IOWA DEPARTMENT
OF NATURAL RESOURCES

ANNUAL REPORT

Fiscal Years 1999 and 2000

Lyle Asell
Interim Director

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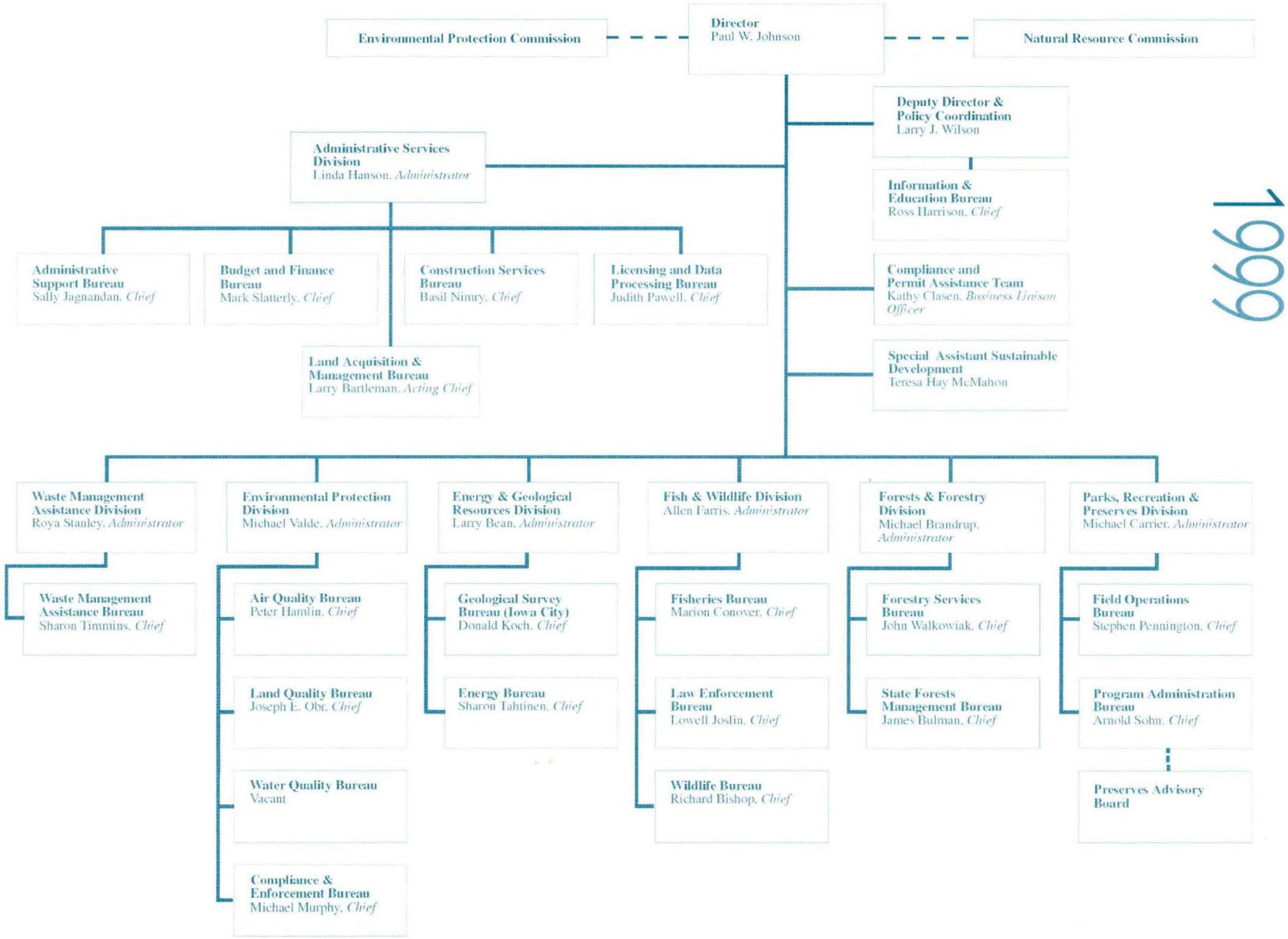
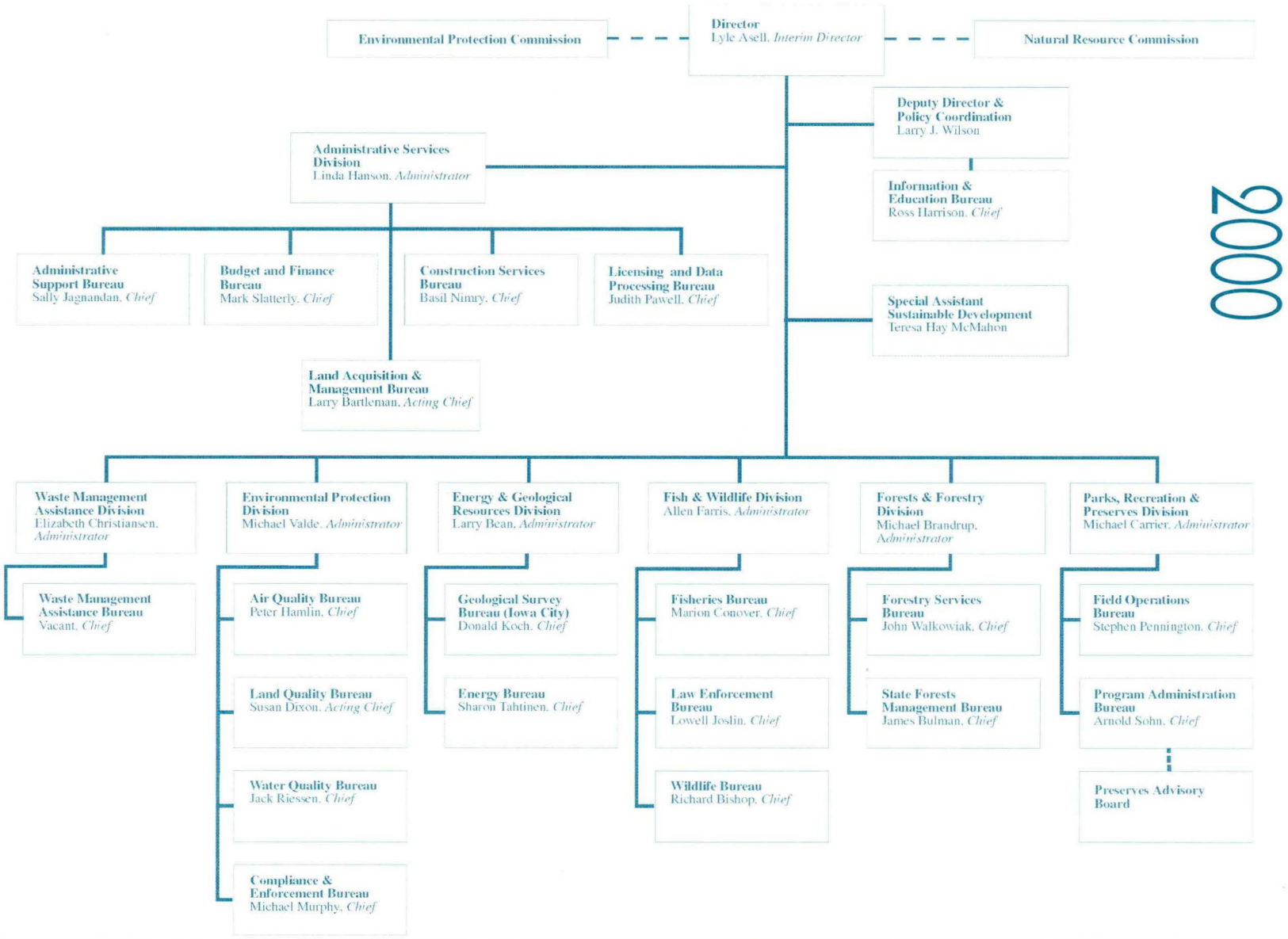
For those who cannot read the size of print in this publication, a larger size version of the text is available by calling the DNR at 515-242-5967 or writing the DNR at 502 East Ninth Street, Des Moines, IA 50319-0034.

ORGANIZATIONAL CHART

1999




Environmental Protection Commission
Director
Lyle Asell, Interim Director
Natural Resource Commission
Deputy Director & Policy Coordination
Larry J. Wilson
Information & Education Bureau
Ross Harrison, Chief
Special Assistant Sustainable Development
Teresa Hay McMahon
Administrative Services Division
Linda Hanson, Administrator
Administrative Support Bureau
Sally Jagnandan, Chief
Budget and Finance Bureau
Mark Slatterly, Chief
Construction Services Bureau
Basil Nimry, Chief
Licensing and Data Processing Bureau
Judith Pawell, Chief
Land Acquisition & Management Bureau
Larry Bartleman, Acting Chief
Waste Management Assistance Division
Elizabeth Christiansen, Administrator
Waste Management Assistance Bureau
Vacant, Chief
Environmental Protection Division
Michael Valde, Administrator
Air Quality Bureau
Peter Hamlin, Chief
Land Quality Bureau
Susan Dixon, Acting Chief
Water Quality Bureau
Jack Riessen, Chief
Compliance & Enforcement Bureau
Michael Murphy, Chief
Energy & Geological Resources Division
Larry Bean, Administrator
Geological Survey Bureau (Iowa City)
Donald Koch, Chief
Energy Bureau
Sharon Tahtinen, Chief
Fish & Wildlife Division
Allen Farris, Administrator
Fisheries Bureau
Marion Conover, Chief
Law Enforcement Bureau
Lowell Joslin, Chief
Wildlife Bureau
Richard Bishop, Chief
Forests & Forestry Division
Michael Brandrup, Administrator
Forestry Services Bureau
John Walkowiak, Chief
State Forests Management Bureau
James Bulman, Chief
Parks, Recreation & Preserves Division
Michael Carrier, Administrator
Field Operations Bureau
Stephen Pennington, Chief
Program Administration Bureau
Arnold Sohn, Chief
Preserves Advisory Board

2000

COMMISSIONS

1999

ENVIRONMENTAL PROTECTION COMMISSION

William Ehm, Creston
Rozanne King, Mondamin
Dean McWilliams, Montezuma
Charlotte Mohr, Eldridge
Kathryn Murphy, LeMars
Gary C. Priebe, Algona
Terrance Townsend, Newton
Rita Venner, Breda
Randal Giannetto, Marshalltown

