students participated and planted more than 64,500 trees. "Trees For Kids" was honored by receiving the National Arbor Day Foundation's only 1993 National Education Award.

❖ The division, in cooperation with Iowa State University Fire Service, provided \$119,000 in grant funds to rural fire districts across the state. In addition, the division assisted in acquisition and distribution of excess federal military vehicles and equipment for rural fire protection. ❖ Finally, the division, in cooperation with the nine Resource Conservation and Development (RCD) areas, has completed its third year of the "Rural Development Through Forestry" (RDTF) program.

This program distributed more than \$800,000 in matching federal funds to encourage economic development in rural areas through use of Iowa's forest resources. Some of the RDTF projects included the development of a southeast Iowa business to manufacture cottonwood timber bridge kits for statewide use on Iowa's secondary road system, aquaculture development and marketing of walleye in southern Iowa farm ponds, a five-county tourism and recreation program in northeast Iowa, log cabins from different species grown in southeast Iowa, and the utilization and marketing of red cedar in western Iowa.

State Parks And Recreation

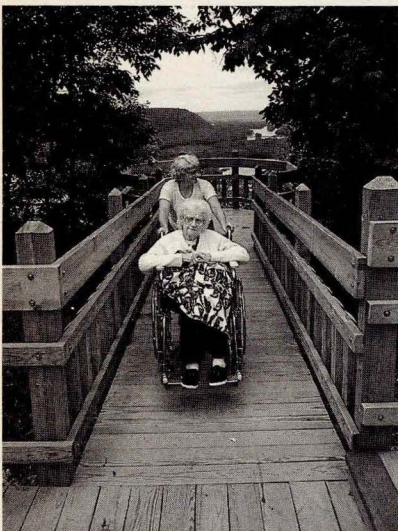
Areas. The big news in 1993 was the record flood that affected much of Iowa. Iowa's state parks were not spared from the floods' effects. A number of areas experienced moderate to heavy damage. Along the Missouri River, a large portion of Wilson Island State Recreation Area was flooded. On the Des Moines River, Dolliver and Ledges state parks received extensive damage ranging from silt and debris deposition to almost cataclysmic destruction of trees and natural features. Walnut Woods on the Raccoon River was heavily flooded with extensive damage to its historic and picturesque lodge. Other areas affected include George Wyth and Wapsipinicon state parks and the Fairport Recreation Area. Many parks and recreation areas with trail systems experienced significant erosion causing the trails to be closed for most of the recreation season.



Natural Resource Lands

As flood impacts occurred, staff began assessing damage and undertaking repairs. ❖ Another consequence of the flooding was a significant downturn in park use and revenues. The inaccurate perception that all areas were flooded combined with cool wet weather to keep many outdoor recreationists at home.

❖ While the weather and its effects were on the forefront of everyone's thoughts this past year, several positive things did occur. For example, after three decades of planning and preparation, the development of Brushy Creek State Recreation Area finally began. Construction of a 690-acre lake began in March of 1993. Shortly after, a new road system was begun. A final master plan for campgrounds, trails, picnic areas and water access was approved and a development schedule was put in place. Once complete, the 6000-acre recreation area will offer something for everyone and will serve a large region of north-central Iowa presently lacking such an area. ❖ In a first-of-its-kind effort, volunteers worked with the DNR to finance, design and construct two large wooden playground structures. Each structure encompasses nearly an acre and has a completed value of more than \$80,000 but was built at a fraction of that cost. Committees of volunteers raised funds and organized work days for the projects. The finished playgrounds, located at Big Creek and Lake



Manawa state parks, are now attracting greater numbers of young families to those parks. An unexpected outcome of these projects was a new-found sense of community spirit and pride for those who participated. The parks also became a focal point and source of interest and pride for the communities around them as a result of the playground projects.

❖ Pine Lake State Park was the site of another major construction project. Four stone cabins constructed in the 1930s, but abandoned since 1980, were completely remodeled and adapted for year-round use. Now equipped with heating, air conditioning, fireplaces and new furnishings, these cabins sit along the beautiful Iowa River within the Iowa River Greenbelt in Hardin County. Springboarding off the popularity of the new all-season cabins at Backbone State Park, it is expected that the Pine Lake cabins will become very popular.

❖ Renovation of Maquoketa Caves State Park continued this year. Work was completed on the new campground, shower building and modern restroom and work began on several of the area's other buildings, picnic areas and trails. Many of the trails along the craggy rock formations, which are underlain by the area's famous caves, had been so overused that they were unsafe. These trails are being reconstructed with railroad tie stairs and raised boardwalks.

❖ Work began on a major restoration project for Lake Ahquabi. The work includes repairs to the dam and spillway, shoreline and watershed protection, and eventual dredging and removal of silt. Work of this same type was completed at Lake Wapello and continued to be done at Lake Keomah.

