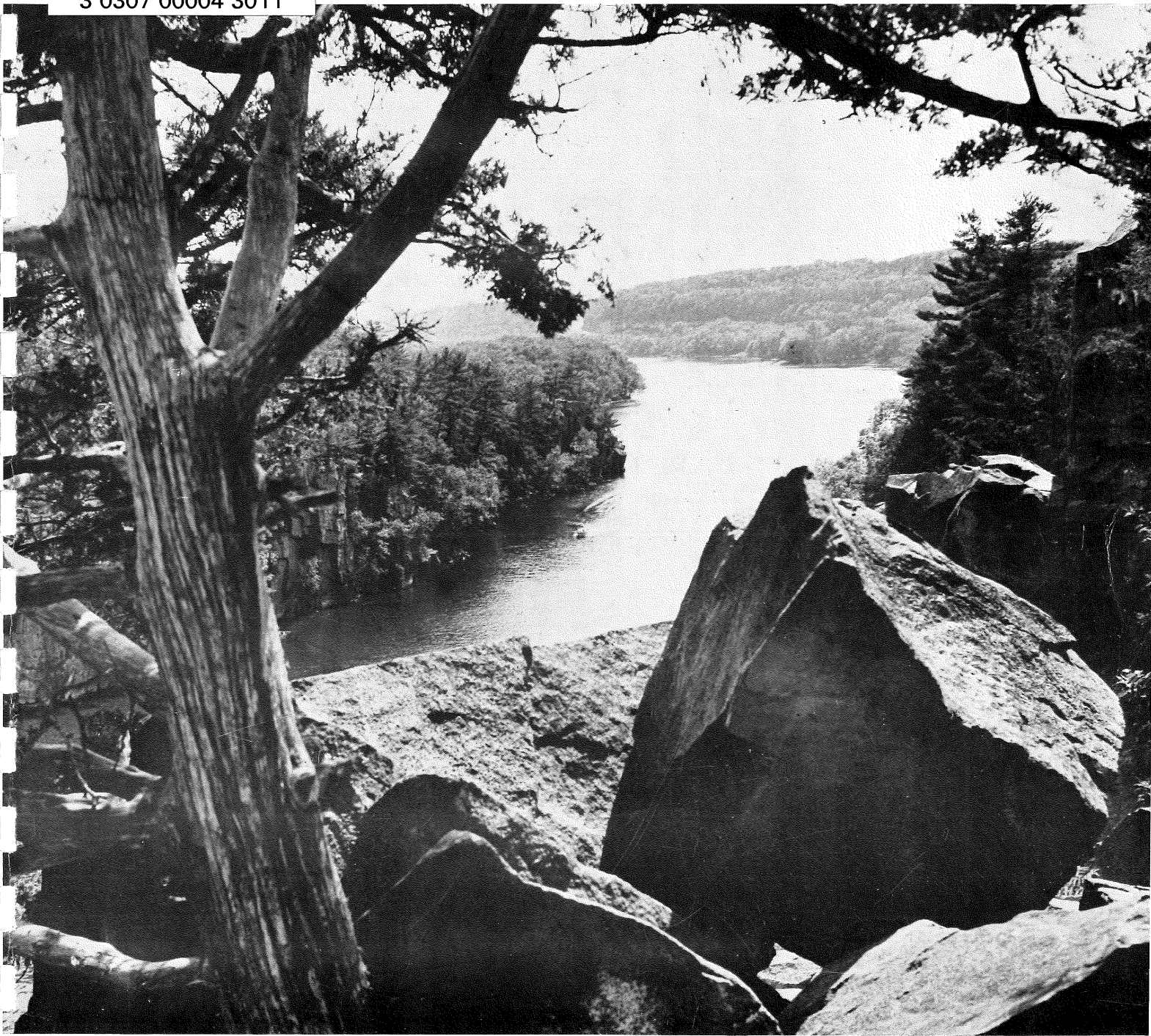


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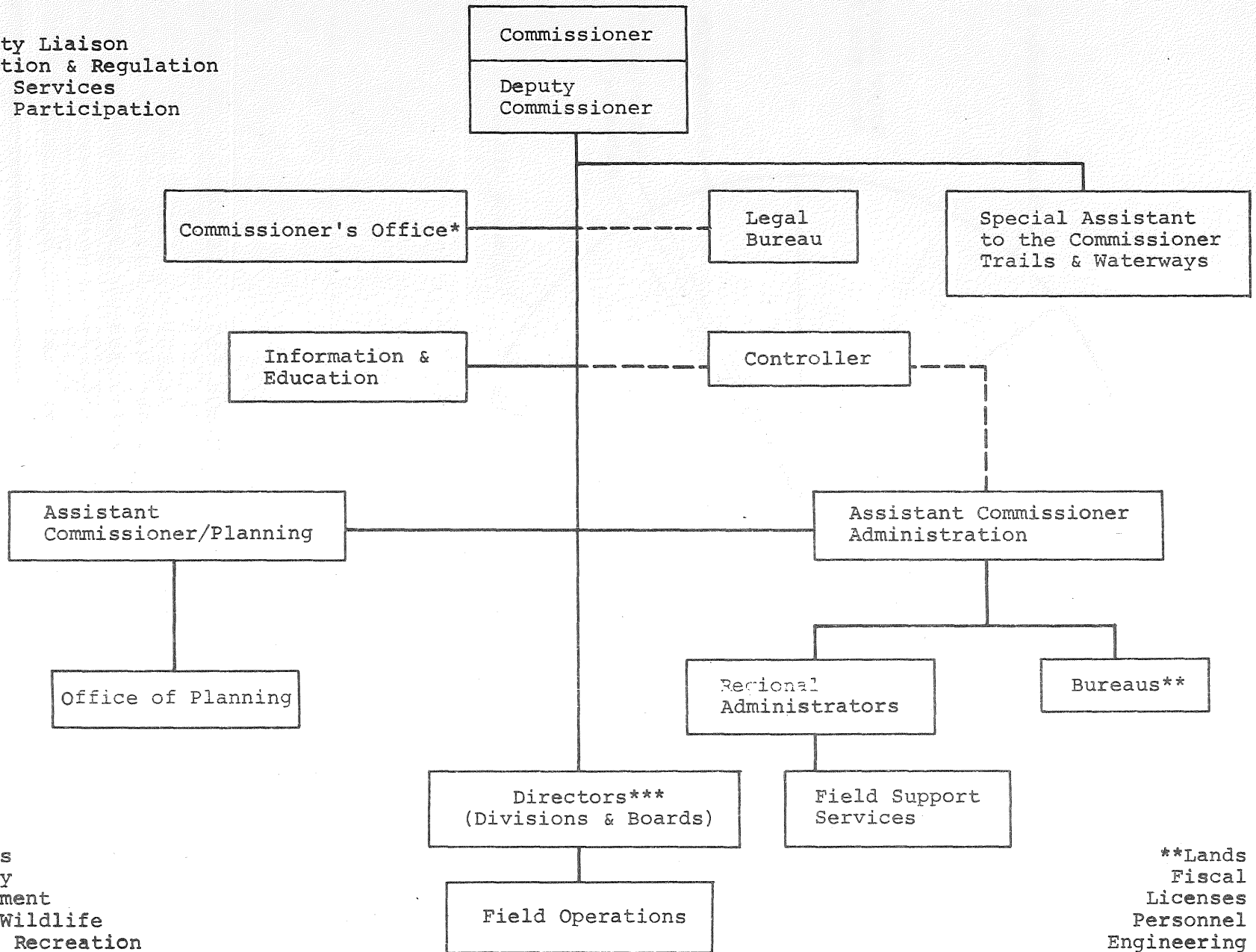
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T A B L E O F C O N T E N T S
 MINNESOTA DEPARTMENT OF NATURAL RESOURCES
 BIENNIAL REPORT 1980-81

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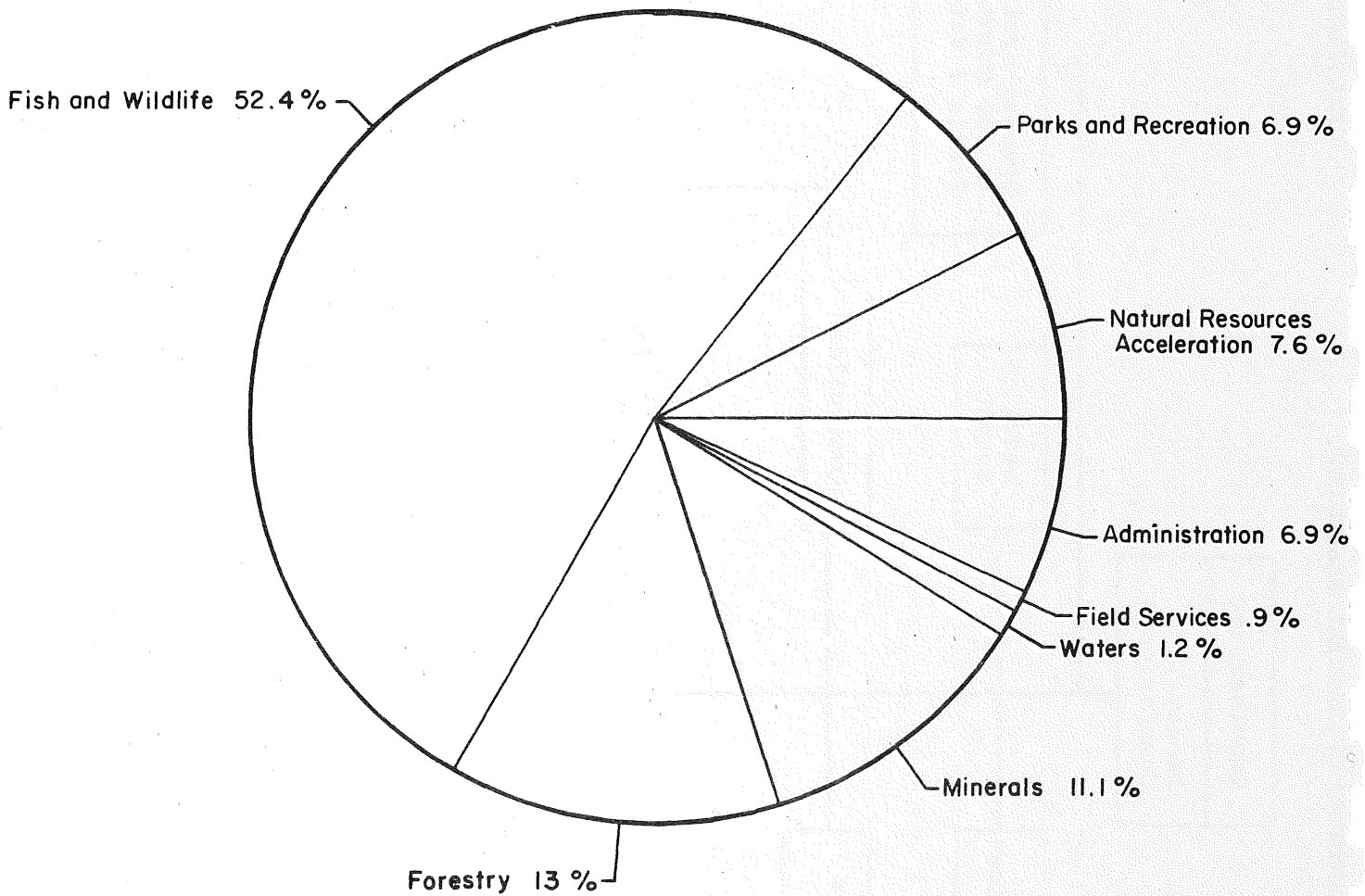
*Community Liaison
 Legislation & Regulation
 Special Services
 Citizen Participation



 Waters
 Minerals
 Forestry
 Enforcement
 Fish & Wildlife
 Parks & Recreation
 Environmental Education Board
 Soil & Water Conservation Board

**Lands
 Fiscal
 Licenses
 Personnel
 Engineering
 Field Services
 Office Services Systems

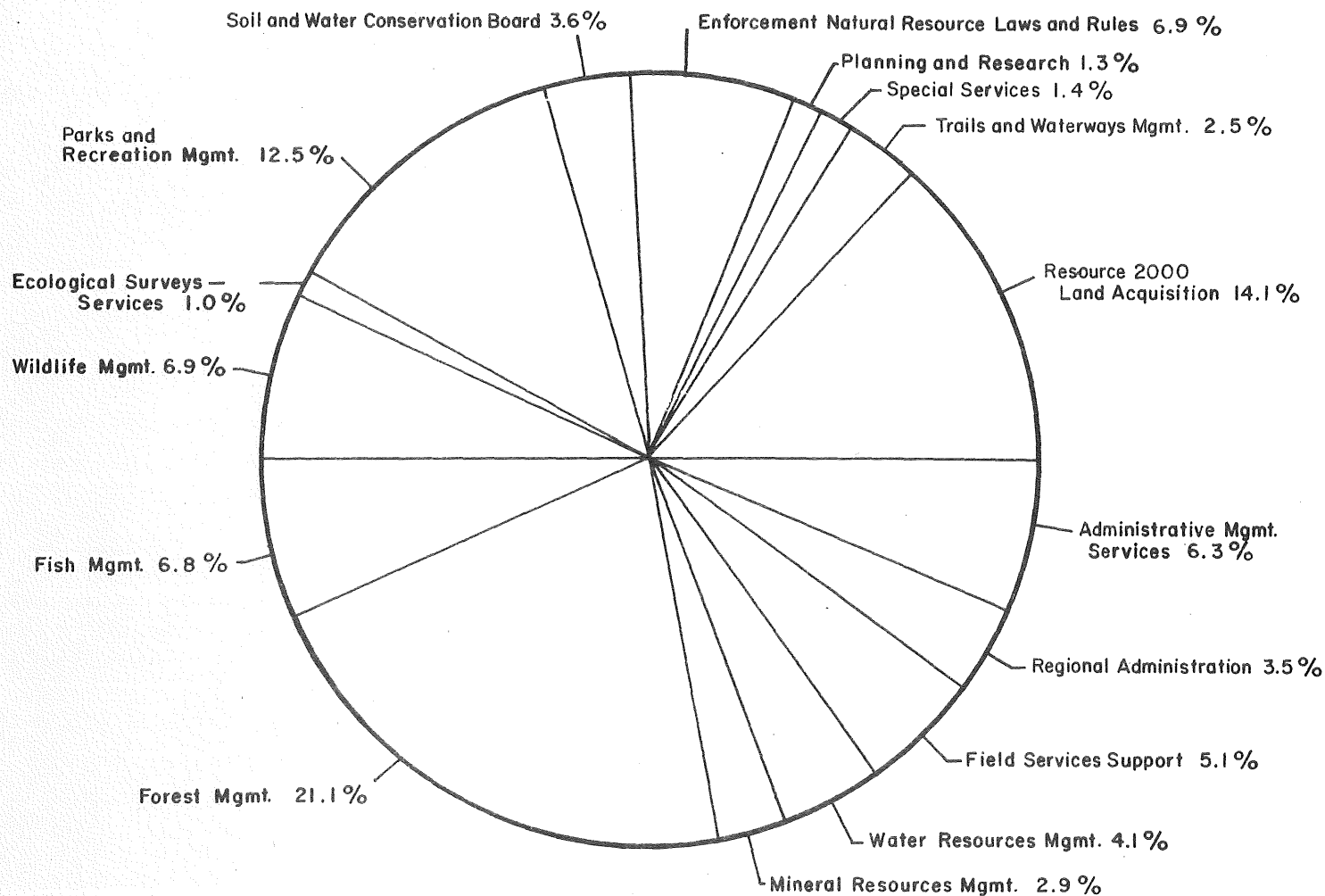
WHERE YOUR NATURAL RESOURCES DOLLAR COMES FROM



RECEIPTS JULY 1, 1979 - JUNE 30, 1980
(ACTUAL)

Administration	\$ 2,506,555	6.9%
Field Services	314,613	.9
Waters	436,581	1.2
Minerals	4,044,091	11.1
Forestry	4,759,253	13.0
Fish and Wildlife	19,128,292	52.4
Parks and Recreation	2,522,918	6.9
Natural Resources Acceleration	2,792,381	7.6
<u>Total</u>	<u>\$36,504,684</u>	<u>100.0%</u>

WHERE YOUR NATURAL RESOURCES DOLLAR IS SPENT



EXPENDITURES JULY 1, 1979 - JUNE 30, 1980
(ACTUAL)

Administrative Management Service	\$ 5,082.5	6.3%
Regional Administration	2,852.4	3.5
Field Services Support	4,129.8	5.1
Water Resources Management	3,340.0	4.1
Mineral Resources Management	2,388.3	2.9
Forest Management	17,151.8	21.1
Fish Management	5,549.6	6.8
Wildlife Management	5,592.0	6.9
Ecological Surveys-Services	757.2	1.0
Parks and Recreation Management	10,118.8	12.5
Soil and Water Conservation Board	2,891.8	3.6
Enforcement Natural Resource Laws and Rules	5,617.4	6.9
Planning and Research	1,091.3	1.3
Special Services	1,101.6	1.4
Trails and Waterways Management	2,039.1	2.5
Resource 2000 Land Acquisition	11,450.9	14.1
<u>Total</u>	<u>\$81,154.5</u>	<u>100.0%</u>

FISH MANAGEMENT

Minnesota contains about 2.5 million acres of fishing lakes and 17,000 miles of fishing streams which require management to satisfy two million anglers. This is the job of the Section of Fisheries whose field force operates from six regional and 26 area offices. It is accomplished through improvement of habitat for game fish, propagation and distribution of fishes, rough fish control, and lake rehabilitation. An extensive survey program is maintained to provide current information on the status of fish populations as the basis for the distribution of the management effort. A fisheries research program continues to develop new management methods, improve techniques, and supply the basic information for understanding of fisheries problems.

Habitat development is preceded by obtaining control of fish management sites either through the purchase of the land in fee title, or by acquiring perpetual easements for the necessary rights of access and development. Corridor easements have been acquired on 33 trout streams for a total of 47 miles (752 acres). Management and negotiations (appraisals) are in progress for easements on 26 streams, totaling 25 miles (400 acres) of fishing access. Three northern pike spawning areas have been purchased and four others, totaling 36 acres, are being negotiated. One public access and northern pike spawning area, totalling four acres, has been purchased in the Metropolitan area.

Stream improvement through habitat development has benefited 19 miles along eight steelhead streams along the North Shore and 35 miles along ten inland trout streams. Construction contracts have been completed for one northern pike spawning area, two rough fish barriers, and one rough fish trap. The Fisheries Construction Crew repaired two rough fish control barriers.

During F.Y. 80 a total of 252,373,179 fish of all sizes were reared and distributed, mainly from facilities listed below:

- 28 Walleye Spawning Stations
- 14 Walleye Hatcheries (7 of which also hatch sucker eggs and 2 of which also hatch muskie eggs)
- 135 Walleye Rearing Ponds
- 4 Muskie Spawning Stations
- 18 Muskie Rearing Ponds
- 10 Sucker Spawning Stations (to supply food for muskies)
- 4 Trout Hatcheries and Rearing Stations
- 67 Controlled Northern Pike Spawning Areas
- 56 Northern Pike Winter Rescue Sites

In addition, an uncounted number of northern pike were released from 81 natural spawning areas which receive management and protection from the Section of Fisheries.

Two major improvements and two repairs were made at three trout rearing facilities. A new walleye spawn-taking site (St. Louis River) was constructed.

Improvements were made on two walleye rearing sites and three rough fish barriers. Repairs were made at three northern pike spawning areas, and seven rough fish control sites. Five repair jobs were completed at two area headquarters. These projects were done partly by commercial contract and partly by fisheries force account, through the use of station personnel and the Fisheries Field Construction Crew.

The Rough Fish Removal Program initiates, develops, monitors, and controls efforts designed to remove and utilize fish species not popular with sport fishermen. With the introduction of the Inland Commercial Fishery, emphasis has been placed on utilizing the private sector in this effort.

In previous years, the Rough fish Removal Program was largely conducted by contract fishermen. In 1979, this program shifted into a form of licensed commercial fishery whereby the private sector would be given the certain areas of the state to remove and market non-sport fish species.

In the event of the private licensee's inability to provide a removal effort, the state maintains the authority and capacity to effect removal operations.

The total value of commercial fishing or harvest from all licenses in the state is about \$22 million. Such operations include the Inland, Lake Superior, International, Interstate, Private Hatchery, Turtle, Inland Mississippi, Minnesota-Mississippi River, Live Bait Industry, and other minor licensed operations. The Live Bait Industry, which includes 369 licensed harvestors, produced minnows, leeches, and other bait with an estimated value of \$21 million.

Comprehensive biological surveys were made on 884 lakes and 80 streams during the year. These surveys aid fish managers in the programming of stocking and other fish management efforts that increase the productivity of Minnesota waters for the fisherman. Fish were collected from an additional four rivers and the St. Louis River Estuary to provide representative data on toxic substances and pesticide levels in fish.

One warm-water lake and four trout lakes have been chemically treated to eliminate undesirable fish, and have been restocked with game fish.

The fisheries research program, conducted to obtain information directly related to current and anticipated fisheries problems, completed field work for six studies on warm-water and cold-water species. Eighteen other studies were in progress and one new study on rainbow trout was begun. Twelve reports were published and distributed. One field biologist position was transferred from Bemidji to Grand Marais to meet management needs for research on lake trout in inland lakes.

Habitat Protection and Development

Fish are prolific animals which are capable of maintaining themselves in adequate numbers where they are living in suitable habitat. One of the most important thrusts of the fish management program is aimed at protecting and improving habitat. Shoreland development is taking away spawning ground and cover for small fish. These areas are being protected through acquisition and through the Department's statutory authority over private aquatic vegetation control and modification of the current or cross section of the beds of public waters. Other measures involve the prevention of rough fish migration into good fishing waters and the restoration or re-development of lost spawning areas.

Land Acquisition

Acquisition of land by the Fisheries Section is confined to the purchase of perpetual easements and fee titles on corridors along trout streams, on sites for northern pike spawning areas, and sites for the construction of rough fish control devices. The easements (or fee titles, in a few cases) on trout streams allow public fishing and stream improvement work by fisheries crews. Purchases by fee title or easement are made for tracts which provide natural northern pike spawning areas, or areas where water levels can be controlled in spring to provide uniform spawning conditions each year.

Land control for construction of rough fish barriers and traps is also obtained at strategic locations on lake outlets and on marsh outlets adjacent to lakes.

An effective method for controlling rough fish populations is to stop their movement into lakes and to deny them from their best spawning areas (marshes). Additionally, some acquisition effort has been needed for lake accesses on Metropolitan area lakes.

A total of 105 parcels on 47 miles on 33 streams, six parcels on four spawning sites, six parcels on five rough fish control sites and one parcel for lake access have been purchased during F.Y. 80. A total of 65 parcels are in the process of appraisal. Among these are: 52 parcels on 25 miles of 26 streams; four parcels on four spawning areas and nine parcels on six sites for rough fish control.