NATURAL RESOURCE COMMISSION

Richard Garrels, Mt. Pleasant
Anthony Hough, Harlan
Marian Kieffer, Bellevue
Thomas G. Monroe, Sigourney
Joan Schneider, Okoboji
Douglas R. Smalley, Des Moines
Lavonne Troyna, New Hampton

PRESERVES ADVISORY BOARD

Diane Ford-Shivvers, Norwalk
Joel Hanes, Mason City
Gary Phillips, Estherville
Kathy Gourley, Johnston
Jonathan Steege, Maynard
Lois Tiffany, Ames
Paul W. Johnson, Des Moines

2000

ENVIRONMENTAL PROTECTION COMMISSION

William Ehm, Creston
Rozanne King, Mondamin
Kathryn Murphy, LeMars
Gary C. Priebe, Algona
Terrance Townsend, Newton
Rita Venner, Breda
Randal Giannetto, Marshalltown
James Braun, Latimer
Elizabeth Christiansen, Iowa City

NATURAL RESOURCE COMMISSION

Richard Garrels, Mt. Pleasant
Anthony Hough, Harlan
Marian Meyer, La Motte
Joan Schneider, Okoboji
William Sullivan, Cantril
Carol Kramer, Newton
Paul Christiansen, Mt. Vernon

PRESERVES ADVISORY BOARD

Gary Phillips, Estherville
Jonathan Steege, Maynard
Lois Tiffany, Ames
Timothy Sproul, Missouri Valley
Kathy Gourley, Johnston
Robin Fortney, Des Moines
Lyle Asell, Des Moines

DIRECTOR'S MESSAGE

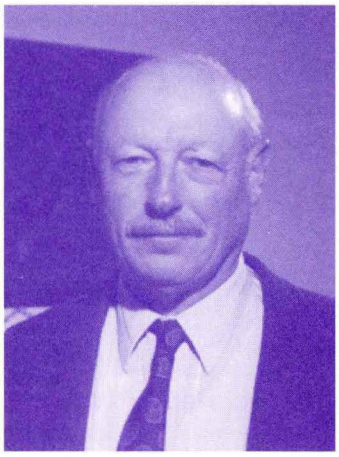
In fiscal years 1999 and 2000, the DNR witnessed change in leadership, more focus on water quality, and improvements in several of Iowa's natural resources, as you will see throughout this report.

In January 1999, newly elected Governor Tom Vilsack appointed Paul W. Johnson of Decorah as director, replacing 20-year veteran Larry Wilson who was then selected by Johnson as deputy director. Johnson left the position in May 2000 and the Governor appointed me as the interim director while he conducted a national search for Johnson's replacement.[1]

Both Paul and I placed new emphasis on improved land stewardship, particularly on private lands, water quality, and more personal involvement by Iowans resulting in many new activities for the department.

Governor Vilsack declared 2000 as the "Year of the Environment" and Lt. Governor Sally Pederson chaired the year-long EarthYear 2000 (EY2000). EY 2000 was a "wake-up" call to Iowans to encourage a sense of personal responsibility for their environment. The effort helped to inspire more than 950 community environmental projects by volunteers throughout the state. Through the continued "Keepers of the Land" program, the volunteer effort will continue into the future. "Iowa – Portrait of the Land," a natural history and forward-looking book was published to educate and stimulate Iowans to consider the state's environmental future, and their role in it.

The $11.2 million Water Quality Initiative, promoted by the Governor and passed by the Legislature in 2000, was the most significant environmental act since the 1987 Groundwater Protection Act. Among its provisions, water quality monitoring received nearly $2 million, up $1 million from the year before and more than six times the year before that. The importance of understanding the existing quality of our water was heightened by the



Lyle Asell

continuing success of IOWATER in which volunteers are trained, and then participate in measuring their local water quality.

The DNR also participated with many other agencies and Iowa citizens in watershed protection planning, and the support of more conservation practices applied to private land.

Numerous lawsuits filed against the US EPA forced them to force states, Iowa included, into expanded water quality protection activities. As a result, the EPA listed 157 water bodies as impaired in Iowa and the state increased efforts to identify and correct those impairments. More attention was directed to livestock manure management and I fully expect this to increase in the coming years.

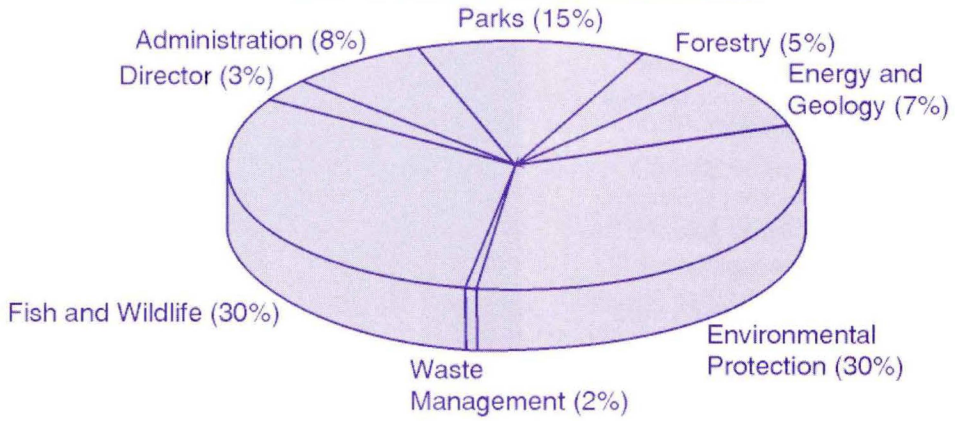
The department's activities in FY99 and FY00 are the result of the efforts of its approximately 1,000, high quality, full-time and seasonal employees as well as the conscientious citizens of Iowa.

Lyle Asell,
Interim Director

[1]Jeff Vonk was appointed DNR director by Governor Vilsack and began service March 15, 2001.

FY99 EXPENDITURES

OPERATIONAL EXPENDITURES
by Division
$68,592,683



Sources of Funds For
TOTAL EXPENDITURES
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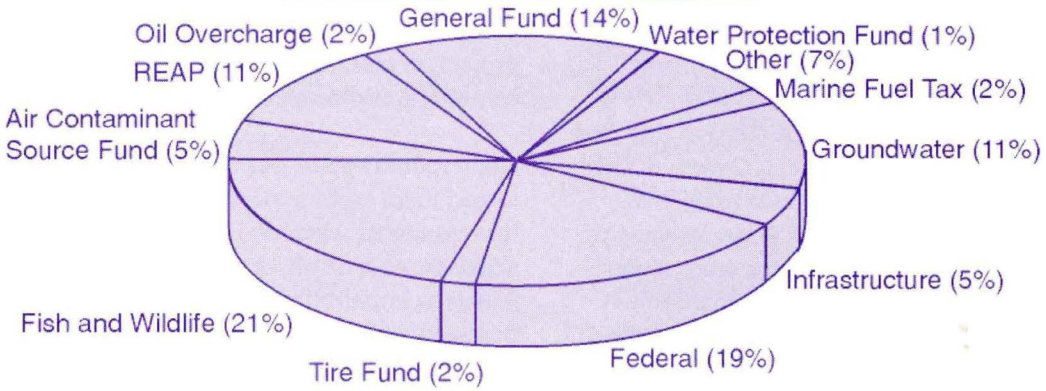

Sources of Funds For
CAPITAL AND SPECIAL
PURPOSE EXPENDITURES
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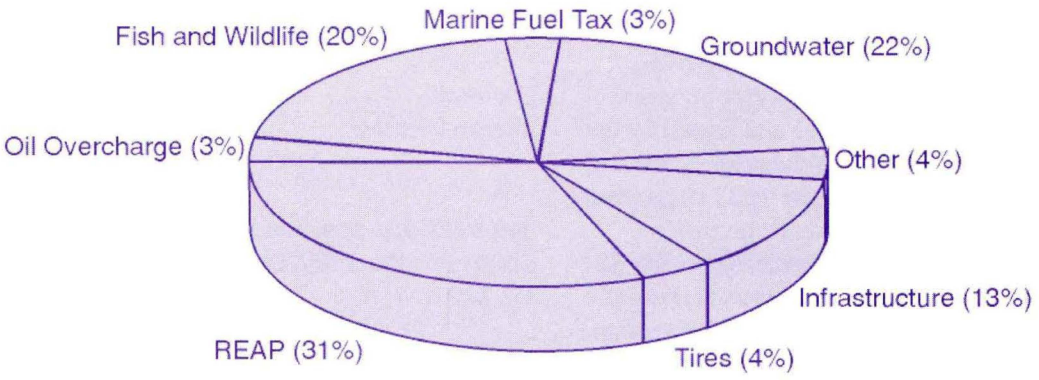
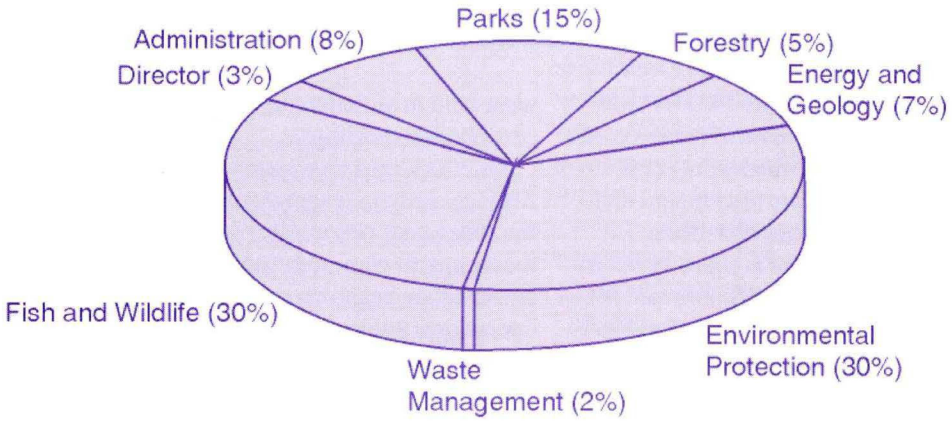