State Preserves. A new guide to Iowa's State Preserves was published and is now available.

Twenty new preserves have been added to the system since the previous guide was printed. The guide, free from the DNR, contains specific details on each preserve and basic information on its ownership and management.

Natural Areas And Threatened And Endangered Species. The Iowa list of threatened and endangered species was revised in 1993. Based on field research and species recovery efforts, the list is the department's main tool in identifying species in need of special protection. The department produced and printed a 23 page brochure and poster highlighting species native to Iowa that are on the Federal list of threatened and endangered plants and animals. A new administrative rule governing the harvest and sale of ginseng was promulgated, establishing new classes of permits and corresponding fees.

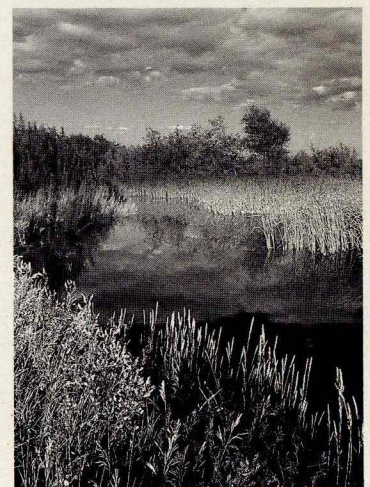
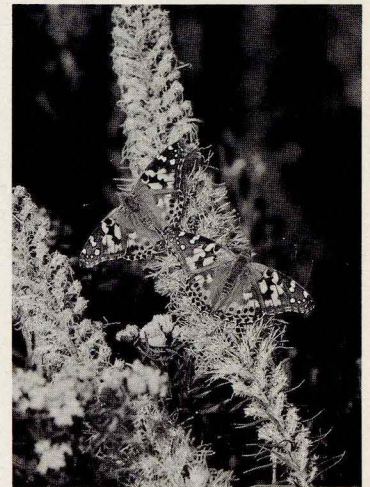
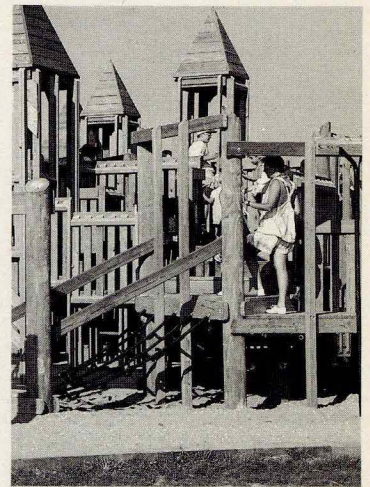
Boating Access And ATV And Snowmobile Recreation. The Water Recreation Access cost-share program continued to assist local entities with the funding of nine boating access sites across Iowa. Several other major boat access projects were started including major new ramps at George Wyth State Park, in Storm Lake and in Marquette. ❖ Registration fees from snowmobiles and ATVs were distributed to local clubs and political subdivisions to provide for the acquisition, development and maintenance of 4400 miles of groomed snowmobile trails and three ATV riding areas.

Geology. A database of geologic information developed in conjunction with the U.S. Geological Survey's Coal Resources Data System was completed. The

database comprises 33,700 detailed records for 2,806 sites, and has been used to provide detailed geologic information for engineering consultants and geologists as well as for exploration and evaluation.

❖ A preliminary investigation of the potential for coal bed methane resources in deep coals in the Forest City Basin of southwestern Iowa was completed in conjunction with coal geologists from states which share the basin: Kansas, Missouri and Nebraska. The results showed the potential for significant quantities of coal bed methane within the Forest City Basin. Tests on coals recovered in Missouri and Kansas showed that methane is present. It may be possible to recover methane from these coals, a situation that is favorable to Iowa where multiple thin coal seams are characteristic of the coal-bearing strata. Although no samples were available from Iowa to test, similar geologic conditions warrant further investigation of the potential for coal bed methane.

Drainage Wells. Historically, in order to facilitate farming of former wetland acres in several Iowa counties, agricultural drainage wells (ADWS) have been installed to solve drainage problems. When the practice was instituted, there was little or no consideration given to the impact of ADWs on groundwater quality. However, with the increased use of agricultural chemicals over time, ADWs were determined to have a major potential for contaminating groundwater and degrading rural water supplies. During the reporting period, DNR published an authoritative



Natural Resource Lands

report on the construction, location and concentrations of ADWs and their implications for groundwater quality.