Stream Improvement

Habitat improvement work is undertaken on trout streams to prevent bank erosion, provide more fish shelter, improve spawning conditions, and provide fishing and stocking trails. The work is carried out on stream lengths where easements to Fisheries have been obtained. One of the important projects on the streams in the Lake Superior drainage system is to modify natural barriers (waterfalls or cascades) by making step-pockets to provide passage

for adult trout and salmon. This provides more stream length for spawning and fishing.

Work was carried out on eight different anadromous streams which benefited 19 miles of stream. Work was done on 10 different inland streams which benefited 35 miles of stream length. In addition, major maintenance work was done on five streams benefiting 31 miles of stream.

Development (Contract Construction)

One northern pike spawning area was constructed during the year and one is planned for bid-letting in spring, 1980. In addition, two rough fish barriers and one rough fish trap have been constructed.

Development (Force Account Construction)

The Fisheries Construction Crew made major repairs at six rough fish barrier sites and one fisheries headquarter site, in addition to the jobs listed in the section: "Improvements to Fish Production Facilities". Personnel at various stations completed repair and maintenance projects at three rough fish barrier sites, three fish production facilities, and one trout fishing facility.

Lake Rehabilitation

Lakes that have become over-populated with rough fish, or those that are suitable for trout but contain populations of incompatible species, are considered for chemical rehabilitation if the body of water can be isolated from re-entry of unwanted fishes by barriers to migration. In the process of rehabilitation, the existing fish population is eradicated with certain chemicals approved by the U.S. Environmental Protection Agency, and restocked with the desired game fish combinations. In addition to providing good fishing, this procedure also benefits boating, swimming and waterfowl hunting.

There have been instances in the past two years where one of the two approved chemicals has been unobtainable and the other has been in short supply at a high price. There are indications that the availability of one chemical will remain poor, but the other will be in better supply at slightly reduced prices.

One warm-water lake with an area of 594 acres and four trout lakes totaling 168 acres were treated during F.Y. 80. These projects were reimbursed 75 percent by the U.S. Fish and Wildlife Service under provisions of the Dingell-Johnson, Fish Restoration Act.

Lake and Stream Surveys

An extensive program of surveys and inventories of fishing waters must be maintained to provide current information on the status of fish populations

and the condition of the habitat, in order to form the basis for distribution of the management effort. Information is collected on the physical, chemical and biological characteristics of the waters, as well as detailed information on the species composition, relative abundance and age and size distribution of the fish population.

A total of 884 lakes were examined for some fish management concern during F.Y. 80. A total of 278 of these were for dissolved oxygen levels during critical periods of the year. Stream surveys in this same period totaled 80.

This work is reimbursed 75 percent by the U.S. Fish and Wildlife Service, under provisions of the Dingell-Johnson Fish Restoration Act.

During the open water season of 1980, a total of 275 fish were collected for toxic substance monitoring under an agreement between Minnesota Department of Natural Resources and Minnesota Pollution Control Agency. Fish were collected from the Mississippi, Minnesota, Blue Earth, and Split Rock rivers and St. Louis Bay to obtain up-to-date information on levels of toxic substances and pesticides in the environment. This year, the Environmental Protection Agency dropped the funding for the Fixed Station Monitoring Program.

Fish Production and Distribution

Each year, fish from state hatcheries, rearing ponds and rescue sites are stocked in some 1,300 public fishing waters where facilities of natural reproduction of certain species are lacking; or where current local conditions have been unfavorable. Included are about 144 managed stream trout lakes and 210 trout streams, that are stocked annually.

A total of 252,373,179 fish weighing 420,910 pounds were stocked during F.Y. 80. Most of these fish were produced in state rearing facilities, with some augmentation from federal hatcheries. Most significant of these contributions were 551,000 catfish for inland lakes and streams and 300,800 lake trout for stocking in Lake Superior.

Listed below are the numbers of fish by species and sizes:

<u>Species</u>	<u>Adults</u>	<u>Yearlings</u>	<u>Fingerlings</u>	<u>Fry</u>
Walleye	1,399	45,802	4,125,960	242,810,090
Northern Pike	28,652	60,417	1,622,573	
Muskellunge		16,861		
Largemouth Bass	836	495	171,883	100,000
Smallmouth Bass	3		173,297	
Channel Catfish		10,467	360	124,000
Flathead Catfish	300	155		
Crappie	62,101	2,307		
Sunfish	30,518	30,816		
Yellow Perch	35,183	5,340	11,241	

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<u>Species</u>	<u>Adults</u>	<u>Yearlings</u>	<u>Fingerlings</u>	<u>Fry</u>
Brown Trout	582	232,772		190,400
Rainbow Trout		168,253	513,919	
Brook Trout	220	62,205	143,023	30,500
Lake Trout		532,197	70,425	
Rainbow Trout (Steelh'd)				293,283
Chinook Salmon			435,298	
Atlantic Salmon		7,584		
Northern Cisco			1,125	
Bluegill	52,060	38,698	20,938	
Splake			98,550	
Pumpkinseed	91			
Totals	211,945	1,214,369	7,388,592	243,548,273

Fall run Chinook Salmon eggs were obtained from the State of Michigan in October 1979 and hatched at the French River facility, for stocking in seven North Shore Streams. In May 1980, the Fisheries Section acquired Atlantic Salmon from the State of New York. These fish will be planted (to evaluate them on their availability to the angler) in tributary streams of Lake Superior.

To meet program needs, the Fisheries Section obtained Atlantic Salmon eggs from Maine and Lake Trout eggs from Michigan in the fall of 1979. It is anticipated that these will contribute greatly to the fishery of Lake Superior and some inland lakes.

Improvements to Fish Production Facilities

A new seawall for erosion control and improvement of spawn-taking facilities was completed at the Waskish (Upper Red Lake) station by the Field Construction crew. The same crew also repaired outlet structures at three northern pike spawning areas, improved an outdoor raceway and constructed a flood retaining dike at the Crystal Springs Hatchery.

A new walleye spawn-taking site was completed on the St. Louis River in Carlton County, by area personnel.

Other improvements on trout production facilities included the alteration of the water distribution system and addition of temperature control equipment at the St. Paul Hatchery. Also, at French River, repairs were made to the water intake line and a water re-use circulatory system was completed.

A major reconstruction of a rough fish barrier in Douglas County was accomplished by the Fisheries Construction Crew. Two dams serving as partial barriers were improved by the addition of the newly-designed, swinging barrier device.

Rough Fish Removal and Commercial Fisheries - 1979

In 1979, the private operator portion of the rough fish removal program (contracts) was incorporated into the Commercial Fisheries program. It will henceforth be identified as the Inland Commercial Fishery. The commercial fishing industry of Minnesota comprises 11 separate and discrete fisheries. They are, in descending order of importance: Live Bait, Inland, Lake Superior, International, Interstate, Private Hatchery, Turtles, Frogs, Inland Mississippi River, Mississippi-Minnesota River set lines and Mussel and Clam.

Number of all commercial participants	3,625
Total commercial license receipts	\$86,724
Total pounds production	10,065,738
Estimated value of the total fishery	\$22,089,047.20

Live Bait Industry - 1979

A comprehensive assessment of Minnesota's live bait industry was published in 1979. This is the result of a three-year study completed through the cooperative funding of the National Marine Fisheries Service and the State of Minnesota. A bait harvest reporting system was established for this study and continues as a monitoring system.

In 1979, the bait leech was identified in the reporting system. In the previous ten years the bait leech has come from obscurity to a prominent component of the live bait industry. Annual reports submitted by licensed bait harvestors revealed the following statistics:

369 licensed bait harvestors - 768 helpers; license receipts \$65,630.00
 Minnow production - 186,720 gals; exported 106,644 gals.
 Leech production - 13,138 gals; exported 320 gals.
 Estimated value of live bait produced - \$21 million.

Inland Commercial Fishery - 1979 (Rough Fish Removal)

This fishery was initiated F.Y. 80 to promote private enterprise efforts into the rough fish removal program. Individual fishermen were assigned fishing areas within the boundaries of the state, to provide fish population control efforts under the direction and regulation of the Minnesota Section of Fisheries.

24 fishermen - 188 helpers; license receipts \$4,060.00
 3,873,502 lbs. production; value \$387,350.20

A total of 292 lakes (179,580 surface acres) were affected by the rough fish removal effort.

Other Rough Fish Removal

During F.Y. 80, a total of 79 free permits were issued to private individuals or organizations for trapping rough fish during spawning concentrations. This effort produced 848,562 pounds of fish removed.

State Crew Operations resulted in removal of 468,638 pounds valued at \$8,845.

Lake Superior Commercial Fishery - 1979

This fishery is comprised of waters of Lake Superior which are under the jurisdiction of the State of Minnesota. A summary of individual fishermen reports reveal the following statistics:

46 licenses - 25 helpers; license receipts \$3,080.00
2,082,291 pounds harvested; value \$233,330.00

International Commercial Fishery - 1979

20 licenses - 24 helpers; license receipts \$1,705.00
1,145,227 lbs. harvested; value \$305,137.00

This fishery is comprised of Minnesota-Canadian boundary waters. Each lake is fished under regulations designed specifically for that body of water. A summary of individual fisherman reports reveals the following statistics:

Lake-of-the-Woods: 13 licensed fishermen - 16 helpers
1,024,498 lbs. harvested - value \$262,330

Rainy Lake: 5 licensed fishermen - 7 helpers
96,136 lbs. harvested - value \$37,232

Namakan: 2 licensed fishermen - 1 helper
24,593 lbs. harvested - value \$5,575

Interstate Commercial Fishery - 1979

This fishery is comprised of border waters between Minnesota and Wisconsin. A summary of individual fisherman reports reveal the following statistics:

131 licensed - 56 helpers - license receipts \$5,719.00
571,225 lbs. harvested - value \$68,620.00

Mississippi River: 131 licensees - 56 helpers - license receipts
\$5,719
571,225 lbs. harvested - value \$68,620

St. Croix River: No commercial fishing activity

Private Hatchery Operations (other than minnow) - 1979

40 licensees - license receipts \$1,000
129,069 lbs. production - value \$65,000

This fishery is comprised of individuals involved in spawning, hatching, and/or rearing fish for private consumption. A variety of fish species are eligible for production through this fishery; however, trout are far and away the most popular species for this activity. Three-fourths of these licensees are hobby or one-pond operators. Of the remainder, one operator produces more than half of the total production reported.

Inland Commercial Turtle Harvest - 1979

Summary of annual harvester reports for 1979 reveal the following statistics:

50 licensees - license receipts \$1,250
54,370 lbs. production, value \$26,000

Licensed Harvest of Frogs - 1979

The harvest of leopard frogs, for purposes other than fish bait, remained prohibited in 1979. Population monitoring at 64 sites in 13 counties continued.

Adult frog population increases were very spotty, while juvenile populations increased at most sites. The overall population is still at a low level and continued frog harvest restriction is recommended for 1980.

Inland Mississippi River - 1979

This fishery is restricted to that portion of the Mississippi River lying between St. Anthony Falls in Minneapolis to the confluence of the St. Croix River at the Minnesota-Wisconsin boundary.

1 - fisherman - 3 helpers - license receipts \$65
62,000 lbs. production - value \$3,610

Minnesota-Mississippi River Set Line - 1979

This fishery is limited to that portion of the Minnesota River from Mankato to the confluence of the Mississippi River and from that point on the Mississippi River to the confluence of the St. Croix River at the Minnesota-Wisconsin boundary. It is restricted to one, 10-hook set line.

2 - fishermen - license receipts \$20.00
No production reported

Mussel and Clam - 1979

No license sales

Fisheries Research

During the period of the Fisheries Research Unit carried on 24 management-oriented investigations under Federal Aid. Of these, 19 were under Dingell-Johnson Project F-26-R, three under Fish and Wildlife Project F-1-R and one each under the Anadromous Fish Act and the Commercial Fisheries Research and Development Project.

Field work was completed on six studies and final reports are scheduled for publication as Fisheries Investigational reports in F.Y. 81. One new study on non-migratory rainbow trout was begun.

Five Fisheries Investigational Reports, one staff report and six fish management reports were published and distributed. The annual mailing of Fisheries Investigational Reports and Special Publications to some 300 agencies, libraries and individuals in the U.S., Canada and Europe was also completed.

One field fisheries biologist position was transferred from Bemidji to Grand Marais to meet management needs for research on lake trout in inland lakes.

* * * *

WILDLIFE MANAGEMENTWildlife Land Acquisition

During Fiscal Year 1979 the Section of Wildlife purchased 4,382 acres of wildlife lands at a cost of \$2 million. An additional 5,943 acres were acquired in FY 80 at a cost of \$2.46 million. The 10,325 acres acquired were located in 63 wildlife management areas in 39 counties.

A major portion of the funds for acquisition was derived from Resource 2000, a general revenue appropriation: \$2.5 million during the 1978-79 Biennium and \$4 million in FY 80. Additional acquisition funds include \$600 thousand annually from the small game license surcharge.

Gift Program

A total of 473 acres of land and water were received as gifts during FY 79 and FY 80 for use as wildlife management areas. Eighty-three acres in easements also were obtained.

Wildlife DevelopmentState Migratory Waterfowl Stamp

During each year of the biennium, \$350,000 for wetland development projects was appropriated by the legislature from the sale of the \$3.00 waterfowl stamp. Projects constructed were primarily on state-owned Wildlife Management areas, and lakes designated for wildlife management purposes.

Newly constructed wetlands completed during 1978 and 1979 were as follows:

Little Elk WMA, Morrison County - 400 acres
 Jewitt WMA, Aitkin County - 140 acres
 Clare Johnson WMA, Lincoln County - 50 acres
 Prairie Dell WMA, Lincoln County - 50 acres
 Riverside WMA, Lac Qui Parle County - 35 acres
 Logue Lake WMA, Rice County - 80 acres
 Ida Lake WMA, Norman County - 30 acres
 Bull Moose WMA, Todd County - 80 acres
 Eul WMA, Stevens County - 70 acres
 Haunted House WMA, Stevens County - 7 acres
 Lac Qui Parle WMA, Chippewa County 2@ - 120 acres
 Salo Marsh WMA, Aitkin County - 85 acres
 Irruption WMA, Murray County - 35 acres
 Red Lake WMA, Lake of the Woods County - 190 acres

Other projects included the construction and replacement of outlet dams for the control of water levels on 11 wetlands totaling 1735 acres. In addition, 220 dugouts of various sizes were constructed in 29 State Wildlife Management areas.

Betterment of Wildlife Management Areas

During FY 79 and FY 80 a total of \$500 thousand was made available for improvement of Wildlife Management areas. The expenditure of the Resource 2000 appropriation was approved by the Legislative Commission on Minnesota's Resources (LCMR). The primary program emphasis was to develop the new lands purchased under the Resource 2000 acquisition program.

Efforts centered around the development and improvement of public facilities such as parking lots, accesses and walking trails. Funds were used to create wildlife nesting cover; such as planting lands to domestic or native prairie plants. Where appropriate, grasslands were rejuvenated by burning. In the forested wildlife areas, over-mature aspen was cut or new forest openings were created to rejuvenate wooded areas, thereby creating greater forest diversity.

New acquisitions were signed and fenced where needed. Planting of woody cover areas for winter shelter, and other management techniques were undertaken. Accomplishments are included under the sections following.

Wetland Wildlife

In addition to developed and reclaimed wetlands noted under the mandatory waterfowl stamp projects, 19,000 acres of managed wetlands were maintained and improved. To keep these lands in one to one ratios of vegetation to water, water level management techniques were incorporated on 72,465 acres in 1979 and 86,404 acres in 1980.

A total of 353 small wetlands were constructed during 1979, and 188 in 1980. These wetlands included such management practices as digging dugouts, level ditches and canals, and reclaiming small drained potholes.

Farmland Wildlife

Providing food and winter and nesting cover are important programs in farmland areas. During the two years the following farmland wildlife projects were undertaken:

	<u>1979</u>	<u>1980</u>
New Woody Cover Plantings	47	57
Wildlife Food Plots	838	1033
Artificial Feeding Sites	308	237
Development of Nesting Cover	642	2391
Improvement of Nesting Cover by Burning	799	819

Forest Wildlife

Forest wildlife improvement is oriented primarily toward the creation of diverse forest plant communities of varied age classes. The primary tool is forest disturbance

by mechanical means, such as logging and cutting, or by controlled burning to regenerate forest growth. During 1978 a total of 2,467 acres were disturbed or burned; 3,061 acres were cut, through timber sales. In 1979 a total of 4,940 acres were disturbed; 921 acres were cut, through timber sales.

Creating and maintaining forest openings is a key to maintaining and creating greater forest diversity. A total of 627 openings were created and maintained in 1978, and 639 in 1979.

Management -- Wildlife Management Areas

Besides the management of terrestrial and aquatic habitats, much effort is required to protect wildlife management areas and to provide public facilities for the users of wildlife lands. The following development and maintenance practices were undertaken:

	<u>1978</u>	<u>1979</u>
Boundary marking	1,388 miles	909 miles
Public Use Facilities (No.)	2,259 "	2,544 "
Noxious Weed Control	15,977 acres	9,358 acres

Boundary marking includes the signing of wildlife areas and fencing as needed to mark and protect these lands.

Public use facilities include parking lots, access and logging roads and trails, as well as hunter shooting blinds.

Noxious vegetation control on state lands is required by state law where the primary weeds controlled are thistles.

Other Key Wildlife Programs

Wildlife Habitat Improvement

Cost sharing to develop wildlife habitat on private land has proven to be valuable in helping landowners develop their lands for wildlife. The following projects were completed under this program:

	<u>FY 79</u>		<u>FY 80</u>	
	No.	Acres	No.	Acres
Nesting Cover	4	20	6	28
Food Plots	26	786	343	1216
Wetland Development	16	139	25	51
Woody Cover	17	64	4	7
Cost	\$75,000		\$110,400	

Habitat; Pheasant Chick Program

Outdoor oriented organizations have attended pheasant clinics and undertaken nearly 800 habitat projects to fulfill requirements for obtaining day-old pheasant chicks. The program continues to emphasize the importance of habitat. It also identifies raising and releasing pheasants as an enjoyable and interesting incentive for undertaking habitat projects, but of little help to established pheasant populations.

Wildlife Management Area Inventory

During FY 80 the LCMR appropriated \$68,500 to begin a several-year project to inventory the basic species covertypes and other physical and biological features of the state's Wildlife Management areas. During this first-year period, 30 wildlife areas were inventoried in the central portion of Minnesota. A data base management system to process the information will be developed with each unit mapped. The inventory will be completed within three years.

Hunting Seasons

Deer firearms hunters again had an opportunity to choose their own particular hunting season within a set framework.

The statistics for the 1978 and 1979 hunting seasons are noted below.

	<u>1978</u>		<u>1979</u>	
	<u>License Sale</u>	<u>Harvest</u>	<u>License Sale</u>	<u>Harvest</u>
Deer Firearms	314,468	47,372	309,623	44,340
Archery	32,308	2,608	35,659	2,578
Muzzleloader	3,145	346	3,128	318

The year 1978 was the first for the separate muzzleloader hunt. Areas open were selected public lands. The harvest is the registered number of deer taken during the seasons.

The fifth moose hunt was held in the fall of 1979. In northwestern Minnesota there were 12 zones, with 416 permits issued to parties of four hunters. A total of 330 moose were taken. Fourteen zones were established in the northeast; the harvest was 236 moose from 290 permits.

The duck harvest* (based on returns from mailed questionnaires) totaled 1,408,000 in 1978 and 1,462,000 in 1979 -- a substantial increase from the previous two years. The harvest of Canada geese also increased, with 72,000 taken in 1978 and 85,000 in 1979.

Upland game hunting also reflected increases in harvest* for most species:

	<u>1978</u>	<u>1979</u>
Pheasants	468,000	328,000
Ruffed Grouse	692,000	709,000
Sharp-tailed Grouse	43,000	54,000

	<u>1978</u>	<u>1979</u>
Hungarian Partridge	132,000	108,000
Squirrels	540,000	403,000
Rabbits, Hares	525,000	369,000
Raccoon	121,000	97,000
Fox (Red and Gray)	28,000	25,000

The trapping harvest* for the primary species was as follows:

	<u>1978</u>	<u>1979</u>
Muskrat	316,000	707,000
Mink	47,000	66,000
Beaver	33,000	55,000
Raccoon	37,000	65,000
Fox (Red and Gray)	36,000	39,000

*The numbers harvested are obtained from mail surveys and based on the number of licenses sold and the average take per hunter or trapper.

The registration of fisher, bobcat, lynx and otter is required. The catch for these species follows:

	<u>1978</u>	<u>1979</u>
Fisher	2,426	3,032
Bobcat	304	291
Lynx	28	42
Otter	636	1,186

The sale of small game and trapping licenses also increased during the Biennium, along with the sale of waterfowl stamps. The sales were as follows:

	<u>1978</u>	<u>1979</u>
Sportsmens Individual	32,025	37,322
Sportsmens Combination	45,678	49,332
Small Game	253,574	241,945
Small Game, Senior Citizen	8,975	10,105
Small Game, Non-Resident	<u>4,189</u>	<u>3,871</u>
-Total Small Game Licenses	344,441	342,575
Trapping	13,016	18,121
State Migratory Waterfowl Stamp	129,030	147,520

Wildlife Research, Census and Survey

As pressures on the wildlife resource grow, so does the need for management programs formulated on a sound ecological basis. Reliable data on species abundance and distribution are essential to monitor the status of populations, and for the promulgation of hunting season regulations. Likewise, accurate and timely research findings are required as the basis for a variety of management programs.

The Wildlife Research Unit has two primary missions: (1) the coordination of wildlife census and survey activities, along with analysis and interpretation of the findings; and (2) to conduct research so that data are available for decision making on a variety of management programs.

In FY 79 and FY 80 emphasis was placed on improving the accuracy and prompt reporting of census, survey and research findings and on improving the quantity and quality of statistical and data processing capabilities.

Famland Wildlife

Annual surveys are conducted to determine the status of a variety of species which are hunted or trapped. Also, data are collected on a few species of special interest, such as prairie chickens. Research on famland wildlife emphasizes the relationships between wildlife populations, their limiting factors, and agriculture. Research emphasis includes basic ecology of famland deer, roadside management, monitoring the dynamics and transplant success of wild turkeys, and the effects of trapping on muskrat populations.

A variety of survey and research data are utilized in maintaining the present system of deer hunting regulations which has been able to sustain the deer herd near the desired population levels in the agricultural area.

Wildlife use of seeded and unseeded roadsides is being investigated to determine what management practices would be most beneficial to the greatest variety of famland wildlife.

Cooperative studies are under way with the Minnesota Department of Transportation to evaluate how various management techniques affect the quality of wildlife nest cover.

Research was initiated in FY 79 to assess the impact of trapping on muskrat populations. Findings from this research should determine whether or not muskrat trapping needs to be curtailed during low population periods.