FY00 EXPENDITURES

OPERATIONAL EXPENDITURES
by Division
$71,890,687



Sources of Funds For
TOTAL EXPENDITURES
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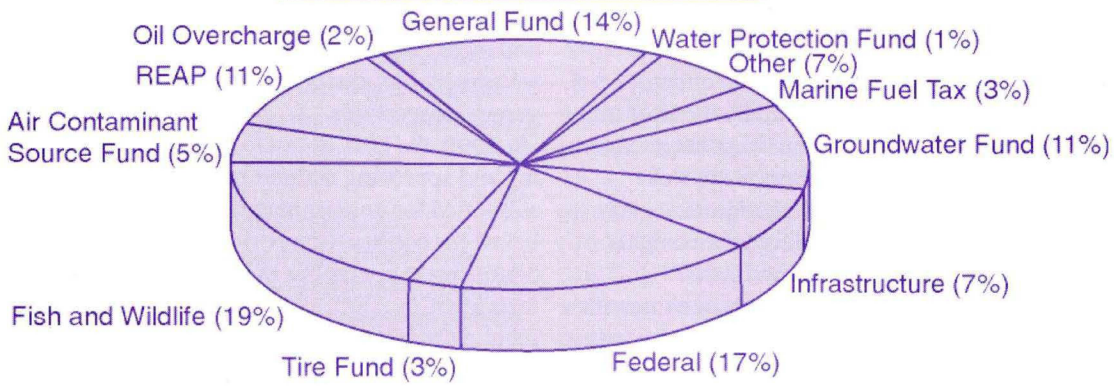

Sources of Funds For
CAPITAL AND SPECIAL
PURPOSE EXPENDITURES
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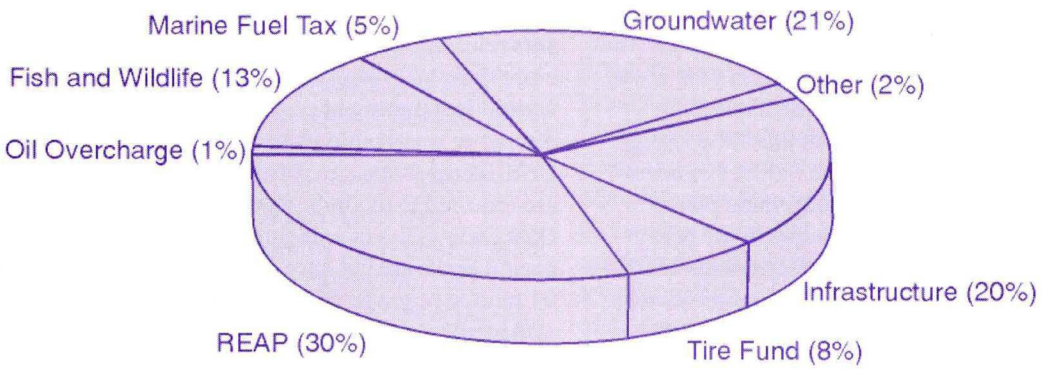


ENVIRONMENT

WATER QUALITY

Nonpoint Source Pollution

Ironically, Iowa's top natural resource - its rich, productive soil - is also the leading contributor to water pollution due to sediment and nutrients from both agriculture and urban sources. This type of pollution is called nonpoint source pollution (NPS). The DNR continued its efforts to reduce nonpoint source pollution by working with the Division of Soil Conservation of the Iowa Department of Agriculture and Land Stewardship, the Natural Resources Conservation Service, Iowa State University, and other state and local groups and agencies to sponsor nonpoint source pollution control projects, research, and education.

An important part of the DNR's nonpoint source program involves voluntary pollution control projects in watersheds throughout the state. Approximately $4.5 million in EPA nonpoint source funds were administered by the DNR in 1999, with about $3.2 million being targeted for specific nonpoint source pollution control projects carried out by local organizations. For 2000, the same level of funding was available with about $3.3 million provided for NPS projects. More than 90 nonpoint source research and implementation projects have been funded since 1990, with the majority of the funding going to local soil and water conservation district to promote best management practices aimed at reducing the amount of soil, nutrients, and pesticides reaching Iowa's streams and lakes.

Animal Feeding Operations

The DNR has regulated animal feeding operations (AFOs) for a number of years but legislative changes in 1995 and 1998 greatly increased the DNR's regulatory role. During fiscal year 1999, the DNR completed the process of adopting additional rules to implement the 1998 legislation. The rules expanded the number of operations requiring manure management plans, provided for county involvement in the permitting process, established new separation distances, updated lagoon construction standards, and required certification for manure applicators. A training program for manure applicator certification was developed and training courses were held in anticipation of fiscal year 2000 certification deadlines.

The 2000 legislative session passed no major AFO legislation. Hearings were held throughout the state about potentially requiring manure management plans to be submitted before construction began on confinement feeding operations. Rules are currently being developed for that concept.

As part of the DNR's AFO program, construction permits are needed for animal feeding operations greater than a certain size. During Fiscal Year (FY) 1999, 39 AFO construction permits were issued, while 38 were issued in 2000. Most of the permits were for swine confinement operations. The DNR also investigated approximately 500 complaints associated with AFOs in 1999, and more than 3,000 in 2000, including inquiries, complaints, earthen basin inspections and general inspections.

In 1999, the DNR began to gear up for reviewing and approving manure management plans submitted for unpermitted (i.e., those falling below the construction permit threshold) confinement operations as required by the 1998 legislation. In 2000, about 875 manure management plans were reviewed, and 650 approved, out of 2,073 that must be processed. The DNR spent a great deal of time working with U. S. Environmental Protection Agency (EPA), Iowa Cattleman's Association (ICA) and environmental groups to bring open feedlots into compliance.

Discharge Permits

The discharge permit program of the DNR limits the amount and concentrations of pollutants released into streams and rivers. Iowa has more than 1700 facilities such as municipal wastewater treatment plants and industries that discharge wastes into waters in accordance with DNR-issued discharge permits. Permit holders are required to monitor wastewater effluent; the DNR reviews the monitoring data to ensure permit limits are not exceeded. During 1999, 91 new or renewed permits were issued, and 108 were issued in 2000.

The DNR also continued to carry out an industrial pretreatment program. Conventional

wastewater treatment methods typically are not effective in removing industrial pollutants such as metals. The pretreatment program is designed to reduce the amount of pollutants industries discharge to municipal wastewater treatment systems. At the end of 2000, 21 Iowa cities had pretreatment programs limiting the discharge of industrial pollutants to their wastewater plants.

Wastewater Plants

The DNR has regulatory responsibilities for wastewater treatment plants from the planning stage through the operating lifetime of the plant. Plans for new facilities, and modifications to existing plants, are reviewed by the DNR and construction permits issued. During 1999, construction permits were issued for 83 facilities. During 2000, 90 permits were issued. In addition to ensuring wastewater plants are properly designed and constructed, the DNR also makes sure facilities are properly operated by administering the wastewater operator certification program.

The DNR provides financial assistance to upgrade or replace wastewater facilities through a low-interest revolving loan program. In 1999, more than $17 million in financial assistance was provided to 13 cities under this revolving loan fund. For 2000, more than $39 million was provided to 19 cities.

Water Quality Standards

Water quality standards ensure that surface water is safe for swimming and drinking, and can support healthy, diverse aquatic populations. States are required to periodically review their standards to identify needed changes. In 1999, the DNR began a comprehensive review of Iowa's water quality standards. Public input was sought and a technical advisory group was formed to assist the DNR in identifying needed changes. Based on the comments from the public, the advisory committee, and the U.S. Environmental Protection Agency, issue papers were developed to begin evaluating needed changes. The first round of changes were published for comment and adopted in 2000. The DNR anticipates water quality standards revisions will continue into 2001.

Water Quality Monitoring

The 1999 General Assembly appropriated about $1 million to significantly expand the DNR's water quality monitoring program. In 2000, funding nearly doubled to $2 million. With the assistance of stakeholder group and technical advisory groups, the DNR developed a monitoring strategy and began implementing it in 2000. By the end of fiscal year 2000:

- Sixty-four sites were being monitored monthly or more frequently for physical and chemical parameters, including pesticides and pesticide metabolites.
- Comprehensive sampling was conducted at seven sites to determine spatial and temporal variability of pollutants.
- Rivers upstream and downstream of 10 metro areas were monitored to determine urban impacts.
- Biological monitoring was expanded to 20 baseline sites and 57 potentially impaired sites.
- Data was collected at 130 Iowa lakes.
- All state-owned swimming beaches were monitored for fecal contamination during the recreation season, with results posted on a Web site.
- A database for data storage was established.
- More than 500 citizens were trained in basic water quality monitoring. More than 350 sites were monitored by volunteers with data posted on the Web site.

Water Supply

Iowa's public drinking water program originated in the 1920s and expanded with the passage of the federal Safe Drinking Water Act in 1974. The DNR is responsible for ensuring the drinking water provided by Iowa's 1,900 public drinking water supplies meets state and federal drinking water standards. Municipalities, rural water systems, subdivisions, factories, schools, restaurants, and convenience stores all are types of public water supplies.

Public water supplies are required to monitor drinking water for acute contaminants – such as nitrate and coliform bacteria – that can cause immediate adverse health effects, and for chronic contaminants – such as heavy metals, radionuclides, and pesticides – that can cause long-term adverse health effects. More than 100 contaminants currently are monitored by community water supplies. In calendar years 1999 and 2000, there were no waterborne disease outbreaks or deaths attributed to drinking water from Iowa's regulated supplies. During 1999, 83 percent of the public water supplies were in full compliance with monitoring and reporting requirements, and 91 percent of public water supplies complied with allowable contaminant levels. For 2000, these figures were 82 percent and 92 percent, respectively. Public water supplies not in full compliance during the year were required to return to compliance and notify

the public of the violations and possible health ramifications.

The 1996 reauthorization of the federal Safe Drinking Water Act resulted in three new drinking water programs carried out by the DNR: a state revolving loan fund (SRF), consumer confidence reporting (CCR), and viability assessment programs.

- The SRF provides low-interest loans for the construction of water treatment facilities. Loans totaling $11 million were financed for 16 projects in 1999, and $15 million for 10 projects in 2000. Since the program began in 1997, more than $50 million had been loaned to water utilities.