Geographic Information

System. The Natural Resources Geographic Information System includes 50 state-wide or regional geographic databases on resource topics, and 335 county-wide databases on roads, rivers, topography and sections (Public Lands Survey System). This collection is increasingly available to DNR staff and is increasingly being used for various programs

throughout the DNR. It was made available to both the Rock Island and Omaha districts of the Corps of Engineers during the summer of 1993 to help them access available data for flood assessments. Similarly, data has been shared with the Iowa Department of Transportation and the U.S. Environmental Protection Agency, as well as several private Iowa companies. ❖ Staff education is becoming a focal point of the DNR's geographic information program. Training sessions have been developed and presented with staff in the wildlife and geological survey bureaus. All DNR divisions have some GIS capabilities under development, and increasingly they are making investments to use the technology.

Fisheries and Wildlife

Fisheries.

Vegetation control, shoreline riprap, and placement of stake beds, pallet structures and brush piles were some of the methods used to complete aquatic habitat improvement projects at 18 lakes during FY93. They were South Prairie Lake, Lake Anita, Mormon Trail Lake, Orient Lake, Indian Lake, Lake Smith, Center Lake, Beeds Lake, Big Creek Lake, Spring Lake, Blue Lake, Lake Macbride, Hawthorn Lake, Coralville Lake, Diamond Lake, Bennett Lake, Rogers Lake and Lake-of-the-Hills. ❖ Lake Wapello in Davis County received 28 large scraper tires, 80 cedar trees and the shoreline was deepened at two locations. In addition, riprap was placed at key locations, two earthen reefs were rocked and

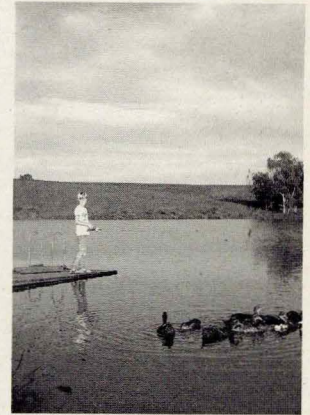
one sediment/nutrient dam was constructed during the final phase of this rejuvenation project. ❖ Construction began on 46-acre Deer Creek Lake in Plymouth County. Habitat enhancement work at Deer Creek involved the incorporation of approximately 30 trees into the lake basin, construction of two underwater rock covered reefs, one jetty, three spawning beds, four underwater islands and riprap for approximately 2,500 feet of shoreline. Approximately 400 pallets and 200 cedar trees were placed at five locations within the lake basin. ❖ Lake Ahquabi was drained and repair work on the spillway and outlet structure began. The lake bottom was cleaned of debris, tires and old catfish spawning tiles, and some shoreline work was completed. Three tire piles were covered with dirt and rock to form reefs. Additional work will be undertaken in 1994 and 1995.

Fisheries and Wildlife

❖ The extremely wet conditions throughout much of 1993 significantly restricted trout stream habitat improvement work. Four bank hides encompassing 170 lineal feet were installed in Spring Branch Creek with assistance from the Hawkeye Fly Fishing Association (HFFA). Three cut-banks (1,160 feet) were stabilized with riprap and seeded with long-stem grasses on North/Middle Bear Creek (EPA-319 project) and Spring Branch Creek. Woody, streambank vegetation was removed and banks reseeded with prairie grasses on portions of Coldwater, Coon, French, North Cedar, Sny Magill and Trout River trout streams. ❖ The fisheries bureau culture facilities reared and stocked more than 120 million fish into public waters of Iowa. This total included 300,000 trout, 102 million walleye, 4 million northern pike, and 2 million catfish.

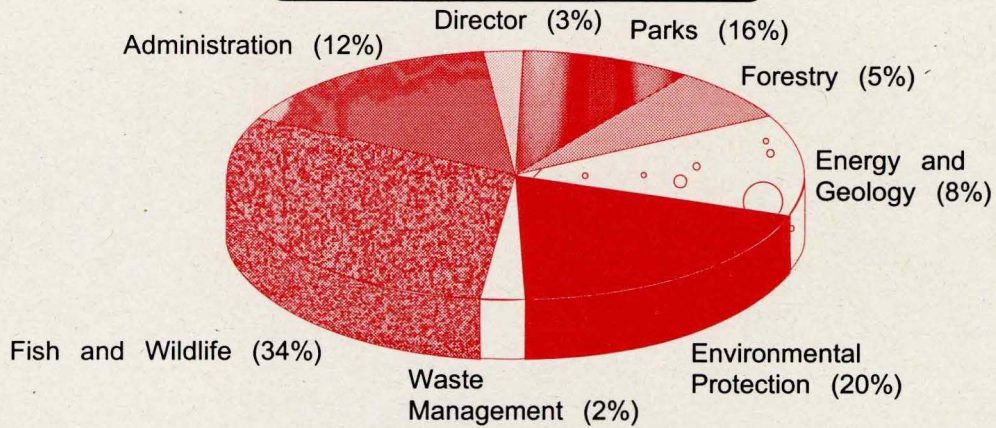
❖ Fish population renovation projects were completed at Prairie Ridges Park, Franklin County; Hadacek Pit, Winnebago County; and a five-acre pond within the Deer Creek Lake basin in Plymouth County. Gizzard shad were eliminated from Hawthorn Lake in Mahaska County. The 160-acre impoundment was treated at a rate of 0.125 ppm with 2.5 percent synergized rotenone. Approximately four pounds per acre of gizzard shad, ranging in size from three to fifteen inches, were killed in the partially dewatered lake. Fall gill netting samples showed no evidence of shad survival. ❖ The