Forest Wildlife

Population monitoring of deer, moose, grouse, beaver and forest predators was continued during the Biennium.

A variety of data are collected each year on forest deer. This not only provides important information on the status and welfare of the herd, but also allows managers to gauge the effects of hunting regulations on population levels.

Aerial surveys are conducted each year to determine changes in abundance of moose and beaver.

A predator and furbearer scent post survey is conducted annually on 40 routes, statewide. It is providing valuable indices of abundance for several species; including coyote, fox and raccoon.

Research was continued during the past biennium on means of reducing deer damage to ornamental vegetation and orchards.

Another research project seeks to develop a procedure for reliably censusing otter.

In FY 80 a major research effort was initiated on black bear in north central Minnesota. This project has several objectives: (1) to monitor bear population densities by developing a bait-post route census technique; (2) to monitor the impact of the bear guide enterprise on bear hunting; (3) to monitor the effect of hunting pressure on kill rates; and (4) to assess survival, productivity and physiological status of bear populations.

Wetland Wildlife

Each May, aerial and ground transects are run to estimate the number of breeding waterfowl in the state. Data from these counts provide information on long-term trends of abundance for several species.

Minnesota has for many years put considerable effort into waterfowl banding programs. Flightless young ducks are banded during the summer months throughout the north central and west central areas of the state. Flying adult and young ducks are captured and banded each September on the Roseau River Wildlife Management Area; and wood ducks and Canada geese are banded in western and southwestern Minnesota in late summer and early fall.

During the past biennium, basic research was continued into feeding ecology, homing, population age structure and productivity of the ring-necked duck. Research was also initiated on various aspects of wood duck ecology in Minnesota. The primary objectives include development of a reliable census method utilizing artificial nest box occupancy rates.

NONGAME WILDLIFE PROGRAM

The major development during FY 80 regarding DNR's Nongame Wildlife Program was the establishment of new means of funding.

Since its inception four years ago the program has been funded from state hunting, fishing and trapping license revenues. But this year, separate actions by the Minnesota Legislature and Congress provided new sources of financing.

The Minnesota Legislature passed and the governor signed into law, legislation to establish a checkoff provision on state income tax returns to fund the state's Nongame Wildlife Program.

On September 29 the President signed the Fish and Wildlife Conservation Act of 1980 (Public Law 96-366). This law will provide 3 for 1 matching funds to Minnesota for planning and implementing a program for nongame fish and wildlife conservation, up to a federal limit of \$101,450 per year for four years. These funds will be obtained in Minnesota by using donations to the state's nongame wildlife checkoff as the state's share of the match.

Nongame projects carried out in FY 80 included heron, loon and sandhill crane surveys and further clearing of vegetation on Hearding Island in the Duluth Harbor. This island is to be managed for common terns and piping plovers.

Thirteen bald eagles were caught, studied and released at the Lac qui Parle Wildlife Management Area, as part of the lead poisoning study. Steel shot was required for all waterfowl hunting in the Lac qui Parle Goose Zone in 1980, to eliminate poisoning of bald eagles, Canada geese and mallards.

Five otters were caught in northern Minnesota and released along the Upper Mississippi River to restore otters in that part of their historic range. Additional stocking is planned for FY 81.

Two nestling bald eagles were captured in northern Minnesota and sent to New York State as part of a comprehensive plan to restore bald eagles across their former breeding area.

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ECOLOGICAL SERVICES

The Ecological Services Section, Division of Fish and Wildlife, provides technical support and biological and chemical laboratory services directly to Department of Natural Resources management, research, enforcement and planning personnel in the field and central office; and both directly and indirectly to several million anglers, hunters, trappers, lake property owners, resorters, realtors and others who enjoy or benefit from the state's natural resources. The section is organized into five working units:

- * Biology Laboratory
- * Chemistry Laboratory
- * Monitoring and Control Unit (aquatic nuisance control, pollution investigations, power plant monitoring)
- * Surveys and Review Unit (ecological investigations, river surveys, environmental review)
- * Special Projects Unit (lake mapping, data processing and analysis, statistics)

The section is designed to develop expertise in the various disciplines and activities in which it is involved. The units are flexibly organized so as to permit use of personnel in activities or projects outside their "home" unit, as needed. In this way Ecological Services is able to fully utilize a person's background, capabilities and expertise. For example, the section utilized an employee on special assignments on Mile Post 7, Roseau River and Aquatic Nuisance Control, as well as on his regular assignments in the Special Projects Unit.

Surveys and Investigations

The following surveys, studies and investigations were accomplished in F.Y. 80 by the Surveys and Review Unit:

Fish and wildlife habitat evaluation studies were conducted and/or continued on 51 major type proposed development projects of the Corps, SCS, DOT, local governments and private firms.

Reviews, comments, and recommendations were made on 140 environmental documents of other agencies.

Fish and wildlife surveys were conducted on 242 miles of major rivers (Otter Tail, 190 miles; Minnesota, 25 miles; Mississippi, 27 miles). Reports for the Red Lake and Roseau Rivers were in process.

A total of 175 U.S. Corps of Engineers permit applications were received and coordinated with DNR area fish and wildlife managers for their information and involvement.

A partial game lake survey, electrofishing survey, and benthos sampling (study of aquatic life on stream or lake bottoms) was done in the proposed Duluth Harbor dredge disposal sites.

Monitoring and Control Unit

The following activities were carried out by the Monitoring and Control Unit:

Three hundred ninety-five aquatic nuisance control permits were issued. The trend in numbers of permits has been going down since a fee charge was established and concurrent emphasis on cutting and pulling instead of use of chemicals. The goal is for less use of chemicals. Through a grant from EPA (through MDA) an Aquatic Pesticide Enforcement Project was initiated.

A total of 118 pollutional spills were logged, 34 were investigated and 18 included fish and wildlife kills. Twenty-six cases of fish and/or wildlife kills, resulting from natural causes, were investigated.

The monitoring of fish populations and fishing success continued at the Prairie Island nuclear power plant on the Mississippi River; also, impingement near and entrainment of fish through the plant.

The annual monitoring of water quality on 15 representative fish lakes around the state continued.

The collection of all fish specimens needed for chemical analysis by the various involved state and federal agencies in Calendar Year 1979 was accomplished (1,003 specimens).

A Unit staff member represented the DNR at four regular meetings of the governor's Regional Interdisciplinary Pesticide Council.

Special Projects Unit

The following activities were carried out by the Special Projects Unit:

Fifty-six lakes totaling 26,388 acres were sounded and 31 lake maps prepared.

Two river survey reports were published and distributed: "Fish and Wildlife Resources of the St. Louis River" (Special Publication No. 127) and "Fish and Wildlife Resources of the Mississippi River from Lake Itasca to Lake Winnibigoshish" (Special Publication No. 129).

"Summary and Analysis of the Water Quality Monitoring Program from 1973 to 1978" (Special Publication No. 128) was published and distributed.

Several benthos samples were processed and the results summarized for inclusion in reports.

Increasing use of the CRT terminal in the Wildlife Section was made; putting lake, stream and water chemistry data into the U of M computer for analysis and retrieval for various purposes. The data relating to lakes was processed so that it would be in a useable form. The aquatic plant data from some problem lakes and water quality monitoring lakes was

entered and summarized. Additional information on lakes and streams will be included with the data stored on tapes, as time permits. Several summaries from the data stored on tapes was provided to the Section of Fisheries.

One aquatic biologist was assigned to represent the division in working with the Corps of Engineers, USGS and the FWS (Instream Flow Group, Fort Collins, Colo.) in determining protected low flows for fisheries in the Mississippi, Minnesota and other major rivers in Minnesota.

Technical assistance relating to lakes and streams was provided to members of the staff, other bureaus and agencies and private citizens.

All requests for lake and stream survey and mapping data by the public and other agencies were answered.

Laboratory Services

Laboratory work in F.Y. 80 included the following:

Biology Laboratory:

- * Eight thousand eight hundred fifty autopsies, tests and examinations were performed on 2,950 fish and wildlife specimens.
- * A total of 78 technical memoranda and reports were prepared.
- * Demonstrations in forensics were carried out at the Conservation Officer Training School.
- * Lectures on fish disease recognition provided at Fisheries Manager training session.
- * Coordinated fish health monitoring practices at all State Fish Hatcheries.
- * Participated in Great Lakes Fish Disease Control Committee Workshops.
- * Worked on and collaborated with others on fish diseases and anomalies (lymphosarcoma in northern pike, myofibrogranuloma in walleye, cyanocobalamin B₁₂ metabolism in rainbow trout, encephalocoele lesions in brown trout).
- * Collaborated with Dr. Ellis Wyatt in preparing a bulletin on the parasites and selected anomalies in fishes of Minnesota and neighboring states and provinces.

Chemistry Laboratory:

- * Sixty-one memoranda and technical reports (combined) were written.
- * Water quality monitoring project (15 lakes, 75 water samples of parameters each).

- * Lake and stream surveys: 309 water samples.
- * One hundred seventy-two water chemistry reports were written.
- * Vertebrate poisons: 21 samples.
- * Fish poisons: 64 samples.
- * Herbicide analyses: 54 samples.
- * Underground natural gas storage area well samples (for DOW) for light hydrocarbons in wells: 134 samples.
- * Mercury analyses in fish: 125 samples.
- * Deer browse protein determinations: 618 samples.
- * Lead analyses in geese from Lac qui Parle WMA: 300 samples.
- * Forensic chemical analyses for DNR Enforcement Division (poisons, trace metals in hair, lead): 8 cases.
- * Environmental Protection Agency's National Pollution Discharge Elimination System analyses at state fish hatcheries: 85 water samples.
- * Numerous special and one-time-only analyses for and support services to Division of Fish and Wildlife Sections and other DNR units.

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FOREST MANAGEMENT

The Division of Forestry's goal is to achieve effective management and protection of Minnesota's forest environment. This will provide improved wildlife habitat, quality forest recreational opportunities, increased yields of wood fiber, and land and water conservation practices that will contribute to the economic and social well-being of Minnesota citizens.

Major functions of the Forest Management Program include forest fire protection on 22 million acres; insect and disease protection on 19 million acres of forest land; management of 4.6 million acres of state administered forest land; forest and shade tree management assistance to small private landowners, counties, schools and municipalities; and assistance to wood users to improve utilization and marketing of the timber resource. Overall purpose is to maintain the social and economic benefits of forest resources for present and future generations.

During F.Y. 80, a major advance was made in forest development activities. The Boundary Waters Canoe Area Wilderness Act of 1978 provided \$3 million for forest management intensification on state, county and non-industrial private forest lands. These funds were approved in the Federal 1980 budget and became available to the Division of Forestry in early 1980. These funds made possible increased site preparation, planting, direct seeding, nursery production, forest road maintenance and construction, and forest inventory. Funds were also provided for approved projects on county forest lands, and increased assistance was made available to private forest landowners.

The spring of 1980 arrived early, after a mild winter -- and a general drought condition developed over the state. The result was a serious spring fire season which required a major commitment of manpower and equipment during April, May, and June.

In the past two years the forest industry has made a major commitment in Minnesota with the construction of three waferboard plants and a major papermill expansion in the initial stages. These plants and mill will require increased harvest levels on the state's commercial forest land. This will be accomplished through sound forest management practices, while providing the necessary protection of the environment.

Summaries of specific accomplishments by the Division of Forestry in F.Y. 80 follow:

Fire Protection

During summer and fall, 1979, only 135 fires occurred in the state. This reduction was due to above normal precipitation. This was the least damaging fall fire season in ten years.

The Fire Management Analysis Project, funded for two years by the Legislative Committee on Minnesota Resources (LCMR), was started in July and Phase I, the data gathering stage, was largely completed by the end of June.

During the winter of 1979-80, two, 19-man, specialized firefighting crews were formed and trained in Region I and III. Three overhead teams made up of forestry personnel were formed. These teams are capable of taking over the administration of a large fire, so that the local fire control personnel are free to take initial attack action on other fires that may occur within their protection area.

Also during the winter, the Department won a \$100,000 settlement for firefighting costs incurred on the Kosbau fire in 1976.

The spring, 1980 fire season began in late March as the snow melted earlier than usual. By mid-April, 165 fires had burned 4,200 acres in the south-central part of the state. By April 17 the number of fires and acres burned had increased to 290 and 12,500 respectively. No precipitation had fallen, temperatures were in the low 70's and relative humidities dropped to as low as 20 percent. Windspeeds ranged from 10-20 mph. By this date, fires were occurring in the northern part of the state, where the presence of lake ice hampered helicopter use and frozen soil made the construction of fire lines very difficult.

As of April 18, no new burning permits were being issued in central Minnesota and all existing permits were cancelled. The two air tankers were making retardant drops on fires as far north as Red Lake. Real and personal property losses were beginning to mount in the central part of the state and an elderly man had died of an apparent heart attack while fighting a grass fire near his home. Firefighting crews in other states were advised of the situation in Minnesota and were put on alert.

Explosive conditions began during the weekend of April 19 and 20 as hotter and drier weather moved into the state. By the end of the week the number of fires neared 1,000 and the acres burned had exceeded 66,000. The largest was the Motley Fire that burned 7,200 acres and nearly destroyed the town of Philbrook. Property damage alone exceeded \$750,000 in the Motley Fire with several homes and farms destroyed.

Four additional air tankers were brought into the state by the DNR and U.S. Bureau of Indian Affairs. The DNR also obtained four additional helicopters. Eight firefighting crews were brought in from other states, along with other specialized personnel, and firefighting tools and radio equipment from the Boise Interagency Fire Center. This was accomplished through cooperative agreements between the U.S. Forest Service and the DNR.

On April 21 the DNR Commissioner issued a ban on all open fires in the central part of the state. The Chippewa National Forest did likewise. By April 24 the ban was extended to cover all except the southwest and extreme northwest areas of the state.

April, 1980 was the driest in recorded history in many parts of the state. Eleven hundred fires burned 77,000 acres. Nearly \$1 million worth in personal property was destroyed during the month, in the central part of the state.

The positive effects of the burning ban were evident through the month of May. The weather remained hot and dry, but the number of new fires occurring was relatively low. Because of the lack of significant precipitation, the greening process was retarded. Excellent public cooperation helped to keep the fire occurrence down -- even through the Memorial Day weekend.

Most of the state received some precipitation toward the end of the month and the burning ban was lifted in all but the northeast, and parts of the northwestern area of the state. At month-end the total number of fires was 1,700 -- with 87,000 acres burned.

More precipitation fell May 31 and June 1 and the burning ban was lifted in the remaining counties.

Like April and May, the rainfall in June was much below normal and continuous efforts were required to extinguish burning peat. Long-range weather projections indicated that exceptionally dry conditions could persist through the remainder of the summer and into the fall months.

The number of fires for the three months ending with June, 1980 totaled 1,800 -- with 89,000 acres burned. Total damages to natural resources and real and personal property exceeded \$2 million dollars. In a normal spring, 745 fires burn 34,000 acres.

Rural Community Fire Prevention Program

This program is designed to assist communities in fire protection and to aid rural fire departments in improving their wildland and structural suppression capabilities. Federal matching funding is utilized, with the fire department providing 50 percent of the improvement cost.

During F.Y. 80, more than 350 applications from fire departments throughout the state were screened for funding; a total of \$133,000 for purchase of equipment was assigned to 120 fire departments.

It is anticipated that for F.Y. 81 a total of \$133,000 will again be allocated (on a matching basis) to Minnesota for assisting fire departments in fire equipment purchases. More than 300 applications for \$1.5 million in funds under this program are expected during F.Y. 81.

One phase of the rural community cooperative protection program requires that the Department of Natural Resources maintain an inventory of property obtained under the program. The inventory currently covers in excess of 500 items with more than 300 fire departments. These are items that are valued at a minimum of \$300 each.

Excess Property

Another phase of the rural community fire protection program involves assigning federal excess property to fire departments throughout the state. This equipment is assigned under specific individual fire department agreements and is available to aid in suppression of wildfires.

The equipment assigned to fire departments during F.Y. 80 was down from previous years due to reduced availability. Assigned this year were three 1½-ton 6 X 6 trucks and one 1-ton 6 X 6 truck.

There is a backlog of 90 requests for vehicles from various fire departments. It is anticipated that availability will continue to be a problem during F.Y. 81, but it is hoped that 15 vehicles may be assigned.

Currently, there are 174 vehicles that have been placed with fire departments.

It is projected that interest in the program will continue; meetings will be held with various fire departments to explain excess property programs. The agreements require that the vehicles be inspected by the DNR. This is usually accomplished when equipment agreements to utilize vehicles on wildfires are completed.

Forest Roads

The Department of Natural Resources has a system of 1,377 miles of forest roads. The roads are for the most part, within the boundaries of the 56 designated state forests.

For the first time in several years the funds were available to begin improvement on the road system. The system had badly deteriorated over time due to lack of maintenance. These funds were obtained through the Boundary Waters Canoe Area Program and state funding.

During F.Y. 80 construction was carried out on 24.65 miles of forest roads; maintenance work performed on 94.75 miles; and 7 bridge-repair replacement projects completed.

For F.Y. 81, the anticipated BWCA funds will be utilized for an increased amount of maintenance and light and heavy bridge repairs. Construction will be de-emphasized during the fiscal year.

The Department is requesting funds through the legislative process for additional road maintenance and repair. Any such funding obtained will greatly strengthen the road system, which is a major factor in supplying timber, providing fire access, conducting forest development activities and providing public recreational opportunities.

Forest Development of State Lands

Forest Development opportunities increased greatly due to funding for intensified forest management as a result of the Boundary Waters Canoe Area Wilderness settlement. Three million dollars of Federal monies and \$750,000 of State monies were provided to increase management opportunities on state, county and private lands.

During F.Y. 80, the DNR reforested about 9,500 acres of state-owned land. Of that acreage, over half (or 4,900 acres) was aerial seeded by helicopter in order to restock areas too difficult to plant. The balance of the acreage (4,600 acres) was planted with 4,516,000 seedlings or seeded by snowmobile.

In order to protect established conifer plantations from competing vegetation, the Department applied herbicide to about 4,500 acres of state-owned land. Additional plantations were released by hand labor or were improved by pruning.

During F.Y. 81, the DNR expects to reforest 11,500 acres with 7.5 million seedlings and several hundred pounds of tree seed. Depending on the need for protecting individual conifer plantations from competing vegetation, the Department may find it necessary to apply herbicide to anywhere from 5,000 to 8,000 acres.

Last year, more than 28,000 acres of state land administered by the DNR was harvested for timber products. As forest industries expand to utilize the annual recommended harvest from State lands of 46,000 acres, the DNR will be increasing its reforestation efforts accordingly.

Timber Sales and Harvest

There was a strong demand for timber in most of F.Y. 80. Both the number of permits to cut timber and the volume sold increased over 1979.

In 1980 a total of 2,860 informal and 346 auction permits were issued -- an increase of 10 percent for informal permits and 40 percent for auction permits over the previous year. The estimated volume of timber sold in 1980 is 500,000 cords.

Revenue from the sale of state timber in 1980 is estimated at \$3,155,000. This is a 10 percent decrease from 1979.

Fuelwood sales have increased considerably in the past five years and now constitute a substantial part of the timber sales program. In F.Y. 80, fuelwood permits were issued to 8,950 homeowners enabling them to cut timber for their own use. This was an increase of almost 60 percent over 1979. A smaller increase is expected in 1981.

The economy and the housing starts had a strong negative influence on the timber demand the last few months of F.Y. 80. This poor demand will influence the timber demand throughout most of F.Y. 81, so the volume sold from state lands in 1981 will show a decrease from 1980. If the economy shows improvement in 1981 the needs for the new waferboard plants will bring a marked increase in the timber market. The increase will be mainly in aspen and the volume of aspen sold will come close to the allowable cut.

Nursery Operations

The DNR tree nurseries shipped 13.2 million tree seedlings for planting in the spring of 1980 -- an increase of almost 2 million over 1979. More than 3,100 individual tree orders were processed.

About 56 percent of the seedlings were planted on public lands. Private landowners purchased 41 percent of the seedlings for planting on their lands. The remaining 3 percent was purchased by the forest industries. These seedlings reforested about 16,200 acres of land.

Tree improvement activities -- the application of forest genetics to bring about heritable improvement in trees -- was conducted to provide long-range improvements in timber grown in Minnesota. This will result in greater quality and quantity of timber from all forest lands in the state. Grafting continued with both white and black spruce, for the future establishment of seed orchards.

Sixteen acres of seed orchards have been established; 12 for white spruce and four acres for black spruce. These orchards will receive intensive cultural treatment so that seed collection can begin at the earliest possible age.

Work was continued with hybrid poplar production. This program continues in the stage of selecting which of the trees would be most productive under Minnesota conditions.

Nuts were collected from selected black walnut trees, raised in the nursery and out-planted in specific locations which will be developed into future seed production areas.

In F.Y. 81 the nurseries expect to ship 23 million seedlings to fulfill more than 4,500 individual orders. The 23 million seedlings will reforest approximately 29,000 acres. Also the nurseries have contracted with a private nursery for the production of 110,000 containerized seedlings to be planted in 1981. Tree improvement activities continuing include: additional selection work with hybrid poplar; black walnut superior seed collection and orchard establishment; and a new program for improving seed source of norway pine.

State Forest Acquisition Program

Tracts of land within the purchase compartments identified in the Memorial Hardwood Forest Land Acquisition Plan or the Sand Dunes Environmental Assessment are purchased from willing sellers. Land acquisition in other state forests is limited to critical parcels.

The 1979-81 biennial appropriation for state forest land acquisition was \$2 million. The following table summarizes land acquisition activities through October 2, 1980. Sixty-six fact sheets, representing successful landowner contacts, were submitted. The Department has options to purchase 31 tracts of land. A total of 2,858 acres have been or are in the process of being deeded to the state. The entire appropriation will be exhausted before the end of the biennium.

State Forest Land Acquisition Summary

<u>State Forests</u>	<u>No. Fact Sheets Submitted</u>	<u>No. of Tracts Optioned</u>	<u>Acres Acquired</u>
R.J. Dorer Memorial Hdwd.	54	29	2,700
Sand Dunes	4	0	0
Other	8	2	158
Total	66	31	2,858

The land acquisition specialist has identified an additional 75 landowners willing to sell land within the purchase compartments. These tracts total 6,200 acres valued at \$3.8 million.

Insects and Disease

The Forest Insect and Disease Unit regained full staffing during F.Y. 80 with the refilling of the program supervisor position and a regional specialist position.

Pine tussock moth populations expanded in east-central Minnesota during 1979 to the point that a severe outbreak was experienced in 1980. About 3,500 acres were aerially sprayed with Seven-4-oil during 1980 to prevent

severe losses to the Jack pine forests. Jack pine stands in north central and north western Minnesota again suffered from widespread attack by the Jack pine budworm. Infestations of the insect covered 53 thousands acres, with heavy defoliation occurring on 20 thousand acres during 1979. The spring of 1980, however, brought a collapse of Jack pine budworm outbreak, with less than 200 acres of forests experiencing significant defoliation. The forest tent caterpillar was again the major defoliator of hardwoods during 1979-80. Approximately 4.4 million acres were affected during 1979. However, this decreased to 1.8 million during 1980, as parasites and predators of the insect became established.