The CCR provisions require community water supplies provide consumers an annual report on the quality of the water delivered. This information includes the sources of the water, detected contaminants, violations, and ways the public can become involved with their water system. Iowa had CCR compliance rates of 99.8 percent and 99.6 percent for 1999 and 2000, respectively.

- The viability assessment program provides procedures to ensure new public water supplies will be able to meet Iowa drinking water requirements. The program also allows for measuring and improving the viability of existing systems.

Rules implementing the CCR and viability programs were developed and implemented in 1999 in coordination with public interest groups. SRF rules were previously finalized in 1998.

Rules also were developed in 2000 for new disinfection and disinfection by-product requirements, enhanced surface water treatment and operator certification requirements.

As part of ensuring drinking water standards were met by Iowa's public water supplies, the DNR issued 1,797 new or revised operation permits in 1999 and 1,189 in 2000. In 1999, 578 construction permits were issued, with 654 issued in 2000. The DNR conducted 532 water supply sanitary survey inspections, provided technical assistance to the operators and public, and investigated complaints. The DNR also administers a certification program for water treatment and distribution operators, well drillers/contractors, wastewater system operators, landfill and incinerator operators, and environmental laboratories. These programs are administered through the DNR's Water Supply Section. As of the end of 2000, 4,690 operator and contractor certificates and 222 certified environmental laboratories existed in Iowa.

Water Use

The DNR regulates the use, diversion, and withdrawal of surface and groundwater under state laws that ensure the state's water resources are put to beneficial use and are properly allocated. In fiscal year 1999, 101 new use/withdrawal permits were issued and another 262 were re-issued or modified. In 2000, 142 new permits were issued and 222 re-issued or modified. Additionally, 50 water use registrations were processed in 1999 and 66 in 2000. Registrations are required for minor, non-recurring uses.

As a result of 1999 state legislation, aquifer storage and recovery rules were developed. The rules provide for the storage of treated water in underground aquifers to be recovered for use at a later time.

Private Well Testing, Plugging, and Rehabilitation

The same wells that are used to bring groundwater to the surface also can be potential conduits for contamination of underground aquifers. Through the Grants to Counties program, the DNR helps private well owners test existing wells, plug abandoned wells, and rehabilitate older wells. In 1999, 98 counties each were provided a maximum of $21,500 each to assist in testing, plugging, and rehabilitating private wells. In 2000, 97 counties each received up to $18,500. Well plugging efforts continue to post impressive numbers as a result of the program, with 3,480 wells plugged in 1999 and 3,571 in 2000. More than 39,000 abandoned wells have been plugged since the program's inception in 1989 and more than 10,000 well water samples are collected and tested each year to help people determine the quality of their drinking water. Since the well renovation option was added to the program in 1997, nearly 1300 older wells have been renovated to prevent local aquifer contamination.

AIR QUALITY

Air Quality

An expanded monitoring network is offering better data and protection to Iowa citizens. This period marked several program firsts – the first real-time monitoring for fine particulate matter and smog (ground-level ozone), the first participation in a national smog mapping project, and the first time air pollution advisories were issued the morning of an unhealthy air quality day.

Together, these allowed citizens to take actions to protect their health, such as postponing exercise or other prolonged outdoor activity, especially for persons most at risk from symptoms and potential damage to heart and lungs. All of the information such as real-time data and weather forecast-like radar maps showing smog levels are available on the internet.

Iowa began reporting daily air quality levels using the new national Air Quality Index (AQI) to enhance the understanding of air quality, health effects and risks of exposure. The AQI is divided into categories with health descriptors corresponding to each air quality level.

Like most states, the vast majority of days in Iowa fall into "good" to "moderate" air quality conditions for most common pollutants. In 1999, however, at least 19 days of unhealthy air were experienced in both local and widespread geographical areas across Iowa. Particulate matter (soots and chemical aerosols) and ozone smog are the two most widespread and common pollutants of concern in Iowa among those monitored.

Toxic Air Pollution

The DNR has increased concern about unmonitored and largely unregulated toxic chemicals, after federal studies indicate long-term exposure is posing unacceptable risks for serious health effects – cancers, birth defects, genetic damage and impacts to bodily systems. Several surrounding states have established toxics monitoring and regulatory control efforts. In Iowa and for air pollution programs across the nation, concerns are increasing about several persistent, bio-accumulative toxins that may take decades or centuries to break down. Several are accumulating in food chains and in the environment, posing increased developmental risk and other concerns when consumed. Many emission sources derive from preventative activities, such as homeowner burning of plastic and synthetic refuse.

Air Permitting

Construction permit issuance time frames have reduced dramatically to less than 60 days, compared to six months, during the mid-1990s. This average does not include delinquent "as-built permits" or more complex permits for major new facilities or expansions. These permits average five to seven months, including the mandatory one-month comment period. When the EPA issued permits in Iowa, the turnaround time was 12-18 months. The DNR also issued nearly half of the 290 Title V Operating Permits to major industrial emitters by 2000.

Technical Assistance

The DNR continues to fund the Iowa Air Emissions Assistance Program (IAEAP) at the University of Northern Iowa. IAEAP offers technical assistance to help small businesses comply with air regulations. The department also funds the Air Quality Liaison for Small Businesses to assist small businesses in working with air pollution-related agencies. Local air control programs in Polk and Linn counties are funded in part by the DNR.

LAND QUALITY

Contaminated Sites

"Contaminated sites" are properties known or suspected of being contaminated with hazardous materials. Many were created years ago and the responsible businesses are no longer functioning. The DNR attempts to conduct preliminary screening of such sites to identify those posing the most serious threat to public health and the environment. The majority of the sites pose some threat; however, few qualify for

placement on the National Priority List (NPL). In FY99 and FY00, 71 sites had an Initial Site Screening completed and 16 sites had an Extended Site Screening completed. None qualified for NPL listing.

Contaminated sites also can be cleaned up under the DNR's Land Recycling Program (LRP). Rules for this voluntary cleanup program became effective on October 28, 1998. Enrollment in the program is voluntary; however, certain rules must be followed to successfully complete the program and receive the benefits associated with completion.

Currently, 17 sites are enrolled in the LRP. For these sites, identified contamination comes from chlorinated compounds and other industrial wastes.

In 1993, Iowa utilities and the DNR initiated a cleanup program of "coal tar" sites – a residue from power plants that manufactured gas from coal. Many sites became significant depositories for the material. There are currently 43 sites in the program. The department also assists EPA in their oversight of eight other sites in Iowa.

The Contaminated Sites section also includes the Emergency Response Unit of the Iowa DNR, providing 24-hour technical assistance and regulatory oversight for chemical spills and hazardous conditions. This unit acts as a liaison to local, state, and federal emergency planning groups and also coordinates cleanup of contamination resulting from spill-type incidents. This unit received 740 reports of hazardous conditions in FY99 and 844 in 2000. The Emergency Response staff currently provide oversight at 78 contaminated sites.

Underground Storage Tanks

The activities of the Underground Storage Tanks (UST) Program focus on the detection, prevention, assessment and cleanup of releases from UST's storing petroleum products and hazardous substances. The UST program began in 1986 with tank registration. Registered tanks are issued tags that must be attached to the tank fill spout. Tanks that do not have tags cannot be filled with product.

UST owners and operators were given 10 years to upgrade their tank systems to the current standards. This included leak detection, spill and overfill prevention, and cathodic protection for steel tanks to prevent corrosion. The deadline for upgrading was December 22, 1998. To ensure operating UST's met new tank standards, owners were requested to submit proof their tanks were upgraded and had current liability insurance before yearly tank tags for 1999 were issued. Approximately 95 percent of the registered tanks were upgraded by the deadline. Outreach efforts continue for those tank owners with nonupgraded tanks.

The state has approximately 3,167 sites with 8,853 tanks currently in operation. An additional 266 sites with 299 tanks are no longer in operation. The DNR is in the process of getting these tanks permanently closed. Through an interagency agreement, the department has contracted with the Iowa Comprehensive Petroleum UST Fund to remove tanks at sites where the owner can show inability to pay for permanent tank closure. The closures include removing tanks and sampling for contamination, and have resulted in many properties being returned to a productive status.

When petroleum contamination is discovered, it is evaluated using a risk-based corrective action (RBCA) process. Corrective action response includes a broad range of options including reduction of contaminant concentrations, monitoring of contamination, and use of technological controls or institutional controls.

Currently, 5,802 contaminated sites have been confirmed. Site cleanup has been completed at 2,628 sites. Contamination is being monitored at 727 sites classified "low risk." Corrective action is required at 1,331 sites classified "high risk." The remaining sites must complete an RBCA contamination assessment.

Solid Waste

The department issues permits to regulate the construction and operation of solid waste and disposal facilities. At the end of FY00, 258 solid waste management facilities had been permitted. The break down of the types of facilities is a follows:

- 85 operating land fills
- 48 closed landfills
- 41 solid waste transfer facilities
- 25 solid waste incinerators
- 19 land application permits
- 11 household hazardous materials collection facilities
- 8 permitted composting facilities
- 8 recycling facilities
- 5 tire processing facilities
- 7 other facilities

During FY99, 12 permits were issued for new facilities and 53 waste permits were renewed. In FY00, six new facility permits were issued and 49 renewed.

WASTE MANAGEMENT

Waste Management Division

Since the Waste Management Assistance Division was created in 1988, Iowa's recycling infrastructure has expanded dramatically and the benefits of pollution prevention, waste reduction and recycling are increasingly evident.

To improve internal communication and service to the DNR's customers, former Director Paul Johnson revised the division's structure to include administration of underground storage tanks, contaminated sites, and solid waste permitting. These areas were previously part of the DNR's Environmental Protection Division's (EPD) Land Quality Bureau. Because this change became effective in May 2000, these areas are included in this report under EPD's Land Quality sections.

Financial Assistance Team

Solid Waste Alternatives Program (SWAP)

To create the most responsive program, an advisory committee assisted the DNR in improving the former Landfill Alternatives Financial Assistance program in FY99. The revised Solid Waste Alternatives Program (SWAP) focuses on best practices in pollution prevention and recycling, market development, and education. Forgivable loans, zero-interest loans, and three-percent interest loans are available, depending on the awarded amount.

In FY99, 22 applicants received a total of $1,146,933 in grants and $1,055,874 in loans. In FY00, 44 applicants received $2,934,111 in forgivable, zero-interest, and three-percent interest loans.