commercial harvest of food-fish on the Mississippi River by 135 license owners totaled 2,750,000 pounds. Six licensed owners reported harvesting about 16,000 pounds of fish from the Missouri River. The economic value of commercial food-fish harvested from both border rivers was estimated at approximately \$680,000. Contracted commercial anglers harvested more than 531,000 pounds of fish, valued in excess of \$78,000, from 19 interior lake areas. Thirty-two Iowa licensees reported a freshwater mussel harvest of 191,000 pounds of live and dead shells for a 55 percent harvest decrease since last year. The estimated value of this fishery was \$213,000. ❖ A total of 7,518 people attended 66 fishing clinics. Staff made presentations at 160 meetings of organized groups. The bureau provided information for 540 newspaper articles and 44 outdoor magazine stories, and a total of 320 radio programs and 39 television inter-

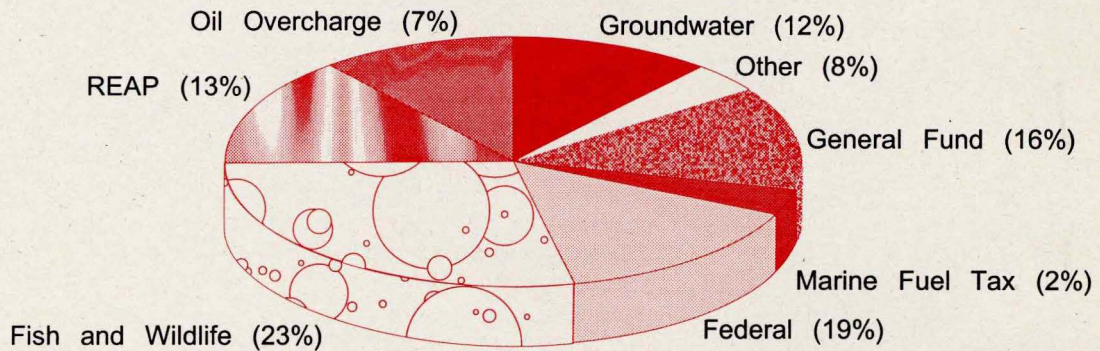


BUDGET

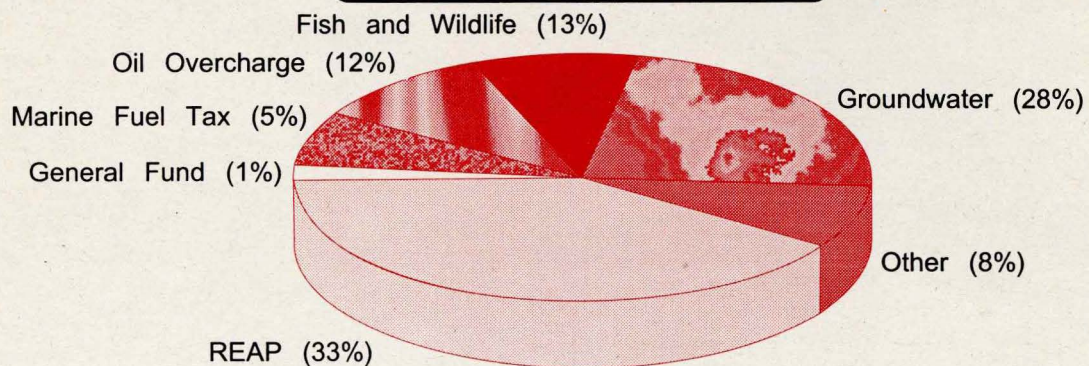
OPERATIONAL EXPENDITURES by Division \$48,648,081



Sources of Funds For TOTAL EXPENDITURES \$78,233,107



Sources of Funds For CAPITAL AND SPECIAL PURPOSE EXPENDITURES \$29,585,026



Approximately two-thirds of this total is provided by the DNR to other agencies to carry out their parts of these programs.

In its continuing effort to promote recycling and wise use of Iowa's natural resources, the Department of Natural Resources' annual report is printed with soy ink on a recycled paper (60# Incentive 100DP) containing 100-percent de-inked newspapers, magazines and catalogs with a 100-percent post-consumer recycled (80# Quest) cover.



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LAYOUT/DESIGN

Kathy Stangl



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