Dutch elm disease continued to kill trees in both urban and forested locations throughout Minnesota. Dutch elm disease control on State land under the Diseased Shade Tree funding provided for the removal of more than 4,000 elm trees during F.Y. 80.

In excess of 30 million acres were surveyed during 1979-80 to determine the status and impact of 24 major and more than 100 minor insect and disease agents. The surveillance provided forest land managers the information necessary to assess training, control and sanitation needs. Structured land manager training meetings were held in each of the 20 administrative areas, in addition to regional and statewide training programs.

Special projects were conducted on a wide variety of subjects during F.Y. 80. A dwarf mistletoe control project was instituted, in cooperation with the Plant Pathology Division of the University of Minnesota. Insect and disease activity in shelterbelts of the southern half of the State was also studied. White pine blister rust studies were established to develop geographical and silvicultural guidelines for future white pine plantings. Diplodia tip blight control was studied in cooperation with the US Forest Service Research Group.

The Forest Insect and Disease Unit began the orientation of its activities toward integrated pest management in F.Y. 80. The major thrust of this activity is to integrate cultural, biological, chemical, and preventative pest management techniques into continuing forest management practices. This goal will not come easy. More research, training, and effort is needed before the final answers will be known.

Dutch Elm Disease

In F.Y. 78, Congress granted the United States Forest Service \$2.5 million in General Forestry Assistance funds for Dutch elm disease special projects. This appropriation allowed state and private forestry to provide technical and educational assistance in establishing disease management and utilization projects. Minnesota was one of the states selected to participate in this Forest Service Dutch elm disease and utilization program.

At the end of 1978, the state's project had completed the initial stages of establishing high performance Dutch elm disease management programs in six selected Minnesota cities -- Fergus Falls, Granite Falls, Hutchinson, Litchfield, Little Falls, and Wadena -- to augment the basic tree removal program already existing in each of the communities. The year 1978 was one of organization; the demonstration program being structured and its future years being planned. The year 1979 was one of implementation, with disease management programs replacing existing tree removal programs. The year 1980 will be one of evaluation and further implementation.

The intent of Minnesota's federally-funded Dutch elm disease program has been, and still is, to demonstrate the effectiveness of known disease management practices including inspection, sanitation, root graft barrier placement, systemic fungicide injection and therapeutic pruning. It is hoped that with the additional federal assistance -- both financial and technical -- the increase in elm losses due to Dutch elm disease can be stopped and eventually reduced to a level which can be handled economically by each city with its own finances. Suppressing Dutch elm disease over a period of time will enable each city to develop an economical and orderly transition from its predominant urban elm forest to mixed stands of shade trees.

In F.Y. 80, two projects became a part of the Dutch elm disease program. A tree loss data system has been developed and will be maintained through 1980 and 1981. This system will permit all disease information to be computerized and will provide documentation needed to prove that certain disease management concepts are workable. A system which processes unmarketable elm material into non-hazardous firewood has also been developed and will be maintained through 1980 and 1981. This project involves the purchase of a debarker to render elm logs pest-risk free and a log splitter to produce firewood lengths.

Although the DNR has the position of "leader" in this demonstration project, it works cooperatively with the U.S. Forest Service, the Minnesota Department of Agriculture, the Extension Service of the University of Minnesota, and, of course, the six selected cities. The DNR is responsible for distributing the money to all program participants except the Extension Service, which is funded separately. The 1978, 1979, and 1980 appropriations for the establishment of these high performance disease management programs totalled \$1,517,657.00.

	<u>1978</u>
Department of Natural Resources	\$ 92,500.00
Department of Agriculture	12,000.00
Demonstration Communities	<u>206,000.00</u>
	\$310,500.00

	<u>1979</u>
Department of Natural Resources	\$132,900.00
Department of Agriculture	18,000.00
Demonstration Communities	489,920.00
Utilization Program	<u>126,837.00</u>
	\$767,657.00

	<u>1980</u>
Department of Natural Resources	\$ 99,000.00
Department of Agriculture	19,500.00
Demonstration Communities	267,791.00
Utilization Program	18,384.00
Tree Loss Data System	<u>34,825.00</u>
	\$439,500.00

Small Landowner Management Assistance

Non-industrial private forest lands in Minnesota comprise about 5.6 million acres. These tax-paying holdings are owned by 120,000 small landowners.

Many small forest tracts are in poor condition. Many are in need of reforestation and improvement of existing stands of trees. DNR's Division of Forestry is concerned with the condition of these small forested properties and is helping landowners better manage their small forests.

Fifteen full-time forestry positions were added to complement the existing effort in private forestry. These positions provided a major thrust in addressing private forest land management issues. In addition, a cooperative effort was established between the Division of Forestry and the State Soil and Water Conservation districts to provide State cost-sharing funds for private forest land improvement practices. A total of \$100,000 in LCMR funds has been committed to this effort.

DNR foresters provide professional forestry guidance to private landowners in the management of their forest resource. Services provided include tree replacement, stand improvement and harvesting and marketing assistance.

In F.Y. 80, DNR foresters helped more than 6,000 landowners develop their forest properties. More than 125,000 acres of private forest land was improved.

County Assistance Program

The County Assistance Program was transferred in January, 1978 by Executive Order, from the Iron Range Resources and Rehabilitation Board to the DNR.

Primary function of the CAP and its staff of nine foresters is to assist the Land Departments in eight counties with administration and management activity on tax-forfeited lands. The counties (Lake, St. Louis, Itasca, Aitkin, Crow Wing, Beltrami, Becker and Cass) pay half the program salaries. Other counties may seek CAP assistance by request on specific projects.

CAP foresters duties vary in scope from timber sales or tree planting to county and land management promotion, public relations and educational efforts activities include organizing a forest inventory, determining timber cut allocations from inventory, gathering specific data such as acreages for ownership, mapping, memorial forests, assisting the counties with the Tree Growth Tax Law and conducting a basic course in aerial photography for persons lacking previous training.

Recent legislation has vastly improved the management potential of the tax-forfeited lands. The payment in-lieu of tax legislation earmarked funds for forest development. Also, the BWCAW funding from the State and Federal governments are shared with the counties. In F.Y. 80, approximately \$480,000.00 was passed through for tree planting, road building and maintenance, site preparation, and other management activities.

The DNR-CAP foresters provided guidance to the County Land Departments in the use of these funds for needed forest management work.

Urban and Community Forestry

Technical assistance in the area of urban forestry has been provided by the Forestry Division for a number of years. In 1979, the division had the opportunity to expand this service. Through matching funds provided by the U.S. Forest Service, the division was able to add three full-time urban foresters to its staff. This provided the division with more expertise in urban forest resource management and planning.

Within the last two years, technical assistance has been provided to more than 200 communities. Assistance with tree planting, care, and maintenance; management planning; urban wood utilization; urban development and multiple-use management has helped municipalities wisely use their urban forest resources, as well as efficiently and effectively utilize their forestry budgets.

Financial assistance for management planning has also been provided to a limited number of cities. Street tree inventories, comprehensive management plans and demonstration projects have been completed by these cities, with matching grants.

Support and promotion of the Tree City USA award program has dramatically increased the number of recipient cities in Minnesota. The program serves as an indication of success for the Division's efforts in promoting and providing assistance in urban forestry.

Forest Products Utilization and Marketing (FPU)

The FPU program provides technical assistance and services designed to improve the utilization and marketing of Minnesota's forest resources. Improved utilization can take place when the trees are harvested and cut to length for logs or pulp, or when the wood is processed by primary or secondary

manufacture. Improved markets provide economic incentives to landowners, loggers and wood processors to improve present forest management and wood utilization practices.

Wood energy and forest biomass projects were major studies conducted by the FPU staff during F.Y. 80. These studies were necessary in order to provide basic information and answer basic questions on wood resources available for fuel in Minnesota. A description of the various studies and projects is as follows:

Minnesota Fuelwood Use Survey: Determined the amount and number of households that burned wood for heat in 1978-79. Designed for computer programming, this survey technique has now been adopted by Missouri, Wisconsin and Michigan.

Fuelwood Management Plan: A Governor's request which led to formulation of a \$250,000 plan designed to make additional fuelwood from state lands available to the public, in order to minimize the indiscriminate harvesting of growing stock timber for fuelwood.

Department of Energy (DOE) Wood Energy Proposals: The following proposals were submitted to DOE through the U.S. Forest Service -- State and Private Forestry.

School and Public Building Studies for Possible Conversion to Wood Use -- Study 12 to 15 schools or other public facilities in Minnesota where conversion to a wood fuel system would be practical and supported.

Detailed Engineering Design Work for Conversion of Four Public School buildings to Wood Fired Boilers -- A cooperative project with the Minnesota Energy Agency, to provide design and specifications to construct the wood burning equipment for four schools in northern Minnesota.

A Department of Natural Resources Wood Energy Specialist -- Add a Forest Products staff specialist who can deal with wood energy programs in Minnesota.

Fuelwood Management Program on Private Land -- A program designed to provide fuelwood from 18 counties surrounding the Twin Cities metropolitan area.

Wood Residue Surveys and Studies -- Through cooperation with the Minnesota Energy Agency, the Division of Forestry completed several studies that show a total picture of the wood residue in Minnesota. Following is a description of the studies:

Logged Area Residue Survey -- Determine the volume and type of wood residue remaining on a site following harvest. Seventy-eight sites were surveyed by forest type and logging method using the line intersect procedure.

Primary and Secondary Processors Residue Survey -- Determine the location, volume and type of residue material available for energy, following initial wood processing. Personal contact with more than 650 primary processors and telephone survey with some 800 secondary manufacturers. Computer programs developed for computing, storing and recalling combinations of data.

Resource Analysis Study -- Determine the current fuelwood supply available in present forest stands. Provides annual allowable fuelwood harvest figures, identifies fuelwood available from alternate sources of supply, plus much more.

Fuelwood Cost Study -- Determines the costs associated with harvesting and transporting fuelwood, for the professional logger as well as homeowner.

Directory of Fuelwood Vendors -- Compiled list (by county) of fuelwood vendors that states amount, size, and species of fuelwood available for sale.

Another major responsibility of the FPU Staff is to provide forest resource data to developing or expanding forest industries. A major contribution was made to Potlatch Corporation, Blandin Paper Company, Northwood Panelboard Co. and Louisiana Pacific in providing the resource data needed for their waferboard development and expansion.

The FPU Staff also assisted loggers, sawmill operators, dry kiln operators, and wood consumers and answered general inquiries from the public. A main objective of the program is to cooperate with other agencies in Minnesota that work with wood products. These included the University of Minnesota Extension Service and School of Forestry; U.S. Forest Service; State and Private Forestry, the Minnesota Department of Economic Development and a number of other economic development organizations, as well as local and county governments.

Forest Inventory

Accurate forest resource information is essential for effective management and proper utilization of the forest resource. The data must be up to date and reliable for the size of the unit being inventoried.

The DNR is involved with two forest inventory systems. One system, called Phase One, is a cooperative effort with the U.S. Forest Service and involves forest resource data from more than 10,000 permanent plots. This survey, which provides information on the total forest resource on all land in Minnesota, is essential for overall resource management and multiple planning.

Field work for the survey was completed in 1977 by the USFS and the DNR. One state report and the four unit reports are in various stages of completion.

All these reports will be printed early in F.Y. 81. The DNR is preparing reports on the forest resource of 23 northern counties. These reports are in draft stage and will be published in 1981.

The second inventory system, called Phase Two, is an on the ground examination of all forest types on state and county lands. This inventory provides the information needed by the forest manager to intensify management of the forest resource. The forest inventory of more than seven million acres of state and county land will be completed within five years.

During F.Y. 80 forest inventory was in progress in seven state forests, four state parks and two game management areas. In addition crews are working on all state and county lands in Cass, Aitkin, and Carlton counties. Field work has been completed on two state forests and the four state parks.

Forestry Planning

The State Forest Resources Planning Program has had two objectives for the current biennium. The first has been the initiation of a comprehensive statewide forest resources plan, known as the Minnesota Forest Resources Plan (MFRP). The second is the development of a total forest planning program proposal with recommendations for staff and funding.

The first step in the Minnesota Forest Resources Plan process is the development of a concept document. The document explains the intent of the plan and outlines the planning procedure. The concept document has been prepared, reviewed and is being put into final form.

The major issues to be addressed in the MFRP are the use of state forest and undedicated lands, forest transportation, timber management, recreation, wildlife, minerals and environmental protection concerns.

Policies will be developed through the planning process to address these and the many additional issues that will surface. The statewide policy plan (MFRP) will then be used to develop management plans for individual state forest units.

A proposal or work plan for the forest planning program has been prepared. This proposal will be used to coordinate planning within the Department of Natural Resources and for presentation to the state legislature for funding and staffing purposes.

The need for comprehensive forest resources planning is great at this time, when the demand for the products and services of the forest is increasing and the forest land base is decreasing. The forest planning program will result in integrated forest resource management plans which will guide the future of state forest management in Minnesota.

Planning Review and Environmental Studies

This activity is associated with the Department of Natural Resources Planning and Environmental Review Team (PERT). The chief responsibility is to represent the Division of Forestry in reaching departmental position/policy concensus on environmental review matters; long range comprehensive natural resource plans; management plans for trails, rivers, parks, forests, and wildlife management areas; proposed environmental legislation and rules; and all formal departmental policy statements.

Resolution of conflicting internal viewpoints on planning and environmental review matters takes considerable effort at times. Also detailed analysis are made of draft Division of Forestry position/policy statements on external documents such as draft plans, project proposals study reports, environmental assessments, and others.

In F.Y. 80, two major departmental policy statements on recreational subacres and wildlife and forestry were requested and developed as a direct result of this review effort.

Also, a state-wide assessment of potential water pollution from forest management activities was completed. This study was in conjunction with the Federal Clean Water Act of 1972 (PL92-500).

Participation in departmental task forces on policy planning and State Inter-agency and State-Federal planning is a continuing activity.

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MINERALS RESOURCE MANAGEMENT

The Department's Mineral Resource Management Program, administered by the Division of Minerals, provides for the management of the ten million acres of state-owned trust fund and tax forfeited mineral rights and the state and county peatlands.

The Division is also responsible for mineland reclamation and explorer registration on all lands in Minnesota.

Management activities include mineral and peat leasing, environmental review, evaluation of mineral potential, inventory of peat resources, data input in land use decisions, and the regulation of the effects of mining through development and implementation of mineland reclamation rules and peatland reclamation.

The overall goals are to establish and implement mineral and peatland management policies for state trust fund, and tax forfeited (county-owned) lands and minerals; and to enforce the provisions of the State's Mineland Reclamation Act.

The objective is to provide equitable rental and royalty income from the exploration and development of these mineral rights and peatlands for the trust funds and local taxing districts, while insuring that mining operations are conducted in a manner that results in usable hazard-free lands following cessation of mining activities.

The program must also provide technical support to other state agencies, to its federal counterparts and to the counties with mineral and peat potential; and handle public inquiries about these resources. These activities are coordinated with the overall natural resource management responsibilities of the department.

State mineral ownership includes more than 18 percent of the Mesabi Iron Range, over half of the 7.2 million acres of Minnesota's peatlands, and a large share of the copper-nickel resource.

Expanded interest in searching for uranium, titanium, vanadium, gold, silver, and other minerals requires continued development and analysis of inventory, economic and environmental data necessary to establish or update mineral management policy.

The approximately 10,000,000 acres of state-owned mineral rights administered by the Division of Minerals are located mostly in the northern part of the state. These include School and University Trust Fund, Acquired and Tax Forfeited mineral rights.

Under Minnesota's state mineral laws (M.S., Chapter 93), these mineral rights are not sold. State lands believed to have mineral potential may be leased at public sale, or in certain cases, by negotiation. Royalty is paid to the state on each ton of ore mined or concentrate produced. These mineral leases also provide for annual minimum rental or royalty when no ore is mined.

The Division provides for the exploration and leasing of these mineral lands, economic and environmental review, royalty accounting, engineering and inspection support to insure permit and lease compliance, evaluation of mineral potential, metallurgic research and testing, and cartographic and chemical laboratory support.

Through its peat program, created in 1976, the Division manages the state's vast peat deposits. Of Minnesota's approximately 7 million acres of peat, nearly half is in state ownership under Department of Natural Resources authority (M.S. Chapter 92.50). Most of the extensive contiguous peat deposits occur in the northern half of the state, especially in six counties: Koochiching, Lake of the Woods, Beltrami, Aitkin, St. Louis, and Carlton. Much of the peatlands are in trust fund and consolidated conservation ownership status.

Commercial peatlands, like mineral rights, may not be sold, but may be leased through negotiation or public sale. Royalties and rental are charged for peat extraction and rental is charged for nonextractive use (rice paddies, agricultural crops, hay lands, etc.) New peat leases include a production minimum royalty to be paid by producers, even in years when production is lower than the minimum level specified in the lease.

Growing interest in Minnesota's mineral potential; the recent interest in Minnesota peatlands; the changing economics of the various mineral industries; the development of new technology for reclamation; environmental protection; and evaluation of environmental and socio-economic impacts all combine to make the minerals program a diversified and innovative activity.

Iron Ore and Taconite

Iron ore and taconite from the Mesabi Range have dominated the mining scene in Minnesota for some 90 years and will probably continue to do so for 200 or more years to come. The state, through its Trust Fund and Tax Forfeited mineral ownership, owns approximately 19,600 acres on the Mesabi Iron Formation, or about 18½ percent of the total.

During F.Y. 80, the Division conducted negotiations resulting in issuance of three taconite leases. There are now 157 iron ore and taconite leases administered by the Division, and involve more than 13,000 acres of the Mesabi Iron Formation.

Minnesota now has eight taconite plants in operation. Their combined annual production capacity is about 65 million tons of taconite pellets. State-owned taconite represents a substantial portion of the reserves of these operations.

During F.Y. 80, a total of 34.2 million tons of state-owned natural iron ore and taconite was mined. The state's rental and royalty income received during this period was as follows:

Trust Funds	\$2,880,801
General Revenue	212,585
Taxing Districts	850,341
Special Advance Royalty	<u>277,333</u>
Total:	\$4,221,060

Of this total -- \$440,831 was received as rental from state copper-nickel leases. The Minnesota Supreme Court during F.Y. 80 upheld the validity of the tax forfeiture of a particular mineral property. This decision resulted in preserving the mineral lease issued by the state in 1952. The division estimates that the property could produce more than \$19 million in royalties, at present prices. Of this amount, the state would get \$3.6 million, with the remainder distributed to the appropriate taxing districts.

Nonferrous Minerals

In addition to its iron ranges, Minnesota has several other formations currently receiving a great deal of attention for their nonferrous mineral potential. The Division has had an active exploration leasing program since 1966 in the Duluth Gabbro Complex, involving portions of the St. Louis, Lake, and Cook counties in northeastern Minnesota. Exploration activities in that area have resulted in announced finds of copper-nickel mineralization that appear to have potential for possible development. Potential ore bodies are primarily copper-nickel sulphide deposits associated in some instances with cobalt, gold, silver, platinum, and other valuable minerals. These minerals are generally found finely disseminated in the Gabbro, and form large tonnages of low-grade deposits. Substantial occurrences of titanium-bearing minerals have also been found in the Gabbro Complex.

The significance of these copper-nickel deposits in the Gabbro is of major importance to the state. An estimate by the Division during this biennium indicates that about 4.4 billion tons of mineralized material with an average grade of 0.66 percent copper and 0.2 percent nickel exists in the northwestern part of the Gabbro, in Lake and St. Louis counties. This represents the largest known source of nickel in the United States, with a combined gross copper-nickel value of over 80 billion dollars. Some of these copper-nickel ores are held by exploration companies under state leases.

Projections by the Division suggest that substantially larger amounts of copper-nickel and associated metals probably exist.

Recently, it has also been determined that significant amounts of vanadium occur with titanium minerals in the Gabbro, a fact which is receiving increased attention. Seventeen copper-nickel leases covering 5,000 acres in the Gabbro area were administered by the Minerals Division during F.Y. 80.

AMAX Exploration, Inc. is currently conducting the largest exploration program in the Duluth Gabbro Complex. This company has completed a 1,728-foot exploration shaft with 3,780 feet of horizontal drifts, near Babbitt. AMAX presently is evaluating the results of their exploration, preparing for pilot plant metallurgical testing, considering various mining techniques, and evaluating the economic feasibility of the project. This program will probably continue through 1986.

A major portion of the AMAX property is under state copper-nickel leases. It is estimated that if AMAX develops this property, the state will collect royalties equal to those collected from iron ore and taconite since the state began leasing.

The Regional Copper-Nickel Study was completed and submitted to the Minnesota Environmental Quality Board (EQB) during the summer of 1979. During F.Y. 80, the Division was a member of the Copper-Nickel Advisory Committee to the EQB. The purpose of this group was to review the regional study and to recommend to the EQB necessary changes in state law, rule, or policy which have become evident as a result of the regional study. This report was submitted to the EQB in June, 1980.

The Division currently is preparing a report to the 1981 legislature, dealing with any changes in state law, rule, procedure and policy necessary, in light of the Regional Copper-Nickel Study. The Minnesota Pollution Control Agency, State Planning Agency, and Department of Health also are participating in this report.

Interest also developed in 1967, in Minnesota's Greenstone formations, which occur widely throughout the north half of the state, and which are the host rock of much of the mineral wealth of the adjoining Canadian provinces. The Greenstone formations have potential for base and precious minerals such as zinc, lead, copper, gold and silver. In Canada these formations are typified by high-grade relatively small mineral deposits.

Between 1968 and 1973 the DNR issued a total of 699 exploration leases covering more than 300,000 acres in the Greenstone formation. Although these leases have since been terminated, numerous requests have been made to the Division for renewed Greenstone leasing. Subject to concurrence by the State Executive Council and adoption of a bonanza clause, the Division expects to conduct at least limited lease sales during the next biennium.

Several geological formations in Minnesota have been of considerable interest recently to explorers searching for uranium. Most of this activity has been concentrated in Carlton and Pine counties. However, exploration activity is occurring in several other areas of the state. State lands have been requested for uranium leasing. The Division is studying both uranium leasing possibilities and environmental effects.

The Division during F.Y. 80 prepared a report on the possible environmental impacts of uranium exploration, mining and milling in Minnesota. The Division also is initiating the formation of rules to regulate mineral deposit evaluation activities related to uranium exploration. These rules will be prepared under the authority of the Mineland Reclamation Act. Finally, the Division is participating with the State Health Department and the Pollution Control Agency in a monitoring program being carried out at uranium exploration drill sites, to assist in identifying the environmental impacts of uranium exploration.