Regional Collection Centers

Regional Collection Centers help households and small-quantity generators reduce, recycle, reuse, and properly dispose of hazardous waste. The centers are locally owned and operated and provide regular access to customers, as well as full-service technical support and education. The DNR provides competitive grant funds for start-up costs.

In FY99, nine fully operational regional collection centers in Iowa covered 30 counties and collected a total of 1,634,743 pounds of household hazardous material. Two start-up facilities opened, supporting an additional four counties. In FY00, 12 fully operational centers covered 44 Iowa counties and collected 1,907,256 pounds of household hazardous material. Three start-up facilities opened and several service areas were expanded.

Toxic Cleanup Days

Counties wishing to host Toxic Cleanup Days are eligible for competitive grants through the DNR. At the events, household hazardous materials from homes and farms are reused, recycled, and properly disposed. Volunteers educate the public on properly managing household hazardous waste.

In FY99, 24 counties collected 182,000 pounds of waste. In FY00, seven counties hosted Toxic Cleanup Days, collecting 63,709 pounds of household hazardous materials. In addition, 1,285 gallons of used motor oil and 371 lead acid batteries were collected and recycled.

Pollution Prevention and Business Assistance Team

Waste Reduction Assistance Program

The Waste Reduction Assistance Program (WRAP) provides free, non-regulatory, confidential technical assistance to large Iowa businesses and industries to reduce waste, prevent pollution, and enhance operational efficiencies. Since 1990, WRAP has assisted 206 facilities and held 67 workshops for clients to assist them with ongoing waste reduction and pollution prevention efforts.

In FY99, WRAP helped 14 organizations, identifying $2.7 million in potential cost savings and 8,000 tons of solid and hazardous waste reductions. WRAP also identified five million kWh of energy savings for these clients. In FY00, WRAP assisted 12 organizations, identifying $3.1 million in potential cost savings and 3,434 tons of solid and hazardous waste reductions. WRAP identified water saving measures totaling 7,000 gallons and energy savings of more than 14.5 million kWh for these clients.

Regulatory Integration

In FY99 the COMPASS program was incorporated into the Pollution Prevention and Business Assistance Team. Two pollution prevention (P2)

pilot projects were initiated, integrating P2 into regulatory inspections and the enforcement procedures.

In FY00, an Inspections Workshop was conducted for regulatory staff, wastewater treatment facility inspectors, and technical assistance providers. An Enforcement Workshop also was held for DNR regulatory, legal and technical assistance staff and the Attorney General's Office. The results of incorporating P2 into inspection and enforcement procedures are being measured.

Recycling Technical Assistance Team

The Recycling Technical Assistance Team aids in every part of the recycling "loop" - from collection through processing and purchasing. The team provides technical assistance and communicates state-of-the-art information among customers.

Buy Recycled Business Alliance

The Recycling Technical Assistance Team has continued to implement the "Buy Recycled, Iowa!" campaign, which conducts statewide seminars for purchasing agents to assist them with buying recycled-content products. More than 200 organizations belong to the alliance.

Iowa Solid Waste Characterization Study

During FY99, the DNR released the "Iowa Solid Waste Characterization Study," enabling waste management officials to target large waste streams available for reduction, recycling, and economic development opportunities.

On-Line Data Access

The Recycling Technical Assistance Team coordinates databases from the Recycle Iowa office, the Iowa Waste Exchange, and the Waste Management Assistance Division. The integrated database serves as a marketing tool for Iowa companies looking to expand, as well as new companies considering locating here. The "Iowa Recycling Markets Directory," available through the Iowa Waste Exchange, and the "Iowa Recycled Products Directory" are now easily accessed through the Internet.

Iowa Waste Exchange

In FY99, the Iowa Waste Exchange helped Iowa companies divert more than 72,500 tons of materials from Iowa landfills, while saving Iowa companies more than $2.1 million in disposal costs. In FY00, the Exchange helped Iowa companies divert 170,000 tons of by-products, saving the companies more than $4.8 million.

Iowa Recycles Day

In FY99 and FY00, the DNR provided financial and promotional support to the second and third annual "Iowa Recycles Day." Each year, more than 20,000 Iowans sign pledges to recycle and buy recycled products.

Iowa's Bottle Bill

In FY99, Iowa celebrated the 20th anniversary of its beverage container deposit law, known as the "bottle bill." The law continues to result in the redemption of 91 percent of redeemable beverage containers, equal to 1.4 billion containers per year.

Organics Recycling

During FY99, the Recycling Technical Assistance Team developed the Iowa Statewide Compost Market Assessment, which includes data regarding compost use, end-use requirements and market barriers to improve compost marketability.

Capitol Complex Master Plan

In FY00, with the Department of General Services, the DNR helped adopt a 20-year Capitol Complex Master Plan, designed to incorporate sustainable design principles into future construction and renovation projects on the state capitol complex.

Recycling at U.S. Senior Open

The DNR coordinated recycling at the 1999 U.S. Senior Open golf tournament, where more than 40,000 water bottles were recycled in four days, keeping one ton of plastic waste from going to the landfill.

Solid Waste Comprehensive Planning and Special Projects Team

Solid Waste Comprehensive Plans

The DNR assists cities, counties and sanitary disposal projects with preparing comprehensive plans. The plans describe plan participants' integrated solid waste management systems, waste reduction strategies and disposal methods. After an initial plan is approved, planning areas must update them at least every three years. Part of updating is determining the amount of waste diverted since 1988. As a whole, Iowa reduced solid waste by 36 percent, which is higher than the national average (27 percent). The state's goal was to reach 50 percent reduction by 2000.

The DNR has received 190 initial plans since 1988 and approved 146. Of the 222 plan updates received, 220 have been approved. In FY99, one initial plan and 36 plan updates were received; the initial plan and 34 of the plan updates were approved. In FY00, one initial plan and nine plan updates were received, with the initial plan and seven of the plan updates approved.

In FY00, with the assistance of an advisory committee, DNR updated plan requirements to better serve the state's maturing integrated waste management systems. Comprehensive plan update deadlines have been spread out more evenly across the three-year period and planning areas will be able to submit information online by FY02.

Waste Tires

The DNR's waste tires program works to clean up stockpiles and provide markets for the three million waste tires Iowa generates each year.

Waste Tire Management County Grant Program

In FY99, $1,087,500 in grants to 84 counties was awarded. As a result, 600,000 waste tires were recovered through community collections. In FY00, the program awarded $980,000 in grants to 70 counties, resulting in 550,000 recovered waste tires.

Waste Tire Stockpile Abatement Program

In FY99, this program awarded $440,000 to contractors for the cleanup of 500,000 waste tires, resulting in dismantling five nuisance tire stockpiles. In FY00, $2,130,000 was awarded, which helped to clean up 2,250,000 waste tires and dismantle nine nuisance stockpiles.

Regents Tire-Derived Fuel Program

Through this program, the University of Iowa consumed 150,000 waste tires as fuel in FY99 and again in FY00.

Waste Tire End-Users Program

This program awarded $85,000 to three end-users in FY99, expanding in-state markets that consumed more than 1.45 million waste tires. In FY00, $135,000 was awarded to three end-users, with more than 2.25 million waste tires consumed.

GEOLOGICAL SURVEY

Environmental Assessments

Protection of surface water and groundwater resources are a principle focus for the Geological Survey Bureau (GSB). Reviewing construction permit applications and manure management plans for confined animal feeding operations comprised a significant effort for the GSB staff during FY99 and FY00. Geographic Information System (GIS) applications were heavily relied upon to assess the ability of soils and shallow subsurface sediment to accommodate proposed land spreading of nutrients.

Similarly, rules requiring environmental assessments around leaking underground storage tanks resulted in weekly requests for information on nearby water wells. Approximately 150 well search reports were prepared monthly.

Source Water Protection

A voluntary program has been developed to help communities identify how to protect their wells from possible contamination. The plan involves a significant educational component to help citizens understand where their water comes from, how it gets to the well, and what could cause potential contaminant threats to the well water. Communities will implement their protection plans, aided by information provided by the DNR. To date, informational meetings have been held and published materials have been distributed to communities in the northwest quadrant of the state.

Pesticides in Iowa's Waters

A study of pesticides in Iowa's groundwater and surface waters is near completion. Data used in the study spans the period 1980 through 1995 and includes results from 12,375 groundwater analyses at 3,850 sites, and 5,766 surface water analyses at 530 sites. Herbicides were found in 26 percent of groundwater samples and 78 percent of surface water samples, but insecticides were found in less than .5 percent of groundwater and 1 percent of surface water samples. Drinking-water guidelines were exceeded in 3 percent of groundwater and 14 percent of surface

water samples. During the period, 51 different pesticide compounds were detected; this includes 37 each from groundwater and surface water. Pesticides may be found throughout the year, but the detection rates are highest in June and July and lowest in December and February. The most commonly detected pesticides throughout the period were all herbicides – atrazine, cyanazine, metolachlor and alachlor.

Contamination was most common in three groundwater environments – shallow bedrock aquifers in northeast Iowa, alluvial aquifers and glacial drift aquifers. The surface water basins showing the highest percentage of detectable pesticides are the Cedar River and Iowa River basins and the river basins of northeast Iowa. Significant decreases are occurring for atrazine and cyanazine in both groundwater and surface water. Alachlor is decreasing in groundwater, but not in surface water. Etolachlor shows no significant change, although locally it may be increasing.

A detailed report of these results is being prepared. The Iowa Department of Agriculture and Land Stewardship and U.S. EPA supported the study.

Geological Mapping

Geological mapping of shallow surficial materials was completed in seven counties on the Des Moines Lobe (DML) in north-central Iowa (Kossuth, Winnebago, Hancock, Humboldt, Wright, Webster and Hamilton counties). The surficial geologic maps and GIS databases for the Des Moines Lobe area will be used to develop county-specific information for land-use planning and groundwater susceptibility. In addition, several areas of the DML are quickly changing from rural agricultural counties to metropolitan areas. These counties face rapidly expanding residential and commercial development. By identifying the types, properties, and distribution of glacial landforms and their associated sediments, the DNR can better predict contaminant fate and transport in shallow groundwater. Geologic mapping of surficial materials provides a better understanding of surficial sediments, ultimately aiding in environmentally sound management and informed land-use planning decisions. The information will be used with other data in the Natural Resources Geographic Information System to analyze environmental issues and to print paper maps. Other derivative maps can be generated, including a bedrock geologic map, a bedrock topographic map, a surface materials thickness map, a groundwater vulnerability map and a mineral resources map. The project has been a cooperative effort with partial funding from the U.S. Geological Survey.