A total of 18,500 feet of taconite exploration drilling was conducted during F.Y. 80 on state leases. No new copper-nickel exploration was conducted, but 23,000 feet of previously drilled core was classified. There also were 20,975 chemical and analytical determinations made on various samples. Exploration activities have been closely monitored, and a quarter of all drill core is obtained by the Division and placed on file.

If a copper-nickel lease sale is held in 1981, it is expected that exploration drilling will increase significantly.

The enactment of an exploration bill by the 1980 Legislature requires explorers to be registered by the Division of Minerals as of May 1, 1980, and licensed by the Health Department as of January 1, 1981, before conducting exploratory borings.

The bill further permits access to drill sites before, during, and after drilling to various governmental agencies. A quarter portion of the drill core and data collected from exploratory borings is to be submitted to the Division within six months of lease termination. A new drill core library building was recently completed to facilitate storage of this drill core.

The Division of Minerals is responsible for evaluating the mineral potential of the approximately ten million acres of state-administered mineral lands. Of all the natural resources in Minnesota, the minerals are the most difficult and costly to examine and evaluate. At present, adequate data to evaluate mineral potential is available on less than five percent of the state's land. However, often the division is not able to prevent land uses that preclude future exploration and mining of minerals, even though adequate mineral data does not exist. State mineral leasing programs contribute a large amount of expensive minerals data, but it is also necessary to obtain data in areas not of current interest to industry.

During the past nine years, a concentrated effort has been made to evaluate mineral potential in response to the many land use decisions the Division has been required to make. Several major mineral potential studies and surveys have been conducted in portions of 16 northern counties. To assist in mineral potential evaluation and environmental analysis, the 1980 Legislature funded a drilling program. This program will become operational in F.Y. 81.

Minesite Study

The MINESITE Study is a computer-based land information system for the copper-nickel resource area between Hoyt Lakes and the Boundary Waters Canoe Area, south-east of Ely. The study area encompasses 560 square miles.

The study was initiated in 1973 by the Division of Minerals. The program is designed to systematically analyze large quantities of natural resource data, to evaluate historical land uses, and to identify land use capability and potential land use conflicts within the area. The program also will be used to identify and evaluate alternative locations for various mining facilities associated with possible copper-nickel development.

The data base development phase has been completed. During F.Y. 80 a revised "MINESITE Data Manual" was prepared. The second phase of the project (analysis modeling) is nearing completion. A "MINESITE Model Manual" is scheduled for completion during the current fiscal year. The system will contain approximately 30 data variables and 60 analysis models.

Techniques and systems developed in this project are useful for future policy management decisions related to resource allocation in the northeastern Minnesota study area, and provide a model for other computer-based land information systems.

Mineland Reclamation

The Division of Minerals is charged with the development and administration of the state's mineland reclamation program. The Mineland Reclamation Act requires the reclamation of all active and any future metallic mining operations in the state. A total of 12 existing operations must comply under this law and obtain a permit to mine. Permit applications must be submitted prior to February 21, 1981 and must include a mineland reclamation plan for the life of the mine.

During F.Y. 78 the DNR developed a preliminary draft of rules and regulations for iron ore and taconite mining. It was circulated and reviewed by other states and local governmental agencies, the mining industry, environmental groups and the interested public.

The response generated by the preliminary draft was analyzed, and revisions of the rules were made to address a number of valid concerns expressed. A final draft of the proposed rules was completed in F.Y. 79, and public hearings were held in F.Y. 80. Promulgation of the reclamation rules for iron ore and taconite occurred August 25, 1980.

In addition to the development of the draft rules and regulations, the Department has been engaged in numerous other reclamation activities:

*Revegetation Research. Work is being done to monitor and evaluate past and current planting programs, as well as natural revegetation, to determine why they succeed -- or fail.

*Copper-nickel leaching and tailings revegetation research. (The Reclamation Act covers all metallic minerals.) This research work is being conducted at the Minnimax site and is being partially supported by a \$15,000 gift from AMAX. It is described in more detail below.

*Coordination with federal regulations (required under Reclamation Act). The newly developed federal reclamation provisions are being reviewed for coordination with the DNR's reclamation rules.

*Mineland Cleanup. The existing mineland cleanup program on the Mesabi Range, for removal of abandoned and dangerous structures and debris left by past mining operators, was expanded during the biennium to include the Cuyuna and Vermilion Ranges.

*Coordination with the Iron Range Resources Rehabilitation Board in the development of reclamation research projects include landform sloping, vegetation, and investigation of the hydrologic aspects of taconite tailings basins.

The Division of Minerals is conducting several studies to evaluate reclamation methods for controlling runoff from Duluth gabbro stockpiles. Two of these began in F.Y. 81. A third study is a continuation of the cooperative programs with AMAX Exploration, Inc., which began in F.Y. 78. Two progress reports have been produced, describing preliminary results.

In F.Y. 80 a preliminary laboratory study was conducted to evaluate the ability of peat and tailings to remove trace metals from leachate solutions. The results were promising, and formed a basis for a more extensive laboratory investigation now under way. This work is funded by the U.S. Bureau of Mines.

Greenhouse studies to determine optimal species and fertilization rates for Duluth gabbro tailings were also completed in F.Y. 80. These have provided a base for a field study to be conducted this year by the University of Wisconsin, Stevens Point; and Barr Engineering Company.

The current Mineland Reclamation Act covers only metallic minerals. It does not include the mining of aggregates and other industrial minerals.

Mining of Aggregates and Other Industrial Minerals

The mining of aggregates is an essential and important segment of the Minnesota economy. It is surpassed in value only by iron mining. In past years Minnesota has had an adequate supply of aggregates for road and construction purposes. However, the availability of sand and gravel and other industrial minerals is becoming a critical problem in certain areas.

Urban development continues to encroach on valuable sand and gravel deposits, without regard to the impacts on economic development -- especially in the metropolitan areas. Zoning by local government gradually is eliminating historic commercial gravel operations and precluding the future mining of essential gravel resources.

The legislature has reacted to this concern by requesting information from DNR relative to the aggregate industry. In response to this request, the Division of Minerals published "Industrial Minerals in Minnesota; A Status Report on Sand, Gravel, and Crushed Rock." This report presents a general review of the availability and quantity of aggregates, the aggregate industry, and local zoning regulations. This report was widely distributed to local government and private industry and received much favorable comment. Copies may be purchased from the Documents Division, 117 University Avenue, St. Paul, MN 55155.

In recent years a new specialized type of aggregate demand has developed, related to the increase in oil exploration. Minnesota's Jordan Sandstone rock formation has the potential for becoming a major world source for coarse grained silica sand used in a new process for developing oil wells -- called "hydrofracturing". Hydro-fracturing sand requires a high percentage of #40-size granules, such as those found in the Jordan Sandstone.

A substantial increase in silica sand mining is expected. Several mining projects have been proposed along the Minnesota River Valley, where the Jordan Sandstone is located close to the surface.

Iron Range Information System

The Iron Range Information System (IRIS) is a computerized data base study for the Mesabi Iron Range that will provide information for future land use planning, mineland reclamation permit coordination, and evaluation; and for evaluating policy alternatives for comprehensive resource management. During F.Y. 77, a workplan was developed and funding was received for F.Y. 78 and 79. Initial work on compiling

resource data was begun in F.Y. 78. It is expected that the data base will be essentially completed by June 30, 1981.

The system has already proven useful to several projects within and outside the Department. Data from IRIS was used in evaluating stockpile sites for a proposed expansion of Oglebay Norton Mining Company's operations southwest of Eveleth. Since this site was within the pilot study area, data coverage was quite complete. Maps of 14 variables were produced at 7½ minute quadrangle scale with outlines of the proposed stockpiles. These maps allowed visual analysis of the stockpile sites in relation to the natural resources and land uses of the area. Tables comparing each of the stockpile sites with each of the variables produced a numerical description of the number of acres of land, the natural resources, and the current land uses that would be disturbed by developing the stockpiles. Since a land exchange is required for the project, tables were also developed for the state lands requested by the company. The maps and tables are contained in: "Draft Supplemental Environmental Impact Statement for the Oglebay Norton Expansion Project."

Reserve Mining Company Case

Reserve Mining Company met the court-ordered deadline of April 15, 1980 to terminate its tailings discharge into Lake Superior. The Mile Post 7 basin is now operational. The Division of Minerals will continue its inspection and permit activities to insure that all aspects of the Mile Post 7 project are in compliance with DNR's permit and court orders. The Division also will coordinate its Reserve activities with other state and federal agencies.

Registration of Severed Mineral Rights

Under the Registration of Severed Minerals Act, as amended in 1973, every owner of an interest in minerals owned separately from the surface of the property was required to register such interest before January 1, 1975 -- or such interest forfeited to the state, in trust for the local taxing district. Such registered severed mineral interest also is subject to a tax at the rate of 25 cents per acre, per year.

More than 2.75 million acres were registered under this Act. Eighty percent of the tax collected goes to the local taxing districts, and the remainder is apportioned to an Indian Development Fund.

An action was brought against the state challenging this Act. The district court rules that the registration, taxation, and forfeiture provisions of the Severed Minerals Act were constitutional; that only the procedures attending the forfeiture provisions were unconstitutional. The decision was appealed to the Minnesota Supreme Court which, on January 29, 1979 affirmed the District Court's ruling in all aspects. This decision was appealed to the U.S. Supreme Court by one of the plaintiffs. On October 1, 1979 the Court dismissed the appeal for want of a substantial federal question.

In 1980, the Minnesota Legislature amended the forfeiture provisions of the Severed Minerals Act to comply with the Minnesota Supreme Court's decision.

Peat Program

The Peat Program continued studies of the peatland environment, utilization alternatives, reclamation potential, and socioeconomic topics in preparation for the presentation of a final report to the legislature at the current biennium's end. The program's final report will consist of a summary of findings, a policy statement, and a map appendix. During the last quarter of this fiscal year, work began on these projects.

The larger objective of all work the peat program has initiated is the creation of a management scheme for the state's peatlands, that minimizes environmental disturbance while permitting careful utilization. Use categories range from preservation on the nonconsumptive end of the continuum, to large-scale energy development proposals on the other. The table following illustrates the utilization alternatives that are being addressed in program studies and analysis.

Alternatives for Peatland Utilization

<u>Utilization Category</u>	<u>Purpose</u>
1. Preservation	<ul style="list-style-type: none"> - Habitat for rare or endangered flora and fauna - Hydrologic values - Scenic values - Recreation - Natural and historic values
2. Forestry	<ul style="list-style-type: none"> - Forest production and management
3. Agriculture	<ul style="list-style-type: none"> - Crops (vegetables, grains, hay/pasture) - Specialty crops (grass, seed, sod) - Energy crops (cattails, willows)
4. Horticulture	<ul style="list-style-type: none"> - Harvesting sphagnum and reed sedge peats for horticultural production and sales
5. Industrial	<ul style="list-style-type: none"> - Harvesting peat for extraction of industrial chemical feedstock
6. Energy	<ul style="list-style-type: none"> - Mining peat for energy production and/or cultivating energy crops in peatlands

Each utilization category has associated environmental and social impacts and political acceptability. Each is limited by various land use constraints (eg: existing ownership or management practices); and each has the potential to exclude other categories of use. In addition, each category except no development has a greater or lesser potential for reclamation following utilization. In developing peatland management recommendations for the Minnesota Legislature these are the key considerations the Department of Natural Resources is addressing.

An important part of the Peat Program is the peat inventory project. Originally funded with Upper Great Lakes Regional Commission (UGLRC) grants and with appropriations from the Legislative Commission on Minnesota Resources (LCMR), the project received a federal grant (effective October 1979) to accelerate work in identifying the location, quality, and extent of Minnesota's peat. In the first year of federally supported work, the project mapped nearly 1.5 million acres of peatland in Koochiching and Aitkin counties.

Should federal support continue another year -- as is likely -- peatlands in Beltrami, Lake of the Woods, and Carlton counties will be mapped.

Two years of federal work, added to the UGLRC and LCMR-supported work, will have accounted for all the major contiguous peatlands in the state; more than 2.5 million acres.

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PARKS AND RECREATION MANAGEMENT

Park Development

The 1980 Legislature appropriated \$8,285,000 for State Park development and rehabilitation of which \$2,406,500 was spent in F.Y. 80. About one half of these projects were handled by park staff (force account). The balance of the projects are being handled through DNR's Bureau of Engineering, with construction contracts.

The development and rehabilitation projects will correct some noticeable health problems, such as those involving water and sewage; provide additional toilet buildings and correct safety hazards such as exist at the Tower Soudan Mine. Park units will be aesthetically improved through extensive resource management programs for vegetation, wildlife, fisheries and soils.

Examples of newly-initiated projects include:

- * Three demonstration energy-efficient houses in Wild River, Camden and Whitewater state parks.
- * A special vegetation management program.

The development of state park trails has benefited from the trail assistance program. These trails will be utilized by hikers, cross country skiers, bikers, horseback riders, and snowmobilers.

During F.Y. 80, a major rehabilitation of the underground portion of the Tower Soudan Park and mine tour was still under way. The closing of this popular facility was necessary to make major safety improvements. The park was open again for public tours May 23, 1980.

Gooseberry Falls State Park campground was closed down for major rehabilitation of the sewer and water system. This major project caused an inconvenience to the north shore visitor but was necessary to modernize the 1937-era system. This facility will be open in 1981.

A very important element of the development program was recognition in the park management plans that vegetation in the parks needed a great deal of work. The F.Y. 80 development funding recognized this need and major rejuvenation efforts are now under way. Many will have almost immediate effect, but others will not be evident for five or ten years.

Park Maintenance and Operation

During F.Y. 80, the Division maintained and operated 65 parks and 16 waysides under a \$6,499,300 appropriation for that purpose. Eight campgrounds and four interpretive centers were added to the system. These required maintenance for which no additional funds were received. Park Managers supervised the maintenance of trails inside their parks -- funded by Trails & Waterways.

The income from park permits, campground registration fees and other activities and materials sold totaled 1,467,700 for F.Y. 80.

Annual attendance has remained close to seven million since 1971. The increase in winter use over the past several years is expected to continue.

New state park winter brochures were published; summer park brochures were developed providing the public with current maps and pertinent information. A statewide brochure was printed and distributed with the cooperation of the Minnesota Department of Economic Development.

About 100 park managers were given 40 hours of public relations training. New park managers received enforcement training to aid in enforcement of park laws and rules.

The Division has held annual orientation training sessions in the parks for all field personnel who have contact with the public. As a result, the Division detects greater job satisfaction among employees and fewer public conflicts.

Many parks lost numerous elm, oak and butternut trees, leaving some picnic and campground area without shade. Crews have removed most of the stricken trees, leveled the stumps and have begun a shade tree replacement program.

Increased maintenance and operation costs including inflation, refunded salary increases, and unfunded maintenance of new facilities has greatly exceeded money available. In order to operate state parks with no increases of funds there will be a decrease of services to park visitors.

Accessibility Program -- Special Populations

Throughout F.Y. 80 the concept of equal rights in state parks and recreation areas for all individuals continued to increase. Recent legislation (PL 90-480 Architectural Barriers Act; PL 93-112 Rehabilitation Act; PL 94-142 Education for All Children Act) involving both federal and state levels of government laws, supported integration and full rights for all individuals -- including persons with disabilities and the elderly.

Concerns have thus encouraged full participation by all individuals to pursue their recreational and leisure needs. Recreation, including access to, and useability of outdoor recreation facilities and programs, has now become a right, rather than a privilege.

Park development funds have been utilized to eliminate physical barriers throughout the state parks, a continuing program. Specific allocations include such projects as accessible picnic tables, nature and hiking trails and swimming areas, as well as accessible vault toilets and sanitation buildings.

The concerns of the accessibility program have become a humanistic approach: individuals should have available to them numerous recreational choices. The DNR's challenge, then, lies in providing total accessibility and useability; insuring freedom of use to everyone, not only persons with disabilities and the elderly.

Land Acquisition Program

During F.Y. 80 a total of 4,982 acres were acquired. This program was funded from the 1976-1977 bonding program. A major purchase was the 3,383-acre Tettegouche property which was added to Baptism River State Park. This mountain-like park, with four beautiful lakes and a dramatic river gorge, is now being planned.

All of the lands acquired for the park system were acquired from willing sellers.

Upper St. Croix Project

The Federal Bureau of Outdoor Recreation, on September 24, 1976, announced funding assistance totaling \$4,003,000 for the Upper St. Croix Project. These funds enabled acquisition of land and development of recreational facilities in accordance with the Department's Resource Management Plan for the Upper St. Croix -- which encompasses St. Croix and St. Croix Wild River State parks and the St. Croix and Chengwatanna State forests.

Campgrounds, primitive hiking and canoe campsites, trail systems and day-use facilities were completed in the project area. St. Croix Wild River State Park was officially opened October 1, 1978. These four units are expected to attract more than a million visitors annually.

Northern States Power Company, which is in the process of donating 13,800 acres of land within the project area, has completed donation of 8,500 acres valued at \$4 million. Remaining donations are to be completed prior to 1981.

Interpretive Services

Interpretive Services were provided during F.Y. 80 in 24 of the 65 state parks, reaching about one-third of the park visitors, who gained greater understanding and respect for park resources. Interpretive activities include: display materials, slide shows, film presentations and hiking. During the last two years, the Interpretive Program has received invaluable assistance from the Minnesota Humanities Council, Minnesota Poetry Outloud, Minnesota Historical Society, individuals of the Science Museum, University of Minnesota and others.

Scientific and Natural Areas

Two new units were acquired during F.Y. 80: Green Water Lake, 810 acres (including the surrounding lands) in Becker County is the second clearest lake in the state; Wild Indigo Prairie, comprising 100 acres in Mower County, is one of the best of the few remaining prairies in southern Minnesota. Wild Indigo Prairie is part of the Root River railroad right-of-way purchase. Acquisition efforts continued on Boot Lake, 320 acres in Anoka County; and Iron Springs Bog, 320 acres, in Clearwater County. The biennial acquisition budget of \$538,000 is being used on these projects. Management continued on the ten remaining SNA's.

During the 1979 field season, intensive inventory of 26 current and probable SNA's began and continued during the 1980 field season, at a funding level of \$69,800 (LCMR). This data will form a sound basis for management plans as well as provide baseline data for a variety of uses. The inventory was very successful and received a considerable amount of local interest and press.

F.Y. 80 saw the completion of the long-range plan for acquisition and management. With the evaluation by Natural Heritage Program, acquisition is resuming.

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TRAILS AND WATERWAYS

On November 1 1979, by administrative authority, the Trails and Waterways Unit was created by transferring the Trails Planning Section from the Bureau of Planning and Environmental Review; and the sections of Trail Operations, Minnesota Trails Assistance Program, Water Access and Boat and Canoe River Routes, from the Division of Parks and Recreation.

The consolidation of these sections into a unit similar to a DNR Division allows for the acceleration of planning, development, and operation of these highly desirable recreation programs.

The responsibility of providing overall management control of the Unit is vested with a Special Assistant to the Commissioner. Fundamental field operations have been delegated to the regional administrators.

Trails Planning

Trails Planning is charged with planning all State Trails and DNR Trails. This section also reviews all other DNR unit plans and comments on the trail portions. Over the next 12 months, this section will be developing an overall plan which will guide much of the Department's trails actions in the future.

The planning section finalized and received approval from the State Planning Agency, on four master plans for State Trails. Plans completed were for the Douglas, North Shore, Sakatah Singing Hills and Taconite State trails. Planning for the Minnesota-Wisconsin Boundary State Trail is progressing with completion scheduled for the next reporting period. Master plans for trails were finalized in four state forests. They were the Dorer Memorial Hardwood, Finland, Fon du Lac, and Kabetogama State forests.

Considerable effort was channeled into the proposed acquisition of the Root River Trail in southeastern Minnesota. A major feasibility report, incorporating public input, was published. This acquisition process included more than 40 hours of public hearings and resulted in DNR acquiring a portion of the abandoned railroad for trail purposes. Public hearings were also held to discuss the proposed purchase of the abandoned Chicago and North Western railroad line between Rochester and Stewartville. As a result of these hearings, the DNR chose not to pursue acquisition.

Planning continues on the Minnesota-Wisconsin Boundary Trail Plan. Completion is scheduled within the next reporting period.

Trails Operations Program

The Department of Natural Resources has the responsibility for acquiring, developing, maintaining and grooming; State Trails (trails authorized by the legislature); DNR Trails (Those designated by the Commissioner); State Forest Trails (Those within state forest units) and State Park Trails (those within state parks).

Acquisition

Opposition to state land purchases and escalating land costs have slowed the purchase of lands for recreational trails. However, some major railroad

abandonments have been acquired. They include a 48-mile section of abandoned railroad between Ramsey and LaCrescent and 31 miles of right-of-way from Hinckley to Moose Lake. Also, many scattered parcels have been acquired to fill in gaps on several other authorized state trails. During Fiscal Year 80, 1,806 acres were acquired at a cost of \$1,301,526.

Development

Development of trails during F.Y. 80 was accomplished primarily in State Parks and State Forests. Approximately 50 miles of trails were developed from the non-motorized bonding bill appropriation.

As plans were completed, major contracts and engineering work were initiated for bicycle surfacing, parking areas, trailhead areas. Also, rerouting on the Luce Line, Sakatah Singing Hills, and Heartland State trails. Other smaller contracts were initiated on the Douglas, Taconite, and North Shore State trails.

Maintenance

The increases in trail mileage, plus inflation and a hold-the-line budget during this period have limited the ability to maintain the present trail systems. Therefore, with increased pressure on these systems by trail users and funding insufficient to keep up with the demand, maintenance efforts during this period were becoming less than adequate. If this trend continues, trail closures will occur.

Minnesota Trail Assistance Program

The Minnesota Trail Assistance Program is a cost-sharing operation between the State and local governmental agencies. Funding is available on a statewide basis for snowmobile, ski touring, and equestrian trails. This program provides for the local needs of the state's residents and is a key factor affecting the winter tourist industry.

Purpose of the program is to provide additional trail systems to fulfill local needs and to complement existing State trail systems. The Trail Assistance Program is an important factor in conserving energy in that trail systems are located where demands exist, thus eliminating the need to drive to recreational areas.

Administration

Administering the assistance program has been a time-consuming portion of the program, since local units of government and volunteer groups are involved. Included in this reporting period was the development of a new grants manual, new contract, and forms for applications, project proposals, worksheet and request for reimbursements. New procedures were also established for accountability and reportability.

Many public informational meetings were held statewide to identify to program participants areas that needed improving. Also, a great deal of time was spent briefing county officials on their responsibilities for the program.

Monitoring

Effective monitoring of the program has been accomplished during this period by regionalizing the request for reimbursement progress, and through additional trail inspections. Also, six audits were conducted by DNR regional business managers and regional Trails and Waterways coordinators.

Water Access

The DNR manages about 1,000 water access sites which provide the general public free access to lakes and rivers throughout the state. These sites, averaging two acres in size, may be located in management units or are management units in themselves. The typical water access site contains a boat launching ramp, parking lot, entrance road and (in high use areas) toilets and trash barrels.

Accomplishments include the following: Department Policy for Water Access adopted and published; an agreement with the Metro Council and the State Planning Agency to provide access to Metropolitan lakes, was approved and implemented; a priority list of lakes needing access was established -- based on lake size, fish type, and water clarity; a strong effort was exerted to cooperate with other governmental units to establish access.

The 1980-81 appropriation for water access acquisition and improvement totaled \$3 million. In F.Y. 80, a total of 16 accesses were acquired for about \$423,000 & 20 accesses were improved at a cost of \$230,000. Much of F.Y. 80 was spent in establishing an acquisition and development framework of operations, therefore, physical accomplishments were not as extensive as expected.

Boat & Canoe River Routes (River Recreation)

The River Recreation program consists of 18 legislatively designated rivers found suitable for recreational use. The program involves acquisition, development and maintenance of river-oriented recreation facilities on the 18 rivers. These facilities include primitive campsites (107), rest areas (108), portage trails (52) and access locations (230) along the river corridors. The program also includes preparation of maps, guides, manuals, water level and condition reports and public informational services related to recreational use and enjoyment of rivers.

Studies

A rivers task force was formed by the Commissioner of Natural Resources to recommend procedures to deal with all phases of river use. The final document

was approved, with some portions currently being implemented, including changing the name of the Canoe and Boating route program to River Recreation, and evaluating other rivers for designation into the system.

A river study program was initiated using student workers, study teams from the University of Minnesota and volunteers. More than 200 rivers were researched. Fifteen rivers met most or all of the criteria for designation. Four of those rivers will receive additional study for possible inclusion in the system this biennium (Vermilion, Pine, Blue Earth and Sunrise).

Development

Working through the six regional offices, recreational management plans for specific sites on all designated rivers were developed. During F.Y. 80, 11 new sites were developed.

The River Recreation program acquires, leases or uses (through agreements with private property owners) and develops and maintains 502 sites along the currently designated rivers.

Public Services

The river level reporting service has been modified to provide better information and service. Many complaints had been received on this new system.

River maps are now completed on all designated rivers. More than 10,000 maps were issued to the public during F.Y. 80.

During F.Y. 80, more than 5,000 people attended 125 public presentations of a new slide series: "Flowing Waters."

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WATER RESOURCES MANAGEMENT

The Division of Waters has four major sections: Development, Hydrology, Land Use, Policy and Planning; and two support service sections, Administrative Services and Hydrographic Services.

The central office staff consists of 37 professional positions, eight para-professional and seven clerical positions. In addition, there are 23 professional positions assigned to regional and area offices within the six Department Regions.

Development Section

Dam Safety

Chapter 779, Laws of 1978 established a program for the inspection of dams to determine potential hazards to public health, safety and welfare, and the conditions of dams. This includes the inventory, characterization, classification, and examination of structural and hydraulic capacity.

The inspection of high hazard dams, which pose potential hazards to life, health and major property damage, is conducted in cooperation with the federal government under a combined State and National Dam Safety program. There are approximately 1,200 dams in Minnesota, of which an estimated 50-75 are in the high hazard class. Accurate numbers of dams and their hazard classes will not be available until all dams have been inventoried; expected to be completed by 1981.

An indeterminate number of new dams built each year will be classified in respect to potential hazard. Construction will be monitored, inspected, and subject to permit and work approvals.

In furtherance of the law, the division established a Dam Safety Unit consisting of a dam safety engineer, four permanent professional staff, and one unclassified hydrologist.

The major objectives of the Dam Safety Unit are to:

- * Inventory, characterize, classify and inspect all existing dams in Minnesota (about 1,200) by January, 1981.
- * Supervise the construction of new dams built each year by issuing permits, monitoring construction, and granting detailed work approvals to insure safely-constructed and maintained dams -- with maximum reduction in hazards and risks to health, safety and welfare.

- * Insure that all dams are maintained in a safe condition, operated according to approved plans, and monitored periodically to assure continuing safeguards to health, safety and welfare.
- * Establish emergency procedures and warning systems against the advent of dam failure.
- * Control transfer of ownership and abandonment of dams.

Another responsibility of the program involves assistance to local governments. Legislation provides grants-in-aid for repair and reconstruction of publicly-owned dams in the interests of public health, safety and welfare. A prioritized report is required for publicly-owned dams needing repair or reconstruction. Priorities are based on hazards to life and property, age and type of dam, present and future uses of the dam and the importance to the state resources program. There are some 600 dams owned by state and local governments in Minnesota.

The Dam Safety Unit inspects publicly-owned dams in need of repair or reconstruction; identifies hazards to life and property; assembles background facts on the dams; reviews engineering plans and costs of repair or reconstruction; and provides the Legislature with a priority list and the estimated state share of costs for their consideration.

Grants will be made to local governments whose dams are approved by the Legislature for assistance.

As of October 1, 1980 the section had inventoried, characterized and classified 800 dams; inspected 58 high hazard dams and inspected the construction of five new dams in the state.

It is expected that the Unit will carry out annual inspections of high hazard dams (approximately 50) and inspect all significant hazard dams (approximately 200) during the next biennium.

Public Water and Wetlands Inventory/State Water Bank Program

Pursuant to Minnesota Statutes 105.37, 105.391 and 105.392, the DNR is responsible for implementing a Public Waters and Wetlands Inventory Program and a Water Bank Program. These programs are intended to identify waters subject to regulation under M.S. Chapter 105.42.

The law directs the department to carry out the inventory in coordination with the counties and establishes a three-member hearing panel to resolve disputes and make final designations.

Rules have been promulgated relating to the Water Bank Program, which provide a means of compensating landowners for preserving existing wetlands suitable as good agricultural land.

The DNR, as of October 1, 1980 had completed preliminary classification of public waters for 52 counties. Final hearings for the designation of public waters had been held for 25 counties, as of October 1, 1980.

Public Waters Permits

A total of 1,206 new applications for permits to change the course, current or cross-section of public waters were received during F.Y. 1980 and 762 were pending from the past. A total of 1,198 applications were acted upon, with 760 being carried forward into F.Y.81.

During F.Y. 80, two new service functions were undertaken. A violations coordination function was initiated and a public hearings coordination function was expanded. These services are intended to coordinate and monitor all violations of M.S. 105.42 and all contested case hearings arising from administration of M.S. 105.42 permit authority.

Soil And Water Conservation Districts (SWCD) Liaison

Consistent with Minnesota State Statutes 105.39, 105.41, 105.42, and 105.44, the SWCD Liaison is working toward a closer working relationship with local units of government.

Since November 9, 1979 when the SWCD Liaison position was again filled, 78 of the 92 SWCD's in Minnesota have been personally contacted by the SWCD Liaison pertaining specifically to their role in the DNR water permits program. Of the 78 SWCD's contacted, 46 have received some in depth training concerning the submission of SWCD recommendations on water permit applications.

Also, much time and effort have been put forth in the development of a guidebook for SWCD involvement in the DNR water permits program. This guidebook is scheduled for publication in December, 1980. If approved by the State Soil and Water Conservation Board, it will be distributed to the SWCD's as a section of the SWCD Operational Handbook. The goal of the guidebook is to improve the understanding of the water permit program by SWCD's. This should result in an increase in SWCD input into the program.

An effort is now under way to monitor SWCD responses to water permit applications. The objective of this monitoring effort is to identify those SWCD's where there is some misunderstanding concerning the SWCD role in the permit program, or where there is some apprehension of getting involved in the program. When these SWCD's are identified, they can then be given special training efforts by the SWCD Liaison.

The monitoring efforts for F.Y. 80 show that 41 percent of the permit applications are not being responded to by the SWCD involved, 35 percent are being acknowledged with a "no comment" response, and 24 percent are receiving significant recommendations.

In addition to the efforts described above, the SWCD's are also receiving training, as needed, pertaining to their role in the DNR public waters inventory. To date, all SWCD's are taking an active role in this program -- including the review of preliminary maps, and acting as a member of the public hearing panel for disputed cases.

All activities referred to above are being closely coordinated with the State Soil and Water Conservation Board (SWCB) and the Minnesota Association of Soil and Water Conservation Districts (MASWCD).

Water Appropriation Program

The State exercises authority over "waters of the State" with respect to their use and appropriation for public water supply, irrigation, mining, and other purposes. The intent is to regulate, conserve and allocate the water resources of the State, in the public interest. Pursuant to Minnesota Statutes Chapter 105, the DNR, Division of Waters is charged with the responsibility of implementing and administering the program.

Following seven public meetings and three hearings, rules for the appropriation of waters of the State, became effective in August, 1980. These rules provide standards and criteria for the review, issuance and denial of water appropriation permit applications; modification, suspension and termination of existing permits; resolution of water use conflicts and well interference problems; specific types of water appropriation, and water appropriation and use management plans.

In F.Y. 80 (July 1, 1979 to June 30, 1980) new applications for water appropriation included 110 for irrigation and 219 for non-irrigation. In addition, 448 applications were carried forward from prior years. The 219 new applications were mostly for existing municipal water supply systems which have been operating without a permit since 1974, at which time the law changed to require permits from all users, including the grandfathered ones. Final action was taken on 411 applications, with 366 being carried forward into F.Y. 81.

Application forms and procedural manuals are expected to be revised during F.Y. 81, this would clarify the procedures and provide guidelines for evaluating permit applications.

Hydrology Section

Four basic units make up the Hydrology Section. They are 1) Ground Water, 2) Surface Water, 3) State Climatology Office and 4) Systems. The staff in these units perform investigations and technical evaluations in their respective areas of expertise, in support of other programs of the division/department. Interagency and interdisciplinary coordination is maintained. The section also gathers data through various monitoring programs and field investigations, and publishes reports on ground and surface waters of the State.

Ground Water

Ground Water Unit activities included publication of Division of Waters Bulletin 28: "Ground Water Hydrology of Swift County, Minnesota"; and Technical Paper No. 8: "Selected Aquifer Tests in Minnesota." In support of the division ground water management and permits program, 60 aquifer tests were conducted and/or analyzed and 170 ground water technical evaluations were provided; including appropriation permit

reviews, well interference complaints, water use conflicts, ground water report review for EIS and EAW program and information requests from the general public.

Major ground water related projects completed include test drilling and observation well installation programs in Swift and Lac qui Parle counties; ground water level monitoring in the Shakopee-Dean Lake area; irrigation well inventory; expansion of the statewide observation well network; and initial mapping of buried outwash aquifers in Swift County. Projects underway include a ground water study of Lac qui Parle County; a lake seepage study in Washington County; municipal well inventory; continued expansion of observation well network; feasibility of using remote sensing techniques to identify irrigated acreage and updates of irrigation well and observation well inventory. Several new publications are planned.

The following ground water studies were in progress during the year, as part of the joint funding agreement with the U.S. Geological Survey:

- * Pelican River Sands Ground Water Study.
- * Onanegozie North Ground Water Study.
- * Twin Cities Three Dimensional Model.
- * Upper Pomme de Terre-Chippewa Rivers Ground Water Study.
- * Sand Plains Ground Water Quality Study.

Surface Water

The Surface Water group processed a wide variety of requests for technical service originating from Central Office and Regions within the Division of Waters as well as the DNR's division of Fish and Wildlife, Parks and Recreation, Office of Planning and Bureau of Engineering. About 40 hydrologic and/or hydraulic analyses were performed -- dealing with lakes, streams and wetlands. The analyses dealt with lake level fluctuations, water budget for lakes, streamflow characteristics, hydrologic and hydraulic effect of proposed projects on lake outlets and stream flood plains and agriculture drainage ditches.

A few examples of the specific types of work are:

- * Effect of a proposed water retention structure on Minister Lake, Douglas County.
- * Effects of an unauthorized channelization project on West Branch Twelve Mile Creek, Traverse County.
- * Effects of proposed outlet modifications to Long Lake, Itasca County.
- * Effect of repair of Ditch #8 on Shaokatan WMA, Lincoln County and effect of proposed outlet structure.
- * Evaluation of an additional structure on Big Rice Lake, Cass County, for operation purposes.
- * Effect of existing agriculture dikes on the Red River of the North.
- * Impact of the proposed new Holman Airport runway on the Mississippi River floodway at St. Paul.

- * Flood hazard evaluation on the Group Camp at Whitewater State Park, Winona County.
- * Determining the useful life of Flandrau Dam Reservoir, Blue Earth County.
- * Effect of unauthorized channeling on a Cobb River Tributary, Waseca County.
- * A substantial number of floodway modifications on previously done flood/insurance studies.

The Surface Water Group responded to numerous inquiries from the public and provided technical advice to the Division staff and various branches of the department, on a daily basis. The staff testified at several public hearings such as on Dean Lake, Scott County; and Bersaw Dam, Blue Earth County; and provided information indirectly for many others.

The study at Williams Lake of the surface water -- ground water relationships continued as part of the DNR/U.S.G.S. joint funding agreement. Money was allocated in the agreement to begin a series of lake hydrology studies.

In addition, a study dealing with low flow characteristics in Minnesota streams was completed. The first part was published by the Division of Waters: "Low Flow Considerations for Regulating Use of Minnesota Streams, Part I: Gauged Sites" Open-File Report No. 1, April 1980. The second part: "Technique for Estimating 50-, 85-, 90- and 95 Percent Exceedance Flows in Duration Table of Daily Flows at Ungauged Sites of Minnesota Streams, Part, II: Ungauged Sites", Technical Paper No. 9 is ready for publication.

Climate

The State Climatologist has continued to work with and receive data from seven precipitation networks across the state. Using these data he prepared maps of intense summer storm occurrences during 1979 and 1980. Snow depth maps were prepared at weekly intervals during the winter of 1979-80 and lake ice maps were prepared and released during the spring of 1980.

The State Climatologist has continued to take part in the soil moisture monitoring project, in cooperation with the Soil Science Department and the Agricultural Extension Service of the University of Minnesota.

Efforts have been continued in Minnesota to secure implementation of the State Climate Program established under Federal Legislation passed in 1978. A coordinating committee chaired by the State Climatologist and including multiple interests met several times to draft positions or review proposals prepared at the federal level.

The State Climatologist continues to conduct special studies for state and local agencies. Recent work has focused on flooding as related to soil moisture and precipitation in the Red River of the North.

Systems

The system's staff on the Hydrology Section is primarily assigned to two projects for which outside funding is provided. The Minnesota portion of the National Water Use Data System is a federally-funded project, matched 50 percent with Division of Waters direct services and carried out by the Division. The goal is to develop and implement a computerized system for tabulating water use information so that reasonably current information is readily accessible. To date, the 1976 and 1978 data received from permit holders have been entered into a data base designed as part of this project.

The Legislative Commission on Minnesota Resources (LCMR) has awarded a grant to the Division to develop a computerized cross-reference or correlation of permit data from Health Department, Pollution Control Agency and DNR permit records. This project is in its second (and final) year; the data base has been developed and data entry is well under way.

As part of its activities, the Systems unit provides records management assistance, computer programming, and systems coordination for the division, and maintains contracts with similar activities in other agencies. Microfilming of historical permit files has continued and about 2,000 new permit files were filmed, 3,000 old fiche were converted to the new format and about 500 filmed files were updated with new material during the year. Programs were written for: direct entry of snow-depth data into the University of Minnesota computer, from remote Forestry Division terminals; ranking of precipitation information and printing all data for a specified station sequentially, and for various tabulations of irrigation well and water use information.

The ground water data base format was revised by the Ground Water staff, with design and programming assistance by the Systems staff. The irrigation well inventory is complete and in system through the 1978 permit year. The 1979-80 data are coded and will be entered in F.Y. 81. The municipal well inventory is nearing completion for 42 counties. The observation well inventory is complete and is being updated annually. Additional editing is necessary for all parts of the ground water data base.

Land Use Section

Shoreland Management

During F.Y. 80 there has been increased assistance to counties in administering the 85 county shoreland management ordinances. Staff assisted 18 cities in adopting shoreland ordinances, for a total of 39 municipal shoreland ordinances statewide. Another 25 cities submitted draft ordinances for review. It is anticipated that an additional 15-20 city ordinances will be approved during F.Y. 81.

Flood Plain Management

During F.Y. 80, a total of 46 state-approved flood plain ordinances were adopted by Minnesota cities and counties. Another 40 cities and counties are projected to have state-approved ordinances by the end of

F.Y. 81. Statewide, 200 local units will have adopted state-approved ordinances. The Department has (as a result of ordinance adoption) significantly increased its technical and administrative services to local government. The major emphasis on flood plain zoning will continue. With the benefit of federal funding, the staff will be able to enhance our efforts in comprehensive flood plain management. During F.Y. 81 and F.Y. 82, with the federal funding: several ordinance administration and enforcement workshops will be held throughout the state; technical reports and general informational brochures will be developed on flood plain topics (e.g.: floodproofing, stormwater management, what you should know before buying river front property, etc.); increased technical assistance will be provided to local government; and flood plain management planning assistance will be provided to significant flood-prone communities to develop a comprehensive evaluation of the flood problem and provide a way and means to minimize damages, including identifying and applying for appropriate funding to implement the plan.

The flood plain staff has published a technical report (T.R. 7): "Procedures and Requirements for Flood Hazard Evaluation" and an informational brochure: "Reducing Flood Damages by Acquisition and Relocation - the Experiences of 4 Minnesota Communities".

The flood plain staff contributed significantly to the flood damage reduction section of the Water Planning Board's water plan.

Wild and Scenic Rivers Land Use

During the past two years, the Cannon River was designated into the program, the sixth river to be so designated. To date, 19 of the 38 local governments have adopted state-approved ordinances and another six drafts are under review. It is anticipated that by the end of F.Y. 81 the remaining governments will have complying ordinances.

Recently, the DNR completed a statewide river policy which will provide further continuity and coordination for the program and its relation to the flood plain and shoreland programs.

The DNR has also proposed converting three LCMR positions to permanent complement, thereby recognizing the continuing operational components of the program.

Lower St. Croix Riverway

This past year a new position was established to provide coordination of the land use and related components of the National Riverway, thereby recognizing the state's unique commitment to management of the St. Croix. Division staff continue to assist communities in the administration of the ordinances.

Hydrographic Unit

During F.Y. 80, a total of 92 hydrographic requisitions resulted in surveys in 40 counties. The majority of these surveys involved hydrologic, hydraulic and topographic conditions around public waters. Many of these

requisitions included gathering data for Natural Ordinary High Water determinations and determining run-out and control levels on public waters. Topographic drawings were prepared from 26 of the surveys. Additional graphic support included more than 50 graphs and charts to assist in resource management.

During F.Y. 80, a total of 160 investigations were conducted, resulting in the necessary repair, adjustments, and/or maintenance at state-owned dams. Contracts were let for modification/reconstruction of four state-owned dams at a total cost of \$78,189.

A total of 95 lake gauging stations to monitor lake level elevations were established in FY 80. This activity included maintenance and the securing and recording of stage records.

The Hydrographic staff responds on a daily basis with technical advice and answers to routine inquiries from DNR staff, other governmental agencies, industry, consultants and the general public.

Policy and Planning Section

Late in Fiscal Year 79, the Policy and Planning Section was created within the Division of Waters. Major tasks assigned to this section include the coordination of division and department activities in federal public works studies and projects; the initiation of a program analysis process for the various programs of the division; assistance to the Director in the analysis of and development of policies to guide the programs of the division; and coordination of division planning and management activities with those of other state agencies involved in water resources management.

During the past year, the Policy and Planning Section has, on some 50 to 60 occasions, attended meetings, assembled coordinated comments and in other ways coordinated division activities on federal public works studies and projects. Several of the more significant studies include the "639 Study" in the Minnesota River Basin, the Red River Basin Reconnaissance Study and the Great Lakes Navigation Season Extension Program. In addition, the Section has been involved in 10 programs of the federal-state river basin commissions. The most significant of these studies is the Upper Mississippi River Master Plan Study.

The Section also began a detailed analysis of the programs and sub-programs of the division. By June 30, 1980 programmatic data had been collected for about 30 percent of the division's programs. It is anticipated that preliminary analysis of all division programs will be completed during F.Y. 81.

The Policy and Planning Section also provided assistance in developing the water appropriation rules, developing a dredging policy for the 1980 season; and was instrumental in developing draft legislative proposals for an expanded flood hazard mitigation program and for coordinating the grant programs of the division with those of the Soil and Water Conservation Board.

The Policy and Planning Section has also been extensively involved in coordinating activities of a multi-agency nature with the Water Planning Board staff and other participating agencies of the Board. This has included participation on the Water Planning Board Technical Committee and on numerous subcommittees created to examine specific issues, such as underground injection control, ground water heat pumps and navigation season extension.

* * * *

ENFORCEMENT

The Division of Enforcement functions to protect the state's natural resources against abuse and depletion. Conservation Officers protect public lands, parks, timber, waters, wild rive and wild animals by enforcing natural resources laws, rules, regulations and Commissioner's Orders.

Enforcement is accomplished by effective patrol with modern equipment and by covert operations. All enforcement officers are Minnesota-licensed police officers. They investigate complaints, issue citations, prepare cases and testify as witnesses. Officers train youths in firearm and snowmobile safety. Officers are required to participate in continuing training programs to maintain a state license, keep abreast of major changes and be advised of new enforcement techniques.

The Division of Enforcement also administers grants to counties for assistance in smelt enforcement on the north shore of Lake Superior, and boat and water safety grants to county sheriffs.

The Division's objectives are: to fairly and effectively enforce all laws, orders and regulations administered by the Commissioner of Natural Resources; to promote safe use of watercraft, firearms, all-terrain vehicles and snowmobiles, without overuse of the natural resources; to preserve Minnesota's resources for the pleasure and safety of the public through educational programs and anti-litter law objectives; to protect Minnesota's water resources by regulating surface use appropriations, diversions and the changing of cross sections to assure that a continuous supply of uncontaminated water is available to the public and wildlife.

During FY 80 the legislature allowed an increase in complement of 15 conservation officers, thereby increasing effectiveness and improving public service.

The Division comprises Arrest and Confiscations, Safety Training, Special Investigations, and General Enforcement units.

Arrests and Confiscations

During the two-year period ended December, 1979 a total of 18,945 arrests were made by conservation officers, with a two percent dismissal rate.

Confiscations totaled 19,630 of which 13,555 were car-killed deer; 1,331 deer illegally taken; 625 deer killed by dogs; and 3,741 confiscations for other illegal taking.

A total of 115 moose were killed by motor vehicles, 42 moose were taken illegally, and 39 moose confiscated for other illegal causes.

Ninety-six bear were killed by cars and confiscated, 33 illegally taken, and 153 dispatched for doing damage.

The sale of perishable confiscations totaled \$81,205. A total of 952 confiscations of various furs was made. These were offered at fur sales grossing \$17,315.

A total of 489 items of confiscated sporting goods and equipment was sold, grossing \$433,024.

Safety Training

In Safety Training during this biennium, there were 39,569 youth certified in firearms and 19,867 certified for snowmobile operation.