Water Quality Monitoring

The DNR program was greatly enhanced with the appropriation of $1 million in FY00 for water monitoring This appropriation from the Reinvest in Iowa's Infrastructure Fund was the first significant state funding ever allocated to monitor water quality of the state's surface waters. Previous funds (maximum of $123,000) had come from the U.S. EPA. When added to State General Funds appropriated for stream gaging and groundwater monitoring, and when added to USEPA 106 funds, the new allocation constituted a significant improvement in the collection, management and interpretation of water quality data on Iowa's water resources.

Water Monitoring Plan 2000 was developed between July 1999 and January 2000 through the efforts of DNR staff and the assistance of representatives from 47 Iowa organizations, including academic and government professionals and representatives of stakeholder groups. The plan establishes a mission, goals, and development principles, and outlines more than 65 million in needed monitoring activities. The initial focus of the monitoring plan will be the determination of ambient conditions of interior streams. The objective is to develop a monitoring network that can describe and measure water quality geographically throughout all of Iowa and identify possible differences among watersheds and ecoregions.

In addition, the network should be capable of documenting total loading of nutrients and synthetic organic compounds from Iowa to the Mississippi-Missouri River system. To do this, the network should represent water quality from all Iowa river basins and allow for regional representation of water quality. In addition, water quality must be measured from a variety of basin sizes, each representative of different ecoregions. Data management is an extremely critical element of the monitoring program. The objective of data management is to efficiently move data obtained directly through this monitoring program into usable electronic forms so that both professionals and the public may readily access them.

ENERGY

Building Energy Efficiency

The Building Energy Management program works to implement all cost-effective energy management improvements in Iowa's public-sector facilities. With an anticipated investment of $300 million, this program will save taxpayers an estimated $50-60 million in annual energy costs.

The Energy Bank continues to assist participants in identifying and installing energy-management improvements. The program's goal is to implement cost-effective energy management improvements, using private funds in combination with minimal state and federal support. Since the program's inception in 1989, the program has leveraged $5.2 million of federal funding into more than $150 million in identified energy improvements, of which $140 million have been implemented, with total annual savings of $20.5 million to Iowa's taxpayers.

The Iowa Energy Bank continues to achieve substantial financial results for the state's schools, hospitals, local governments and private colleges. In FY99 alone, Iowa's Energy Bank program implemented more than $16.5 million in energy improvements with total annual savings in excess of $1.3 million to Iowa's taxpayers.

In FY99, two hospitals joined the program: Myrtue Memorial Hospital and Sartori Memorial Hospital. Combined, they implemented more than $2.5 million in improvements with $263,000 in annual energy savings.

In FY00, the public-school sector implemented $10.3 million in improvements, with annual savings in excess of $372,000.

In a continuing effort to improve the technical quality of the Energy Bank, the DNR developed a Regional Provider system in FY99, whereby qualified analysts have been pre-selected for six different regions of the state, streamlining the selection and approval process. The Regional Provider system allows clients to work with an analyst without submitting a request for proposals, decreasing the time it takes to install energy-management improvements and allowing the DNR to employ stronger quality control standards.

The DNR has now made available an electronic Small Building Energy Audit designed with small local governments in mind. The audit is for facilities with less than 5,000 square feet and residential-sized heating and cooling systems. This easy-to-use program provides accurate analyses based on engineering calculations, while allowing facility staff to analyze and project the financial impact of energy improvements.

The State of Iowa Facilities Improvement Corporation (SIFIC) is a non-profit corporation providing state agencies with lease-purchase financing for energy-efficiency improvements. Because of the financial success of the program, the original bond issue was called in for early redemption. To date, SIFIC has saved state agencies and Iowa taxpayers more than $22 million in energy costs through $13.4 million in energy improvements.

Rebuild Iowa helps communities improve energy efficiency, promote community development, and establish a path for economic and environmental sustainability. Communities that join Rebuild Iowa integrate local, state and federal resources to secure the economic and environmental benefits of energy efficiency. To date, Rebuild Iowa has leveraged $450,000 in federal funding to implement more than $7 million in energy improvements and save nearly $1.8 million annually. Rebuild Iowa communities include Cedar Falls, Webster City, Winnebago and Worth counties, Hamilton County and Muscatine.

Accomplishments for Rebuild Iowa include:

- The U.S. Environmental Protection Agency awarded the DNR a $200,000 grant to further its work with community initiatives.
- Renew America awarded Rebuild Iowa a Certificate of Environmental Achievement and listed the program in the Environmental Success Index for protecting, restoring and enhancing the environment.

Homegrown Energy

Transportation Fuels

The market share of ethanol-blend fuels continued to grow, rising above 45 percent of all gasoline sold in Iowa during FY00. This is a 22 percent jump since FY97. Six retail E85 (15 percent gasoline) stations continue to operate in Iowa, complementing the eight stations owned by state facilities. In FY00, more than 209,000

gallons of E85 were sold in Iowa. The state vehicle fleet has purchased more than 550 E85 vehicles since 1991, well ahead of state and federal requirements.

With a new biodiesel production facility in Sergeant Bluff, the fuel is beginning to develop a market share. More than 30 stations in Iowa now sell a premium diesel blend that includes biodiesel. Additionally, several private fleets are using biodiesel fuel to meet federal alternative fuel vehicle requirements.

Wind

FY99 saw the largest increase in wind energy installations in Iowa history. During FY99, 319 wind turbines were installed, representing new wind energy capacity of 240 MW. One installation totaling 257 turbines with a combined capacity of 192 MW has been touted as the single largest wind contract in the world. There are now more than 350 wind turbines operational in Iowa with combined capacity of 250 MW.

Several Iowa school districts have researched and adopted wind power since 1998. Through the DNR's Iowa Energy Bank Program, school districts such as Akron-Westfield and Forest City have each installed 600kW wind turbines. The Spirit Lake Community School District is currently working with the DNR to install a second turbine (750kW), projected to be on-line in summer 2001. Because of the success of these projects, schools districts across Iowa including Clarion-Goldfield, Eldora-New Providence, Emmetsburg, and Earlham are at various stages of identifying and installing wind turbines.

Biomass

Iowa's switchgrass initiative has received international recognition and continues to move forward. More than 4,000 acres are now planted with switchgrass. Studies on the growth, harvest, storage, impact on water quality and wildlife habitat continue, with test burns to co-fire coal with switchgrass planned at the Ottumwa Generating Station starting in fall of 2000.

Methane Energy Recovery

The Methane Energy Recovery Program continues to move forward. The DNR currently manages four methane energy recovery demonstration projects and a livestock waste characterization study. The ongoing demonstration projects focus on both swine and dairy operations. Projects cover the construction, operation, maintenance, research and evaluation of energy generation and heat recovery systems using methane gas recovered by anaerobic digestion. The livestock waste characterization study provides a county-level evaluation on the type of livestock, waste levels, and the amount of energy content available from the various waste streams.

Renewable Energy Guide

Formerly known as the Iowa Biomass Plan, the Iowa Renewable Energy Resource Guide was created in FY99 to reflect current renewable energy assessment and project activities.

Agricultural Energy Management

The DNR has cooperated with the Iowa State University (ISU) Agronomy Department on a project titled "Precision Management of Nitrogen On Manured Cornfields." The project demonstrates practical methods farmers can use to improve nitrogen fertilizer management on cornfields where manure is applied. The ISU project used precision agriculture with Global Positioning Systems (GPS) and Geological Information Systems (GIS) to demonstrate how to reduce unnecessary applications of commercial nitrogen fertilizer without significantly reducing corn yields.

Greenhouse Gas Mitigation

A literature review on agricultural greenhouse gas emissions was completed in FY99. The purpose of the literature review was to report on agriculture's contributions to green house gas (GHG) emissions and to recommend future mitigation strategies.

As recommended by that review, GIS carbon storage maps are being developed and refined. Current GHG efforts also focus on quantifying carbon storage and establishing a verification/certification methodology for carbon sequestration and trading.

NATURAL RESOURCES

FORESTS AND PRAIRIES

The state forest nurseries located in Ames and Montrose grew and distributed 3.7 million bare root conservation tree and shrub seedlings to private landowners and government agencies. Nursery operations are run in cooperation with the Iowa Department of Corrections to provide work opportunities for residents and inmates at the Newton and Fort Madison facilities. State nursery facilities are also made available to researchers at Iowa State University Forestry and Horticulture departments.

Iowa's state forest system is comprised of four large state forests: Yellow River, Stephens, Shimek and Loess Hills, and range in size from 8,503 to 13,092 acres. Area foresters continue mapping forest stands for improved management, to identify and protect sensitive areas and to track forestry practices. A facilities upgrade including relocation and modernization of the sawmill is underway at Yellow River State Forest, while at Loess Hills State Forest a visitor center was completed.

The division's 13 district foresters promoted the division's forest stewardship program through management planning, promotion and cost-share administration with a focus on conservation of CRP lands into permanent forest cover. Forestry assistance was provided to 1,372 woodland owners in 1999 and 1,580 in 2000, resulting in an additional 50,089 acres in 1999 and 30,937 in 2000 being brought under improved forest management. Rural tree plantings increased by 8,007 acres in 1999 and 8, 435 in 2000. Training and educational sessions for more than 500 woodland owners and businesses were held each year.

Urban Forestry

The division's urban forestry program in cooperation with the Iowa Urban and Community Forestry Council provides technical assistance, education, training, volunteer coordination and recognition to communities across the state. In 1999, 325 communities received direct technical assistance, including completion of 48 comprehensive community tree inventories and management recommendations. In 2000, 513 communities received direct technical assistance. Tree City USA, a designation given in cooperation with the National Arbor Day Foundation to communities that meet sustained urban forestry programs, were given to 116 communities in 1999 and to 123 communities for 2000, ranking Iowa 5th in the nation in total number. Thirty-five communities received the "Tree City USA Growth Award" for going beyond basic requirements, making Iowa number three in the nation in this category in 2000. An estimated 600,000 trees were planted through various community forestry efforts in 1999 and again in 2000. In cooperation with Iowa State University Extension Forestry, more than 40 one-day workshops on tree planting and care were given each year. In addition, the highly regarded "Community Tree Steward" program, where volunteer leaders get 24 hours of intensive training and give back at least 24 hours in community service, had 50 graduates in 1999 and 50 in 2000, bringing the total to 360 trained volunteers who gave more than 9,000 hours in community service.