It is anticipated that there will be an even greater number of youths trained in firearms during the next biennium, since the 1980 legislature changed the law to permit the use of handguns for taking both small and big game. This will necessitate increased youth training; in handguns.

To date, more than 500,000 youth have been trained in firearms and 182,533 in snowmobile safety since the programs were initiated.

There currently are 3,200 firearm safety instructors qualified and certified to instruct the youth of Minnesota. It is anticipated that this number will remain constant.

These instructors represent a 100 percent volunteer corps and are to be commended for a successful program that has been the model for most other states conducting similar programs.

Special Investigations Unit

The Special Investigations Unit was developed to conduct and coordinate investigations involving the commercialization of game, fish, fur, minnows and other natural resources. Its covert operations are an important tool

to supplement enforcement efforts of uniformed officers. The unit also trains officers in undercover techniques relating to illegal taking, transporting, sale and purchase of wildlife and other natural resource products.

The Special Investigations Unit responds to information and complaints involving illegal activities. When uniformed personnel so require, DNR Regions request assistance from the Special investigations Unit.

The Unit cooperates with the U.S. Fish & Wildlife Service and state investigative units regarding the commercialization and illegal interstate transportation of game and fish. The Special Investigations Unit assists in the training of uniformed officers in undercover operations and the latest investigative techniques and legal approaches governing this type of function. Special Investigators are under the immediate supervision of the Director of Enforcement.

General Enforcement Unit

The General Enforcement Unit conducts the everyday conservation officer duties including law enforcement, safety training, litter and pollution control, waters problems, wild rice regulation, protection of public lands, state parks, state timber and all other responsibilities delegated by the Commissioner.

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OFFICE OF PLANNING

In response to current issues and trends, the DNR is increasing the level of emphasis on its planning activities.

Planning is seen as a tool for more effective and efficient resource management. Better management decisions are resulting from improved methods of data research and analysis. Additionally, planning responds to the public's desire for increased participation in natural resource management.

Planning insures that Departmental management directions are clearly identified and formally stated in plans and policies for public understanding and comment.

During FY 80, the Office of Planning was involved in five principal activities: Research and Policy, Rivers Planning, Parks Planning, Environmental Review, and Federal Aid Coordination. These activity areas provided the Department with professional service in data management and analysis, policy development, site planning, environmental impact analysis and federal grant coordination.

The impacts and accomplishments of Planning's five activities are examined in the following sub-sections.

Research and Policy

Major accomplishments of the Research and Policy Section during FY 80 included completion of a Statewide Comprehensive Outdoor Recreation Plan (SCORP) and more than 20 associated recreation documents. This publication was developed and adapted to conform to federal changes in philosophy and requirements.

The following were among other accomplishments during the Fiscal Year:

Compilation of a public land ownership map and report; completion of a statewide height of land watershed map and manual; and development of a departmental long-range planning process.

The Natural Heritage Program, a comprehensive information system, was established and developed. This program locates and identifies those rare plants, animals, geologic features and natural communities needing special attention.

The Statewide Trail Inventory was completed during FY 80; SCORP maps and land descriptions for wildlife management areas and trails were updated; and a water access priority list developed; based on lake size, fish type

and water clarity. A pilot for a public water access map series (Crow Wing County) was researched and produced.

Department policy and procedures have been developed and approved for scientific and natural areas, state water access sites in the metropolitan area, and management of water surface use and state rivers (wild and scenic, canoe and boating).

Other Department policy and procedures have been drafted -- covering recreational and natural state parks, DNR-administered trails, State Forest sub-areas; and forest and wildlife management activity coordination.

All departmental policy relative to units of the Outdoor Recreation System is coordinated and reviewed by the State Outdoor Recreation Advisory Committee.

An Atlas on Minnesota Resources and Facilities was produced during FY 80, as well as specific maps and data to support departmental needs on projects; including the Zumbro River Wild and Scenic River analysis, and the Root River Trail.

During FY 81, it is projected that the Research and Policy Section will assess the State Forest road system, in cooperation with the Division of Forestry, and address Department policy and procedures relative to land exchange, archeological sites, wildlife management areas, state waysides and historic sites.

Long-range planning efforts will be expanded to include the Division of Forestry, Unit of Trails and Waterways and other Department disciplines. Work effort will also be concentrated on undedicated state lands in northwestern Minnesota; and expanding the river kilometer indexing design to include a similar system for lakes.

Under the Natural Heritage Program, the Section will evaluate about 75 sites nominated for designation as scientific and natural areas; continue to comment on Environmental Review projects; and provide early input to, as well as review state park, trail and water access plans.

Rivers Planning

During FY 80 the Rivers Section prepared management plans for the Cannon River, and Minnesota River (Franklin to Le Sueur). Public hearings conducted in Rice, Dakota and Goodhue counties led to the designation of the Cannon River (Faribault to the Mississippi River) as the sixth component of Minnesota Wild and Scenic Rivers system. Six counties on the Minnesota River have drafted a plan for the protection of the river from Franklin to Le Sueur. That plan will be reviewed as a possible alternative to wild

and scenic river designation.

Comprehensive resource analyses and evaluations are under way for the Zumbro, Snake and Crow rivers. A statewide inventory of Minnesota's outstanding river resources is in progress. The inventory will set priorities regarding need for protection, management and preservation of the state's rivers.

Scenic easement acquisition is continuing on the Kettle, Mississippi, Crow, Rum and Cannon rivers.

Informational materials published include guides explaining the wild and scenic rivers provisions for the Rum, Mississippi and Cannon rivers.

Parks Planning

During FY 80, management plans for 12 state parks were initiated. These include collection of information on natural resources, park development and current use. Fourteen related major public meetings and numerous task force and group meetings were held.

Four management plans were completed by Parks Planning during the fiscal year, and approved by the State Planning Agency: Itasca, Kilen Woods, Banning and Old Mill State parks. Nineteen completed plans were also published and distributed.

The Minnesota Valley Recreation Area Project data collection has been completed on recreational use, visual analysis, and recreational facility mapping. Meetings have been held with the public, user groups and local officials. A draft trail alignment plan is completed and draft community recommendation plans are in progress.

Twenty-six management plans were completed, and approved by the State Planning Agency, prior to July 1, 1979; in accordance with the Outdoor Recreation Act of 1975.

It is projected that during FY 81, ten additional management plans will be completed, and approved by the State Planning Agency, following a minimum of 17 public meetings. At least ten management plans will also be published and distributed.

The Minnesota Valley Recreation Area plan is expected to be completed before June 30, 1981.

Environmental Review

The Environmental Review activity involves a continuing effort to weigh public and private development projects, land and water use proposals, and plans -- before they are implemented.

During FY 80, more than 100 federal, state (non-DNR), local, and private projects and plans were reviewed, commented on, and re-drafted (where appropriate) through the Department's Planning and Environmental Review Team (PERT) process.

The Department's review process focuses on five major issue areas:

- * Energy -- including power plants, transmission lines, and pipelines.
- * Mining -- including iron ore, sand and gravel, limestone, copper-nickel, and uranium.
- * Public Waters/Wetlands -- impacts on surface and ground-water hydrology and fish and wildlife from various types of development.
- * Natural Resource Management Units -- state forests, state parks, wildlife management areas, and scientific and natural areas.
- * Recreational Resources/Facilities -- trails, lakes, rivers, and public accesses.

The DNR review process in these major issue areas and related, site-specific project proposals continues to make a significant contribution toward fulfilling the Department's responsibility for preserving, protecting and wisely utilizing the State's natural resources.

Federal Aid Coordination

During FY 80, the Federal Aid Section administered 108 active State Agency and Contingency Reserve projects totaling \$7.3 million (federal share). In addition to administration of active projects the unit enforced compliance on 375 projects. The following table represents the categorical breakdown of projects:

Acquisition	43	\$4,187,677.
Development	58	\$2,058,718.
Acquisition & Devel.	5	\$ 672,115.
Planning	2	\$ 381,490.
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TOTAL	108	\$7,300,000.

As of June 30, 1980 the Section had one new project and 14 project amendments approved; completed 21 projects; obligated \$634,357 (federal share); submitted 125 partial billings for reimbursement; and received in excess of \$3.8 million in federal matching funds which was deposited into the Natural Resources Federal Reimbursement Account.

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SOIL AND WATER CONSERVATION BOARD

The Minnesota legislature has charged the Soil and Water Conservation Board with the responsibility of administratively assisting Soil and Water Conservation Districts (SWCD) in carrying out their mandate under M.S. Chapter 40 to protect the public health, safety and welfare through sound soil and water conservation. There are presently 92 districts governed by 460 publicly elected supervisors in Minnesota. These districts staff more than 250 full-time and part-time employees.

District Operations

In order to provide a uniform system under which districts can effectively exercise the powers and authorities granted them under M.S. Chapter 40, the Board:

- * Allocated \$425,000 to districts for the purpose of carrying out their programs.
- * Held a series of leadership development sessions for district supervisors. These sessions offered an opportunity to disseminate new information and address the concerns of these local officials.
- * Distributed a "District Operations Handbook" which outlined procedures in conducting day to day business of districts.
- * Distributed a "District Employee Handbook" to be used as a guide in formulating personnel policies.

Cost Share Program

The Cost Share Program provides grants to districts for the purpose of providing financial assistance to land occupiers for the installation of permanent non-production oriented systems to control erosion and sedimentation. To meet the goal of accelerating the application of erosion control practices, the Board:

- * Allocated \$1,360,200 to districts for cost-sharing with land occupiers.
- * Allocated \$225,000 to districts to carry out the technical and administrative aspects of the program.
- * Conducted field audits of all participating districts to ensure compliance with rules and regulations.

Streambank, Lakeshore and Roadside Erosion Control Program (SLR)

The purpose of the SLR Program is to provide financial assistance to land occupiers for the control of erosion occurring along streambanks, lakeshore and roadsides. To carry out this program the Board performed the following:

- * Developed administrative guidelines for the implementation of the program.

- * Developed a priority system for handling requests.
- * Allocated \$250,000 to districts on a project basis.

Private Forest Management Program (PFM)

The PFM Program is a demonstration program funded by the Legislative Commission on Minnesota Resources. The objective of the program is to improve the productivity of small private forests through technical assistance and cost-sharing of forest practices, while allowing for erosion and sediment control. To get the program functioning the Board performed the following:

- * Developed administrative guidelines for implementation of the program.
- * Developed memorandums of understanding between the State Board, Districts and DNR Division of Forestry.
- * Allocated \$100,000 to districts in the project area for cost sharing purposes.

Rainfall Monitoring Program

The purpose of the Rainfall Monitoring Program is to establish and maintain a monitoring network that will provide a combination of stability, density, and a uniform distribution system for collecting rainfall data. This network now consists of a rain gauge every 12 miles across the state and is the most comprehensive monitoring system in the nation. This network satisfies several elements of the National Climate Program Act of 1978 (PL - 95 - 367) which provides for grants to states for planning and implementation of a state climate program.

Water Permit Review Program

The Water Permit Review Program provides for review of all water permits by Soil and Water Conservation Districts. To assist in streamlining the water permit review process while allowing for the protection of soil and water resources, the Board:

- * Allocated \$92,000 to districts for use in reviewing water permits.
- * Assisted the district liaison person of the DNR Division of Waters in working with districts on the review process.

Note: See "Soil and Water Conservation Districts Liaison", under "Waters Management" Section, elsewhere in this publication.

Resources Conservation Act

The purpose of the Act is to establish a procedure to assure that soil, water, and related resource conservation programs are responsive to the long term needs of the nation and the people. In Minnesota, the objectives of the Act are being carried out through the following:

- * Preparation of a state program to address the soil and water-related resource concerns of the people of Minnesota.
- * Preparation of a "process report" for national distribution on the method used in Minnesota in developing the program for national distribution.

Floodplain Management - Southern Minnesota Rivers Basin

This is a pilot program which provides grants-in-aid to local government for the installation of flood control structures and provides funding to the State Board for distribution to local governments for selected projects. During the past year, two flood control structures were completed, one near Walnut Grove and the other in Lincoln County. The Board will continue to fund one or two projects each year with available state funds.

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INFORMATION AND EDUCATION

Responding to Minnesota citizens' right and need to know of DNR's policies, programs, activities and services is the overall responsibility of the Bureau of Information and Education. This is carried out through administration of six major DNR disciplines and their related activities; as well as conveying to the public accurate, objective information on Department authorities and overall resource positions and concerns.

The Bureau is responsible for administration of three programs mandated by the Legislature: statewide Environmental Education, voluntary Adult Hunter Education, and Boat and Water Safety education.

With an authorized complement of 15 professional and clerical workers, plus five staff positions to provide support service for the federally-funded Boat and Water Safety Education program, the Bureau is accountable and reports directly to the Commissioner's office.

Although this staff represents the smallest I & E complement (on a per capita basis) in the United States, the Bureau has in the past several years finished at or near the top in award competition among like agencies in other states and Canada.

Bureau functions, designed to complement Department objectives, and summary accomplishments during FY 80, follow.

News Section

Prepares and distributes articles intended for use in 375 Minnesota newspapers; and radio, television and other means of mass communication. Its weekly 5-minute program "North Star Story" is broadcast by 52 radio stations.

Articles and programs inform the public of all matters dealing with the DNR's responsibilities for management and preservation of natural resources.

During FY 80, more than 400 separate news releases were distributed to the state's newspapers. The news section also schedules press conferences and helps staff a special fire information center with the Division of Forestry during times of high fire danger.

The news section also supervises the maintenance of DNR's State Fair building, produces special in-depth feature articles as the need arises, and prepares and issues a monthly newsletter to Department employees.

Publications Section

Produces "The Minnesota Volunteer" official magazine of the DNR. The bi-monthly magazine is delivered free to 73,000 Minnesota subscribers (readership index: 350,000). The "Volunteer" is also extensively used in Minnesota classrooms. Twenty percent of its circulation is dedicated to educational purposes. It is circulated to all state and school libraries.

The Volunteer in FY 80 placed fourth in international competition among 22 magazines published by fish and wildlife agencies.

For the first time since the magazine's inception in 1940, it conducted an extensive subscription renewal campaign. Subscribers were asked to complete and return a card included in one issue of the magazine. A phenomenal 84 percent of the subscription cards were returned.

Other publications produced by the section include: 1,000 each of 40 new "DNR Reports" pamphlets; 7,000 "Orienteering Maps"; 18,000 "Rare and Endangered Species" booklets; 250,000 copies of the Snowmobile Safety Laws; 10,000 "Minnesota Mammals" (reprint); 10,000 "Minnesota Facts & Figures" (reprint); 1,500 each of four "Natural Resource Heritage" titles on water regulations and wildlife refuges; 5,000 each of six environmental education booklets on wilderness canoeing, rock climbing, winter camping, cross-country skiing, backpacking and snowshoeing.

The section has two employees who (in addition to their regular duties) serve as state Publication Liaison Officers. They reviewed, and assisted other DNR employees in preparation of more than 300 printing requisitions during FY 80. In many instances, the PLO's suggested cost and time-saving procedures and materials.

During the year, some 10,000 pieces of literature were provided to the public in response to mail, telephone, and walk-in requests.

Boat And Water Safety Section

This section coordinates the boating and water safety activities of the DNR including liaison with the U.S. Coast Guard, other states; and Minnesota state departments, counties and public and private safety groups, as well as the public as a whole.

One of the primary tasks of the section is to administer the legislatively-mandated boating safety education program for persons 13 to 17 years of age.

Since its inception in 1975 the program has certified nearly 45,000 teenagers. During FY 80, a total of 4,628 students were issued operator's permits and the course materials were revised and reprinted. (Note: The text for this course won its second award from the American Conservation Information Association.)

Other activities during FY 80 included:

*Distribution of approximately 75,000 pieces of general boating safety information, plus printing and distribution of 300,000 copies of the Boating Guide (law synopsis) and 5,000 copies of the exact statutes and rules.

*Displays at two Twin City sport and boat shows (attendance: 200,000).

*Twelve issues of the Boat and Water Safety Newsletter published (500 copies per issue).

*Training sessions (Peace officer Standard and Training Board-approved) for 16 county sheriff's departments, Coast Guard personnel, 75 DNR conservation officers, Emergency Medical Technicians/Paramedics, 75 firemen, U.S. Fish and Wildlife officers and 300 State Patrol Troopers.

*Implementation of motorboat noise control program in cooperation with the Pollution Control Agency.

- *Development of proposed rules and policy on water surface use management through the Water Surface Use committee.
- *Technical assistance and testimony for various divisions within the Department including the Attorney General (both Natural Resource and Criminal Divisions).
- *Processing of approximately 200 accident reports. (Note: Calendar Year 1979 had the lowest boating fatality toll in Minnesota's history, despite a record 563,850 watercraft registered.)

Environmental Education

The Conservation Education Act 1976 (Sec. 84.025, M.S. 1976, Sec. 126.111) and the Legislative Act of 1978 gives the Bureau primary responsibility for developing and conducting education programs for school-aged children and adults in the areas of Outdoor Education/Recreation, Natural Resource Education and the Minnesota Volunteer Adult Hunter Education Program.

Since the inception of the Education Program (1970), more than 30,000 teachers throughout Minnesota have received inservice training. The Bureau designs and publishes numerous educational materials for distribution through its own workshop programs. The workshop programs deal with the general public, special outdoor leadership training sessions for outdoor educators and 16-hour classes, two-hour clinics and one-day seminars for adult hunters. Since its inception in 1970, the environmental education program has received one first place, two second place, and three third place international awards.

Audio-Visual Section

Produces annually, 13 half-hour public service TV programs, "The North Star Report" carried by six statewide commercial TV stations and three catellite outlets.

Spot announcements ranging from 30 to 60 seconds are provided to all Minnesota commercial television stations. A 30-second wildlife enforcement spot announcement produced in 1979 by the Bureau of Information and Education received a first place international award.

Provides photographic services for all disciplines, DNR Regions; produces audio-visual support units for environmental education and training programs; produces, or assists Department disciplines in producing public informational slide series, scripts, film strips.

Through its film loan library, annually distributes an average of 5,000 films; with a combined audience in excess of 350,000. Films are also extensively used for educational and training purposes, and interpretive services programs.

In a cooperative effort with the Department of Energy, the Bureau of Information and Education distributes and provides maintenance and repair service for the Department of Energy's 16mm films (17 titles -- 30 copies), and filmstrips (24 titles -- 38 copies).

State Waterfowl Stamp

The Bureau of Information and Education plans and coordinates the annual Migratory Waterfowl Stamp competition among Minnesota wildlife artists, designs stamp from winning entry and arranges printing of 300,000 copies.

LEGISLATIVE REFERENCE LIBRARY
STATE OF MINNESOTA

MINNESOTA ENVIRONMENTAL EDUCATION BOARD

The Minnesota Environmental Education Board (MEEB) has been associated with the DNR for administrative purposes, since 1978.

State statutes mandate that the MEEB "encourage development of life values and a style of living which fosters the constructive use, rather than exploitation of natural resources and the environment", and "promote coordination among various groups and institutions, developing and distributing environmental education materials, including but not limited to formal and non-formal education, pre-kindergarten through grade twelve, post-secondary, vocational, college and adult education." (Minnesota Statutes, 1974, Sec. 116E.01)

The Board and its 13 regional councils meet these charges by initiating education and information programs on environmental issues important to those regions; by cooperating with and assisting other agencies and organizations who implement such programs, and by promoting environmental education in the formal education system.

General Structure

The MEEB system comprises a state board and 13 regional councils composed of 197 volunteers. The state board is made up of one representative from each of the regional councils and six at-large members appointed by the Governor. The board and councils are served by a staff composed of an executive director, five regional coordinators, and two secretaries. The board is aided by six ex-officio members representing state and federal agencies active in environmental education and information: the state departments of Education and Natural Resources, Minnesota Pollution Control Agency, Minnesota Education Association, Agriculture Service, and the U.S. Soil Conservation Service.

National Awards

During the Biennium one MEEB staff person and one of the regional councils each received American Motors National Awards for outstanding achievement in conservation education.

There are only two such professional awards and six such group awards made each year.

Services Offered - FY '80

People served by MEEB's regional volunteers include elementary and secondary students and teachers, participants in community education courses, college students, and elected officials.

Each regional council develops a work plan every spring to determine what environmental education program it will design (or co-sponsor with cooperating groups or agencies) to reach the people in their respective multi-county areas.

During FY '80, regional environmental education councils sponsored 33 teacher workshops, 22 energy programs, 15 public forums, 14 programs on land use and 12 on water quality, 13 on hunter education, 10 slide or tape programs and exhibits, 16 on wildlife. One school district grant was awarded.

Local volunteers believe they are shaping Minnesota's future for the better, especially in two priority areas:

Energy problems: providing public information programs in conjunction with the Minnesota Energy Agency and other groups.

State environmental and natural resource policies: including eminent domain, solid and hazardous waste disposal and resource recovery, hunter education and acid precipitation.

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LEGAL

Legal matters of the DNR are handled by a Deputy Attorney General and assistants appointed by the State Attorney General. Among the services provided during the Biennium were the following:

- *Litigation in Federal Courts (including District Courts, Courts of Appeal, and the Supreme Court) and state District Courts and tribunals other than district courts consisting of 128 cases, with 133 closed.
- *Acquisition of lands for the Department consisting of 375 tracts for the Division of Fish and Wildlife (wetlands, spawning areas, and public accesses to lakes); 406 for Parks and Recreation; legal work on 69 other parcels acquired for the department; for a total of 850 tracts for which abstracts were examined, title opinions written and deeds prepared.
- *Various legal services necessary for the preparation and accomplishment of 121 public hearings before the Commissioner of Natural Resources.
- *Collection of 112 delinquent timber accounts.
- *Disposition of 10 legislative claims.
- *Completion of 25 land exchanges with 18 pending.
- *Approval as to form and execution of 9,539 documents including various contracts, permits, deeds, leases, licenses and federal aid documents.
- *Preparation of 139 Commissioner's Orders.
- *Preparation of 11 formal Attorney General's Opinions; and numerous written advisory opinions to the various agencies and offices served by the staff.

In addition to these specific, quantifiable legal services, the Legal Bureau staff has provided services to the Department in connection with the drafting of 42 legislative bills for introduction in the 1979 and 1981 Legislative Sessions; the drafting and adoption of rules relating to boat and water safety, water surface use, mineland reclamation, water appropriation, state parks and forest campgrounds, dam safety, lake improvement districts, snowmobiles, and the Cloquet, Cannon, and Mississippi wild and scenic rivers; appearances before legislative commissions and committees; preparation of pamphlets containing the laws administered by DNR (such as the handbook of Game and Fish laws); the drafting of Commissioner's delegation orders; and assistance in the drafting, amending, and administering of the several hundred mineral leases currently in effect.

The staff also provided legal services to the State Soil and Water Conservation Commission, the Land Exchange Board and the State Executive Council.

LANDAcquisition and Exchange Section

The Bureau of Land's Acquisition and Exchange Section has two basic functions:

Land acquisition involves the procurement of land for State Wildlife Management areas, parks, forests, trails, fisheries management areas, wild and scenic rivers, scientific and natural areas, water access sites, canoe and boating routes, waterbank areas, and other DNR purposes. This involves obtaining the rights to the land whether it is in fee title, easement, lease, gift, or another category.

To carry out the acquisition, the Section is responsible for obtaining appraisals; negotiating with landowners; handling relocation problems; obtaining surveys; and working with legal staff, private interest groups, and local political subdivisions. This includes maintaining files on all land acquisition transactions, whether in process or completed, and preparing progress reports and other reports relative to the land acquisition program.

During F.Y. 80, rights were acquired in 387 parcels of land totaling 28,149 acres, at a cost of \$12,229,883.17.

Land exchange involves working with all disciplines of the Department, plus regional administrators, counties, federal government, corporations and private individuals. About 70 exchange proposals are received per biennium. These are reviewed to determine whether they are in the best interest of the state, and feasible as well as legally possible. Land exchange provides the only real means of adjusting state ownership patterns; consequently, exchange proposals are carefully reviewed. Proposals having merit are reviewed by the regional administrator and his staff for recommendation to the Land Exchange Board, the final authority on all land exchanges.

During F.Y. 80, a total of 12 land exchanges were completed, involving 1,388.30 acres valued at \$337,451.57.

Records, Leases and Sales SectionRecords

The primary responsibility of the unit is to provide ownership status and other pertinent data to all who request it, for each parcel of state owned DNR administered land. This land comprises about 95 percent of the state owned, state administered land. The records are kept in abstracts, maps, card files and a data processing system, which covers all the foregoing lands, plus tax-forfeited land in all counties which administer significant acreage. The state ownership records contain 5,243,750 acres owned, and 3,488,000 acres which have been sold. Tax forfeited land totals approximately 2,799,187 acres which are in the process of being updated on the data processing file.

The DNR Field Offices, Regions and Areas are provided annually with updated sets of microfiche which list every description of land which is either all or partly state owned DNR administered, and the tax-forfeited land which is state owned, county administered.

Lieu tax payments to the counties are calculated by the Unit. Payments for 1980 totaled \$4.9 million. Payments from special legislation are also calculated, with \$721,530 having been certified for payment during 1980.

State Land Leases, Licenses & Easements

The purpose of leasing, licensing, and granting easements is to provide a means for the public to make use of State Lands for public, private, or commercial purposes when, by law or by policy, the Department is restricted in the sale of the land.

DNR's Bureau of Land is charged with responsibility for the administration of the surface leases, licenses, and easements on state lands. (State land is defined as those lands which are under the control of the Commissioner of Natural Resources.)

State lands are used for various purposes, the most common being: utility rights-of-way, lakeshore and hunting cabin sites, agricultural purposes, gravel removal, and roadways. Before any lease, license or easement is issued, future development of the land is considered by the administering division of the DNR.

As of June 30, 1980 the Bureau of Land was administering a total of 8,491 leases, licenses and easements. This is an increase of 405 from the previous biennium. Revenue from state land for these uses amounted to \$654,792. Revenue increased 33 percent from the previous biennium. This increase is due to an expanded program, updating of fees to more realistic values, collecting 50-year fees for utility crossings, and term fees for some leases and all easements.

State Land Sales

The purpose of sale of state lands is to provide for disposal of state lands that are considered better suited for private development and are surplus to state needs for conservation purposes.

Trust Fund land sales in F.Y. 80 were held in 11 counties, and totaled 1,518.05 acres, plus 44 platted lots. Total income from these trust fund land sales, plus previously existing land sale contracts, was \$247,498.

Consolidated Conservation Area land sales and existing land sale contracts brought in \$91,210 in 1980.

Condemnations on state owned Department of Natural Resources administered land brought in \$215,988 in 1980.

Total income from disposition of land was \$554,696.

Public sentiment at the present time dictates a marked reduction in the sale of "state land." The Department has complied with the wishes of the public and drastically reduced the acreage of land being offered for sale. Neither the attitude of the public, nor that of the Department is expected to change significantly.

Gross revenue for the sale, lease, license and granting of easements on state land through the Bureau of Land was \$1,212,488 for 1980.

DNR LAND INTERESTS ACQUIRED

JULY 1, 1979 to JUNE 30, 1980

<u>Program</u>	<u>Parcels</u>	<u>Acres</u>	<u>Expenditures</u>
Wildlife Management Areas	92	10,248.29	\$ 3,986,122.50
Fisheries Management Areas	97	780.18	803,041.00
State Parks	53	4,958.25	3,003,182.17
Wild and Scenic Rivers	43	971.90	661,193.00
Scientific and Natural Areas	23	5,950.44	403,761.50
State Trails	17	1,769.26	1,331,005.00
Canoe and Boating Routes	6	49.60	57,288.00
Water Access Sites	20	43.71	376,048.00
State Forests	36	3,377.78	1,608,192.00
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Totals	387	28,149.41	\$12,229,833.17

LAND EXCHANGES COMPLETED DURING FISCAL YEAR JULY 1, 1979 - JUNE 30, 1980

Exchange No.	Name	Class A,B,C	State		County		Private		Federal		Date File Completed
			Acres	Value	Acres	Value	Acres	Value	Acres	Value	
B65	U.S. Forest Service & St. Louis County	B			161.00	\$ 7,300.00			40	\$6,600	8-3-79
B63	Gordon Benson & Clearwater County	B			40.00	3,200.00	5.60	\$ 3,200.00			8-10-79
398	Leo Thomsen	A	13.00	\$ 9,400			13.00	9,400.00			9-27-79
B72	Charles and Mary Finn & St. Louis County	B			4.50	450.00	4.50	550.00			10-12-79
B74	Duane Enger & Cass County	B			56.42	47,400.00	135.25	44,900.00			10-12-79
B75	Martin Nier & Crow Wing County	B			20.00	2,820.00	20.00	2,330.00			10-12-79
B76	Potlatch Corp. and Cass County	B			232.00	50,019.85	199.00	44,045.87			11-16-79
374	James Wodele	A	68.00	37,150			87.00	37,150.00			1-4-80
434	Mary Ann Smith	A	14.60	4,300			21.20	5,300.00			4-7-80
321	Thomas Fritz	C	1.49	2,700			1.74	2,890.00			4-15-80
416	Russell Lhotka	A	40.00	14,200			50.00	14,200.00			4-17-80
B77	Zimmerman Realty & Cass County	B			80.00	14,026.54	80.00	13,919.31			5-2-80

Class "A" Land

Total exchanges completed	4
Total acreage of state land exchanged	135.60
Total value of state land exchanged	\$65,050.00
Total acreage of private land exchanged	171.20
Total value of private land exchanged	\$66,050.00

Class "C" Land

Total exchanges completed	1
Total acreage of state land exchanged	1.49
Total value of state land exchanged	\$2,700.00
Total acreage of private land exchanged	1.74
Total value of private land exchanged	\$2,890.00

Class "B" Land

Total exchanges completed	7
Total acreage of county land exchanged	593.92
Total value of county land exchanged	\$125,216.39
Total acreage of private land exchanged	444.35
Total value of private land exchanged	\$108,945.18
Total acreage of federal land exchanged	40.00
Total value of federal land exchanged	\$ 6,600.00

Class "A&C" Land Exchanges completed

None

State Federal Land Exchanges completed

None

ENGINEERING

The Bureau of Engineering is staffed by professional engineers, land surveyors and architectural and engineering technicians; with support from clerical and stenographic personnel.

The Bureau provides engineering services for a wide variety of DNR programs. These services include feasibility studies; site investigations; design; preparation of construction plans and specifications; contract administration and construction inspection; land and topographic surveys for state lands, and lands proposed for acquisition and development projects; preparing property plats and legal descriptions for land acquisition; and graphic services for the preparation of maps, signs, charts and displays.

During FY 80, the Bureau generated 127 construction projects with a total value of \$3.3 million. Of this amount, \$500 thousand was realized through regional bids. A total of 150 requests for engineering services were satisfied by the Bureau.

It is anticipated that during FY 81, the Bureau will have another \$3 million in construction under contract and will have fulfilled the majority of engineering requests.

The more significant projects and programs for which the Bureau provided professional services during this period included the following:

Rebuilding of the wastewater collection and treatment systems, water supply system and campground at Gooseberry Falls State Park to satisfy the needs of the park and current MPCA requirements; \$746,000.

Development and construction of the Hibbing Drill Core Library; \$103,444.

Remodeling of the old French River Hatchery building to satisfy the current needs of the hatchery; \$103,830.

Design and construction of the Lake Bemidji Shop and Storage building; \$229,400.

Provided mapping and graphics for printing park, forest and trail maps for public use.

It is the intent of the Bureau to continue improving its abilities so that engineering services are provided in the most efficient and effective manner to the Department and citizens of the state.

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FINANCIAL MANAGEMENT

The Bureau of Financial Management provides the following support services to the operations and management of the Department: General accounting, accounts payable and receivable, internal auditing, budget development and control, complement control, financial advice and consultation, payroll revenue forecasting, reports distribution and other services.

Accomplishments and Performance Indicators

	<u>F.Y. 1980</u>
Annual Spending Plans (coordinate preparation - APIDS)	250
Cost Centers Analyzed (AIDS)	1,150
Invoices Processed (paid)	23,500
Payroll (employees per pay period)	2,600
Revenue/Receipts	\$44,270,000
Direct Appropriations	
General Operations and Management	\$51,038,500
Payments in Lieu of Taxes	5,057,000
LCMR	6,948,200
Resource 2000 Land Acquisition	16,462,500
Capital Budget	887,500
Dam Repair/Reconstruction	2,126,500
Tettegouche State Park	880,000
<u>Total</u>	<u>\$83,400,200</u>

* Biennial Appropriation

Authorized Complement Maintained (total):	
General	926
LCMR	87
Spec. Revenue/Apportionment	18
Game and Fish	479
Gifts and Deposits	2
Federal	96
Bonding	45
<u>Total</u>	<u>1,653.</u>

Federal Indirect Cost Rate	31.7%
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PERSONNEL

The Bureau of Personnel had a very active year in providing the Department with support services in personnel, training and labor relations.

The Bureau was restructured early in the year in an effort to improve services to the Department and employees. The most significant change resulting from this restructuring was the assignment of the responsibility for personnel transaction processing by region and departmental unit to the Bureau's two transactions technicians on an equitable basis. The result was greater familiarization with the accounts served and more direct accountability for the accuracy and timeliness of the transactions processed. With more than 10,000 transactions processed during the year, the continuing concern for efficiency in processing is primary.

During the course of the year, 20 examinations were announced for positions unique to the Department. The Bureau acted on more than 100 reallocation requests ultimately submitted to the Department of Employee Relations for classification decisions. Approximately 150 new position requests were received and processed during the year.

Three major classification studies were initiated by the Personnel Bureau during the year. A study of forest supervisors was completed in February. A study of Division of Fish and Wildlife staff positions was begun early in the year and scheduled for completion by the fall of 1980. A study of the Department's clerical positions was conducted and was also expected to be completed during the fall of 1980.

A labor relations specialist was added to the staff of the Bureau in January to direct the DNR's participation in unit determination hearings, negotiations, and contract administration and grievance handling, along with a variety of other labor relations functions. In April, following a unit determination hearing and an election, the Department's clerical and administrative employees were successful in organizing. They are represented exclusively by Council 6 of the American Federation of State, County and Municipal Employees and are covered by the contract for the existing Council 6 unit in the Department. With the establishment of this unit, virtually all Department employees (except for managers, supervisors, and confidential employees) became covered by a labor agreement.

The Legislative Commission on Employee Relations, established during the 1979 legislative session, introduced legislation which was ultimately passed during the 1980 session. It significantly changed the Minnesota Public Employees Labor Relations Act, including a dramatic change in the state's bargaining unit structure. Sixteen bargaining units were created for state employees, along statewide occupational lines, with a transition process from the existing 116 units. The immediate impact of this change in the DNR was an increase from two to eight in the number of bargaining units. An obvious increase in activity in the labor relations area, as well as a change in the relationship between the Department's management and its employees also has resulted from the new legislation.

Training

During the past year, the Training Section has worked to develop employees to their optimum potential by offering courses in several fields.

In the management/supervisory field the thrust, other than routine management courses for new managers and supervisors, has been in the area of training toward maximum citizen participation in the decisional process.

Technical training for natural resources specialists also carried a theme of effective public interaction.

DNR's Division of Parks and Recreation devoted an entire annual session to "Public Relations".

The Division of Enforcement has made extensive revisions to the basic curriculum offered new conservation officers, with emphasis on interpersonal skills.

Courses on various topics are offered on a monthly basis to help employees either to progress along the career ladder or to work at their maximum in their present positions. Courses have been offered to increase sensitivity to minorities and the handicapped. Representatives of bureaus with heavy public contact have received training in American Sign Language, again in an attempt to improve communication.

In summary, the primary efforts of Training during the past year have been directed toward improving employee skills in public interaction; expanding the capacity of the DNR to respond to citizen input; and enhancing the public's concept of DNR employees.

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FIELD SERVICES

The Bureau of Field Services is a support unit that provides service and purchased products for DNR installations and 1,605 personnel located statewide. The activity places priority on providing expertise in the numerous areas of service in order to minimize the amount of time resource managers spend on the support function.

Primary areas of support include equipment and supply purchase; equipment maintenance, repair and disposal; building maintenance and repair, coordination of new construction and building disposal; acquisition of Federal Excess and Surplus Property; coordination of the DNR Safety Program and maintenance and control of fixed asset inventory for the Department.

Field Services accomplishments during the Biennium include the following:

Processed 1,830 requisitions for purchase and the invoices for payment; ordered and issued stock items totalling some \$763,000; maintained and repaired, on a continuing basis, some 2,000 pieces of self-propelled equipment; maintained for immediate issue about 1,700 forest fire cache items at DNR's two Service Centers.

Also, maintained equipment pools at DNR's six regions and two Service Centers, averaging 106 pieces of equipment; upgraded 80 pieces of equipment by relocating within DNR; "downsized" approximately 50 pieces of self-propelled equipment for energy conservation; coordinated repair of Department buildings, disposed of 30 inventory buildings and 175 structures acquired incidental to the purchase of land.

Other significant accomplishments during Fiscal Year 80:

*Evaluated and rated all self-propelled vehicles annually to determine condition, mileage and need.

*Conducted four auctions to dispose of used surplus equipment.

*Acquired Federal Excess and State Surplus property for eligible programs, including rural fire protection.

*Updated computer runs on building data.

*Developed facility square feet/repair schedule for Department buildings.

*Coordinated statewide DNR physical count and reconciliation of fixed asset inventory.

LICENSING

DNR's License Center is located at 625 North Robert Street, St. Paul. The Center's counter service averages about 200 customers per day and as many as 500 during peak periods. Game, fish and boat licenses; snowmobile registrations, state park stickers, duck stamps and Leech Lake stamps are sold at the counter. Hours are 8 a.m. to 5 p.m. A full staff is maintained during the lunch hour to provide better service to the public.

The addition of new Deputy registrars, who act as agents of DNR in the registration of boats and snowmobiles, bring the total to 157 throughout the state. When applications are made through Deputy Registrars, the individual is issued a 30-day permit to operate the boat or snowmobile until the License Center processes the application. Reports are submitted daily to the Center and it takes about ten days to process and mail registrations and licenses to owners along with a copy of current laws and regulations. Approximately 200,000 boat licenses and 80,000 snowmobile registrations are processed annually.

The License Center distributes all fish and wildlife licenses for the DNR. They are shipped to the 87 county auditors, then distributed by the latter to the 3,400 agents throughout the state. Improvement has continued on computer programs, insuring more rapid service to the public and accurate audit trails as required by public examiners.

The Center is now administering the three drawings for the hunting seasons: the annual doe and turkey drawings; and the moose drawing, which occurs every other year.

The Center annually produces about \$20 million in revenue.

Minnesota currently ranks first in the nation in snowmobile registration, second in boat licensing, second in the number of fish licenses issued, and seventh in the number of game licenses.

MANAGEMENT INFORMATION SYSTEMS

The budgetary and fiscal monitoring of all departmental computer applications transpire in this Bureau. Of the 86 continuing computer applications, Information Systems provides direction for updating, maintenance, and-or operational handling for more than 50 percent of the projects. This includes data entry support for the recreational vehicle registration system, which now exceeds 800,000 records; the computerized portion of the Department "hunting license drawing" systems, which have grown to more than 300,000 total entries annually; keying and processing LAWCON (Land and Water Conservation) accounting data; and software developments for the DNR's Self-Propelled and Building inventories.

Bureau personnel currently are engaged in an evaluation of present and projected capabilities of data processing, word processing and telecommunications equipment; with a projected goal of establishing a departmental level full-service function to meet all information requirements. Despite the cost of the initial investment, the rapid evolution of technology in these areas has made this approach to data management not only feasible but economically sound, on both a short and long-term basis. Development in this area must be thoroughly planned to meet the current needs of the Department, while remaining sufficiently flexible to handle the ever-changing demands of resource management.

RECORDS AND OFFICE SERVICES

In addition to providing essential services and assistance to the various units of DNR, and providing informational assistance to the public, the Bureau of Records

and Office Services accomplished the following during FY 80:

Developed a specific Emergency Personnel Protection Plan designed for the protection and orderly movement in emergencies of all 3rd floor Centennial Building personnel to a safe place. A mock fire drill was held and all Centennial Building personnel were evacuated to the Armory in less than seven minutes.

A gasoline conservation program was implemented with a goal of ten percent reduction in passenger care mileage over the same period one year ago. DNR has maintained a 13.4 percent decrease in passenger car miles driven.

The Administrator served on a DNR Word Processing Task Force established to determine the type of equipment which would best handle DNR's needs, both present and future.

Three "4500" copy machines were purchased in January, 1980. Although 69,680 more copies were run on the new equipment in the first six months of operation than on the old copier for a like period, use of the new machines effected a savings of \$5,000.

SPECIAL SERVICES

The Special Services Bureau provides overall direction and supervision for Young Adult Conservation Corps, Youth Conservation Corps, Affirmative Action, Field Services Safety Project, Wild Rice Project, and the Employees Assistance programs.

Young Adult Conservation Corps

The Young Adult Conservation Corps (YACC) is a federal program funded by the U.S. Department of the Interior and the Department of Agriculture under contract of the Minnesota DNR to employ young people throughout the state in conservation work projects.

The YACC provides up to 12 months of employment for individuals 16-23 years of age, who are out of school and unemployed. The pay is the federal minimum wage, with incentive pay increases available for outstanding performance.

The YACC program offers work opportunities for these young people in two settings: a residential camp where the enrollees live and work in projects in nearby state parks and forest areas; and a non-residential setting whereby they live at home and commute to work. The latter comprises the largest component of this program. With sites scattered throughout the entire state, the YACC is able to provide different types of work opportunities for young people from many different areas.

Youth Conservation Corps

The Youth Conservation Corps (YCC) provides work opportunities during the summer months for youth ages 15-18 with provisions of 30 hours of work each week, with ten hours dedicated to environmental awareness and education. The YCC also has

residential and non-residential camps providing the same opportunities as the Young Adult Conservation Corps.

Affirmative Action Program

The Affirmative Action Policy and Procedures are developed by the Affirmative Action Director and approved by the Commissioner. The policies and procedures of the Director are formulated with the assistance of an Affirmative Action Committee drawn from DNR employees throughout the state.

The Affirmative Action Policies and Procedures have established rigid checks and balances to comply with the state plan which is drawn up by the Affirmative Action Director and it has its appropriate rules and penalties. All DNR unit managers are required to prepare submit for approval an annual affirmative action plan. Established interviewing procedures and guidelines must be followed and are monitored by the Affirmative Action Director. Great emphasis is placed on pre-service, on-the-job training, internships and in-service training programs. There is a great deal of attention given to recruitment within the minority communities in the metropolitan and out-state areas. The minority members of the Department are encouraged to participate on the Affirmative Action Committee to monitor and oversee this recruitment and hiring procedure.

The Affirmative Action Director and the Committee participate in curriculum and job fairs throughout the State of Minnesota to increase recruitment of protected class people.

There is also an additional emphasis on youth. The Affirmative Action Director works very closely with the Youth Programs Director in encouraging protected class persons to take part in the YACC and YCC programs and to consider a career in the Department of Natural Resources.

Projected plans for the Affirmative Action Program include providing human relations training for staff employees to improve the working climate for all persons involved in supervision within the Department.

Field Services Safety Project

The Field Services Specialist for the Department of Natural Resources supervises and monitors all safety projects throughout the state. All safety procedures and departmental policies are developed by the Specialist and are disseminated to all personnel of the Department.

The Specialist is also in charge of an educational program of field safety and conducts meetings and educational projects throughout the state.

Wild Rice Project

The Wild Rice Director is responsible for the development of the Commissioner's Order that governs the wild rice harvest and develops a synopsis that is distributed

to the public to further explain the rules and regulations.

The Director is also responsible for all educational materials explaining the process of the wild rice harvest throughout the State of Minnesota.

It is anticipated that in the next biennium, the wild rice project will cooperate with the University of Minnesota's Experimental Station in the development of the research project to further understand and assist in the management of the wild rice crop.

Employee Assistance Program

The Employee Assistance Program of the DNR is directly related to the Minnesota Employee Assistance Program which is under Executive Order 79-18 of the governor's office.

The program is designed to help a DNR employee whose job is adversely affected by any personal problem. The latter includes alcohol and other chemical dependency; and marital, legal, financial and general psychological concerns.

COMMUNITY LIAISON

The DNR's Community Liaison Office has moved to the Regional office in Bemidji in order to be closer to tribal activities.

During FY 80, the Department's Community Liaison Officer worked with the Red Lake Indian Reservation; the Minnesota Chippewa Tribe, comprised of the Mille Lacs, White Earth, Leech Lake, Fond du Lac, Grand Portage, and Bois Forte (Nett Lake) reservations; and the Upper and Lower Sioux communities.

The monitoring of the Leech Lake-DNR Agreement is progressing. This includes the upgrading and maintenance of enforcement equipment and the continuing training and upgrading of enforcement officers.

The 1980 Legislature passed enabling legislation to allow the Commissioner of Natural Resources to enter into agreements with the Leech Lake and White Earth reservations relative to hunting and fishing licenses. The agreements, presently being negotiated, will allow the bands to receive a percentage of State license fees and will eliminate the present restricted-unrestricted license situation.

An agreement relative to commercial fishing in Lake Superior waters off the Grand Portage Reservation is presently being negotiated. This will allow band members to take a prescribed number of lake trout for commercial purposes each year, and provide the Department with the information needed to monitor the status of the trout population.

DNR's program to assist in providing identification cards for tribal members is being extended to all reservations, including the Sioux communities. Plans are in progress to provide definitive markings for reservation areas.

Other projects include a standardized marking and tagging system of all animals trapped on reservation lands, and the cross-deputization by the State of all certified Indian Conservation Officers.