The Division worked with the Iowa Nursery and Landscape Association to launch a new community tree planting program called "Million More by 2004." A total of $250,000 in state funds helped 91 community projects across the state plant more than 4,600 new landscape trees on city, county and school properties. Local governments matched these funds with more than $270,000. A second round to be completed in June 2001 will plant another 4,400 new trees in 83 local projects.

Education

The Trees For Kids program, a cooperative tree education and planting program for elementary and secondary schools, completed its 10th year. Donations and grants for the program were received from MidAmerican Energy, Peoples Natural Gas, Alliant Energy, Iowa Nursery and Landscape Association, Iowa Bankers Association, Trees Forever, Iowa Society of American Foresters, Cascade Forestry Services and the Iowa Tree Farm Program.

Trees For Kids and its secondary school companion, Trees For Teens, provides no-cost

original education materials to teachers and students and helps them get free trees to plant through local Iowa Nursery and Landscape Association and Iowa Bankers Association members. In 1999, more than 7,000 teachers participated, working with 408,000 Iowa students who in turn planted more than 61,000 trees on school grounds worth an estimated $2.9 million. In 2000, more than 9,250 teachers and 400,000 Iowa students planted more than 91,000 trees on school grounds worth an estimated $2.7 million.

For schools without room to plant trees, an alternative program called "Reading Rangers" was developed. The DNR planted a tree at one of four state forests for every 20 pages read by students during Earth Week. In 2000, more than 82,000 pages were read and 4,100 trees were planted at Loess Hills State Forest. An Arbor Day Poster contest for 5th-grade students was held for the fifth year, with more than 150 art teachers statewide working with their students. The top three posters were awarded savings bonds, thanks to the Hawkeye Chapter of the Telephone Pioneers.

Forest Health

Forest lands were monitored for serious insect, disease and environmental problems. Aerial surveys of 280,000 acres along with ground confirmation were conducted. More than 400 acres of oak forests are afflicted with the disease oak wilt. Division foresters are working with impacted landowners on appropriate salvage opportunities and reforestation efforts. In cooperation with the state entomologists of the Iowa Department of Agriculture and Land Stewardship and the USDA, division foresters are assisting in gypsy moth surveying and eradication efforts. The division initiated a "volunteer" survey program with more than 350 individuals increasing gypsy moth awareness and expanding survey areas.

Fire Protection

The division's fire protection forester worked with 320 volunteer fire departments to provide excess federal military vehicles and equipment for rural fire protection efforts. To date, an inventory of $9 million in fire equipment exists throughout the state. In addition, the division provided "Smokey Bear" fire prevention materials and costumes to rural fire departments to expand youth and adult education. The division participates in the Big Rivers Fire Compact with Illinois, Indiana and Missouri to improve rural fire protection in the rivers area of the Midwest.

Rural Development

In cooperation with the 15 Resources Conservation and Development (RC&D) areas, the 10th year of the Rural Development Through Forestry (RDTF) program was completed. This program distributes $200,000+ per year in matching federal funds to encourage economic development in rural Iowa by promoting the use of Iowa's forest resources. Since the program began in 1991, a $4 to $1 ratio of total economic activity has been generated from the federal grant funds.

PARKS, RECREATION AND PRESERVES

Restoring a Legacy in Iowa State Parks

The DNR is continuing its effort to repair, restore and renovate many of Iowa's finest park buildings. The Restore the Outdoors program has been essential to revitalizing these historic structures which represent the essence of the state park system. The 1999 state fair display and in 2000, an exhibit at the State Historic Museum, highlighted the restoration effort and the importance of continued funding of the Restore the Outdoors program.

Major projects completed in 1999 included:

Gull Point Lodge - renovation
Palisades-Kepler Lodge - renovation
Lake of Three Fires Shelter - renovation
Lake Ahquabi Beach Complex – converted to a beach house open shelter
Ledges Oak Woods Shelter - renovation
Lake Macbride Shelter/Lodge – renovation and kitchen addition

Major projects completed in 2000 include:

Pine Lake Lodge – restoration
Pine Lake Beach Building – conversion to an open shelter and modern rest room
Lacey-Keosauqua CCC Cabin – renovations
Wildcat Den Historic Grist Mill – structural repairs
Backbone CCC Stone Rest room – renovation
Lake Keomah Shower Building – replacement
Lewis and Clark Shower Building – replacement
Clear Lake Modern Rest room – replacement

To date, 56 major projects have been completed in 29 state parks. Through Restore the Outdoors, the DNR seeks to restore Iowa's state parks so future generations may enjoy them as we do today.

Trails in Iowa State Parks

Recreational hiking trails have always been an important part of visitors' opportunities in Iowa state parks. Redesign, repair and expansion projects for these trails have been, and will continue to be high priorities. In recent years, a new type of trail opportunity has emerged and is growing rapidly in popularity– the multi-purpose trail linking an Iowa state park or recreation area to neighboring communities and attractions. Such trails have already been developed at Lake Anita and Lake Manawa state parks and George Wyth State Park. A similar project is underway to link Eldora and Steamboat Rock to Pine Lake State Park. More than a dozen additional parks and neighboring communities are planning similar projects. Annual visitation to these 14 parks exceeds six million. As these trails are developed, usually in partnership with neighboring communities, increased economic benefits to nearby communities, increased recreational use of the parks by nearby residents and a stronger tie between the state park or recreation area and its neighbors should be realized.

AMERICORPS

In May 1999, sixteen AmeriCorps members began working in our state parks. Three "base camps" were established at Waubonsie, Lacey-Keosauqua, and Dolliver state parks. The members began multi-year service projects focused on restoring trails, ecosystem management and strengthening community involvement in our state parks. Examples of projects include building a playground, recruiting volunteers, encouraging the formation of "friends" groups, assisting local land owners in prairie restoration, constructing ADA-accessible features, restoring CCC structures, general park maintenance, assembling interpretation displays and developing educational programs for schools and the public to foster environmental awareness. AmeriCorps members are provided a living allowance or stipend. After performing a term of service, they are given an educational award, which can be used to pay student loans already accrued or can be kept in an account for future school expenses. The program was expanded in 2000, and consists of 22 full-time, two part-time and 20 seasonal members.

Interpretation

The provision of quality interpretive programs has long been a goal of the Parks, Recreation & Preserves Division. A number of programs on natural as well as historic and archaeological features have been provided to visitors by existing park staff through campground talks, guided hikes, and self-guided interpretive trails. Personnel at Cedar Rock provide seasonal tours to its unique residence in Buchanan County designed by Frank Lloyd Wright; and the staff at the E. B. Lyons Interpretive Center at the Mines of Spain Recreation Area in Dubuque provide programs there.

In order to more capably serve visitors to state parks, recreation areas and preserves, planning began in FY99 for the development of a more formal interpretive program. Full-time and seasonal staff developed programs and presentations beginning in FY00.

Expanding Alternative Accommodations in State Parks

As camping increases in Iowa state parks and recreation areas, the DNR continues to seek new and exciting camping experiences for park visitors. The yurt is the latest addition to rental facilities available in state parks and recreation areas. The yurt is a simple dome-like structure used by nomadic tribes in central Asia. It consists of a wooden frame with heavy-duty vinyl stretched over it. Each yurt measures 16 feet in diameter with a dome at the center. McIntosh Woods State Park, located on the northwest shore of Clear Lake, is home to the yurts. The Parks Division partnered with the Waste Management Division to use recycled products for the project. The floor is made of reclaimed hardwood flooring salvaged from a former church. The deck is made of recycled milk jugs, and floor mats are made of recycled tires. The furniture in the yurts

was also constructed of recycled wood.

In addition to the yurts, log camping cabins offer campers the shelter and security of four walls without the modern frills. Like yurts, camping cabins have electricity, a deck or covered porch, and basic furnishings such as tables and chairs, bunkbed and a full-size futon. Grills and picnic tables are also provided. Visitors must provide their own bedding, towels, cooking utensils and other camping items. Cabin and yurt renters have the use of the shower and toilet facilities. In the past two years camping cabins have been added to Green Valley and Lake Darling state parks.

Ecosystem Management

During FY99 and FY00, the Parks, Recreation & Preserves Division continued its ongoing effort of preparing ecosystem management plans for state parks and recreation areas. The ecosystem management planning program began in 1994 in response to a long felt need to provide park and recreation area staff with practical natural and cultural resource management guidelines. Using teams of representatives from the Fish and Wildlife and Forests and Prairies divisions, ecosystem management plans were prepared for Palisades-Kepler, George Wyth and Pilot Knob state parks and Volga River State Recreation Area. Plan preparation also included input from the State Historical Society of Iowa as well as the State Preserves Advisory Board. In addition, management practices outlined in earlier plans such as prairie burning and tree planting were implemented in several state parks.

Preserves Strategic Plan

The DNR's State Preserves Advisory Board has approved a strategic plan designed to provide direction for the Board and state preserves system. In 1997, the Board held a reunion to honor more than 30 years of activity and accomplishment. In addition to providing an opportunity to reflect on accomplishments as well as disappointments, the reunion provided an opportunity to look at the future and chart a direction to ensure that program goals are achieved. In January 1999, the Board held a planning workshop. More than 60 participants associated with the preserve system identified key issues to be addressed by program goals. *Windows to the Past, Doorways to the Future* is the title of the strategic plan developed as a result of the workshop. The strategic plan outlines three goals: achieve the full potential of the preserve system; develop and implement a long-range plan for the designation and management of preserves; and garner public and legislative support for the preserve system.

FISH

Fish Habitat Improvement

Thirty-two lakes received aquatic habitat improvements during FY99 and approximately 33 lakes received improvements in FY00. Projects included vegetation control, shoreline riprap, placement of stake beds, pallet structures, broken concrete and brush piles. Improvements occurred at Lake Rathbun, Lake Smith, Greenfield Lake, Center Lake, Hickory Grove, Lake Darling, Lake Macbride, Lake Wapello, Ingham Lake, Diamond Lake, Coralville Reservoir, Casey Lake, Green Valley, Prairie Rose, Rogers Lake, Volga Lake, Lake Iowa, West Des Moines Raccoon River Park, Willow Creek Lake, Blue Pit, Briggs Wood Lake, Corydon Reservoir, Mill Creek Lake, Lake Pahoja, Spirit Lake, Sand Lake, Middle Sabula Lake and Green Belt Lake.

Habitat improvement in trout streams can include bank stabilization, half-log structures, bankhides, "lunker hides" and woody vegetation removal. Habitat activities occurred at the following 12 trout streams: Spring Branch Creek, Big Mill Creek, Coldwater Creek, Elk Creek, French Creek, Trout River, Joy Springs, Little Turkey, Bear Creek, Fountain Springs, South Fork Big Mill, and Ram Hollow. Fisheries personnel conducted habitat activities at 14 trout streams in FY00 and extensive habitat work was conducted at Spring Branch in 1999.

Stocking

Fish culture facilities reared and stocked more than 118 million fish in Iowa's public waters. This total included 478,000 trout, 114 million walleye, two million northern pike and 430,000 channel catfish.

In FY00, 130 million fish were reared and stocked in the public waters of Iowa. This total included approximately 524,000 trout, 124 million walleye, 3.4 million northern pike and 500,000 channel catfish.

Education

Fisheries personnel sponsored or cosponsored 328 clinics/outdoor classrooms in FY99. Staff made presentations at 114 meetings or organized groups. The Bureau provided information for 681 newspaper articles and magazine articles. A total of 239 radio programs and 48 television interviews were presented during the year. Fishery facilities hosted 148 group tours.

In FY00, nearly 242 fishing clinics/outdoor classrooms were sponsored or co-sponsored by fisheries personnel. The staff made 85 presentations and provided information for 694 newspaper and magazine articles. A total of 231 radio programs and 40 television interviews were presented during the year.

Growth

In FY99, the DNR purchased 140 acres containing trout stream habitat on Spring Branch Creek, Pine Creek and Waterloo Creek. A 16.5-acre tract of land was purchased in the Deer Creek Lake watershed.

Fish Mortality

Fisheries personnel investigated 47 fish kills in 1999, and 57 in 2000. On public water, animal waste products were the leading cause of fish mortality in cases when a cause could be determined.

Other

The commercial harvest of food-fish on the Mississippi River in FY99 totaled 1.8 million pounds and in FY00 totaled 1.9 million pounds. The economic value of commercial food-fish harvested from both border rivers was estimated at approximately $445,000 in FY99 and $480,000 in FY00.

Kounty Pond (Buchanan County), Wilson Grove Pond, South Prairie Lake, Mitchell Lake and Martens Lake were chemically treated to eradicate Eurasian watermilfoil in 1999. Mile Hill Lake, Keg Creek Lake, Bartlett and Scott A, Kounty Pond, Horseshoe Pond and Sportsman Pond were treated to control watermilfoil in 2000.

In FY99 and FY00, more than 60 lake surveys and 10 creel surveys were conducted to measure angler success. The Long-Term Resource Monitoring Program continued to monitor fish populations, water quality, aquatic vegetation and macro-invertebrates in the Upper Mississippi River.

In 2000, property containing 125 feet of Clear Lake shoreline was purchased. A 138-acre tract was purchased in the Lake Miami watershed.

WILDLIFE

Land acquisition and the development of public wildlife areas continue to be Wildlife Bureau priorities. More than $2 million of federal funding has been used to acquire wetland habitats and adjacent uplands. The Wildlife Bureau works to establish native grasses on upland habitats and private lands. With the help of Pheasants Forever, a native grass seed harvest program was implemented with the goal of establishing native ecotype seed sources.

Native Prairie Seed Harvest Program

A partnership among the DNR, Pheasants Forever and the United States Fish and Wildlife Service has established a native prairie seed program in Iowa. The initiative helps fulfill a demand for diverse native grass and for continued quality management of state lands. Through the program, $750,000 worth of native prairie seeds have been harvested, enough to develop 4,295 acres of high quality prairie on state and federal lands. The Native Seeds program leveraged $900,000 donated by Pheasants Forever, toward seed purchases from 12 Iowa seed growers, along with $20,000 from private growers for use on private lands. Additionally, the program received a North American Wetlands Conservation Act Grant of $50,000 for private contractors to restore prairie on state lands. Pheasants Forever also provided $20,000 for seed cleaning services.

Iowa Private Lands Partnership

The Wildlife Bureau helped create a new program among landowners, the Natural Resources Conservation Service and the DNR to increase and enhance wildlife habitat on private lands in Iowa. Through the program, 3,000 landowners assisted with habitat improvements on 31,000 acres of private lands. Additionally, the program worked to establish 44,000 acres of buffer areas, and trained 1,450 landowners, resource professionals and conservation partners on habitat issues. The program created a Wildlife Habitat Guide for private landowners, and developed a private contracts list that links landowners wishing to make habitat improvements with private contractors.

Prairie Pothole Joint Venture

Activities within the 35-county Prairie Pothole Joint Venture area continue to be the most successful partnering effort for restoring wetlands and upland habitat in north-central Iowa. The U.S. Fish and Wildlife Service, DNR and many county conservation boards have been able to acquire and develop 7,400 acres of wetlands and associated uplands in the past year. Since 1987, more than 48,000 acres have been placed in public ownership and restored to provide optimum wildlife habitat.

This year the DNR also received a $600,000 grant from the Fish and Wildlife Service through the North American Wetlands Conservation Act to acquire and restore wetlands and associated uplands along a segment of the Wapsipinicon River. When coupled with nearly $700,000 in partner funds, this project will provide significant additional wildlife habitat and public hunting lands in Black Hawk, Bremer, Buchanan, Chickasaw, Delaware, Fayette, Floyd, Howard and Mitchell counties.

Abundant Wildlife Populations in Iowa

Iowa's productive lands continue to provide excellent wildlife populations, attracting resident and nonresident hunters. Approximately 504,000 residents and 54,000 nonresident hunting licenses were purchased to pursue deer, wild turkey, pheasants and other game birds and animals. The pheasant harvest was lower than usual and totaled about 900,000 birds. Iowa continues to rank as one of the top three pheasant-harvest states in the nation. Deer and turkey are two of the most sought-after game species in the state. Hunters took 121,000 deer during the fall season and more than 22,000 turkeys during the spring and fall seasons. Hunter success rates for these two species remain among the highest in the nation.

Wildlife Diversity Programs

The wildlife diversity program continued its activities in non-game wildlife surveys, restoration work and public information. Some of the continuing surveys include wintering eagle and eagle nest surveys, sandhill crane surveys, colonial waterbird nesting surveys, frog and toad surveys, and others. Diversity staff has been involved with trumpeter swan restoration work, peregrine falcon releases and monitoring, and river otter work. The Kellerton prairie chicken site, Iowa's first Bird Conservation Area, continues to receive attention. A public platform with a telescope was installed to make viewing of these showy birds more accessible.

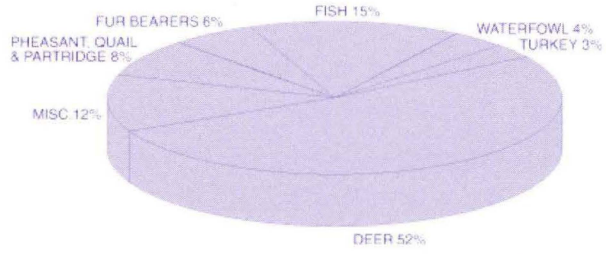
Wildlife Management

Wildlife Bureau field personnel manage 456 public wildlife areas totaling 320,000 acres. Private land habitat accomplishments included the restoration of 38 wetlands totaling 184 acres, and the preparation of 280 wildlife farm plans affecting 7,500 acres. DNR cost-sharing was used to establish 50 shelterbelts on private land.

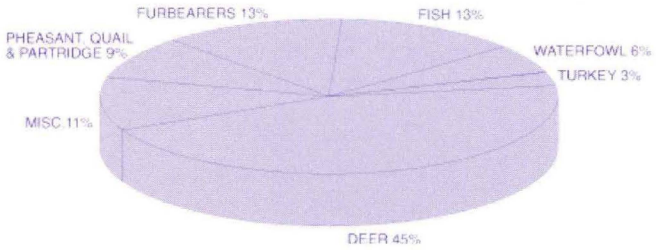
Wildlife Bureau Botanist

In 1999, the Wildlife Bureau created a botanist position to conduct plant and plant community inventories on 25 state wildlife management areas across Iowa. The inventories help identify the presence of endangered and threatened species, and evaluate the quality of plant communities. This information provides management advice from a botanical perspective to wildlife biologists. Highlights of these inventories include the discovery of a sand savanna in Allamakee County and a fen in Muscatine County, both rare plant communities in Iowa. A survey also was conducted to identify sites on a large wildlife management area used by Henslow's sparrows.

LAW ENFORCEMENT



Through Iowa's Turn-In-Poachers (TIP) program, a total of 291 TIP calls were processed in 1999 and 275 during 2000. These calls, from private citizens, resulted in 28 cases in 1999 with 67 citations issued and 20 cases in 2000 and 87 citations issued. A total of $8,500 was approved for reward payment in 1999 by the private group, TIP of Iowa, Inc. Reward payments totaling $9,350 were approved in 2000.



EDUCATIONAL AND RECREATIONAL CLASSES FY1999

	Hunter Education	Snowmobile Safety	Boating Safety	Fur Harvester	ATV	Bow
Classes Conducted	398	34	16	3	13	25
Students Trained	13,972	693*	685*	36*	31	412

*Includes some home-study courses

EDUCATIONAL AND RECREATIONAL CLASSES FY2000

	Hunter Education	Snowmobile Safety	Boating Safety	Fur Harvester	ATV	Bow
Classes Conducted	579	60	43	3	15	19
Students Trained	14,115	1,047*	1,119*	9*	58	190

*Includes some home-study courses

Iowa Department of Natural Resources

502 E. 9th Street
Wallace State Office Building
Des Moines, Iowa 50319-0034
www.state.ia.us/dnr