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MOOSE LAKE AREA FOREST RESOURCE MANAGEMENT PLAN SUMMARY

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Department of Natural Resources
Division of Forestry
St. Paul, Minnesota 55146

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HISTORY OF THE MOOSE LAKE AREA

Abundant natural resources have contributed significantly to development of the Moose Lake Area (Pine, Kanabec, and southern Carlton counties). Virgin white and red pine, interspersed with spruce and hardwoods, originally covered the area. During the period of early settlement, fur traders moved westward across Minnesota in search of the valuable pelts that were in high demand in Europe. The Indians eagerly traded furs for articles such as knives, hatchets, needles, trinkets, cloth, guns, and liquor. In 1804, Thomas Connor of the British Northwest Company established the first semi-permanent wintering post in the state on the banks of the Snake River by Cross and Pokegama lakes near Pine City. The post has been reconstructed and today is maintained by the Minnesota Historical Society.

By 1850 the demand for furs had slackened and the supply dwindled. Lumber replaced the fur industry as the region's most important activity. The late 1800's proved to be the peak of lumbering activity in Carlton, Kanabec, and Pine counties. Numerous towns began as sawmilling centers or supply depots for the multitude of logging operations. Many small communities such as Rock Creek and Rutledge had as many as five sawmills. Log drives were an annual spring occurrence on nearly every river and stream in the area. In the peak year, 1890, approximately 3.5 million logs totalling over 452 million board feet were guided through the Stillwater Boom.

The logging was followed by fire. Sometimes cutover lands were burned to protect the remaining stands of timber; frequently the fires were accidental. On September 1, 1894 brush and stumps in the cutover areas and swamps of western Pine County that had been smoldering all summer burst into flame, resulting in the ravaging Hinckley Fire. Sparks and burning embers set the mill yard at Hinckley and the dry swamp to the west of the village afire. In a matter of hours, the towns of Hinckley, Brook Park, Mission Creek, Friesland, Gronigen, Finlayson and Sandstone were destroyed and 418 people were dead. Later, these towns were completely rebuilt. Another tragic fire on October 12, 1918 destroyed the towns of Moose Lake and Cloquet. Fires lashed by gusts of wind up to 72 miles per hour raged over an area of more than 1,500 square miles. Property loss was estimated at \$28 million and 438 lives were lost. The villages and farms destroyed by this fire were also later rebuilt.

By 1950, nearly all of the area's pine forests had been cut or destroyed by fire. Today, second growth hardwood forests have replaced the pine forests. Farming, mainly cattle, now plays a large role in the area's economy. About 18 percent of the remaining forest land is protected and managed as part of the state forest system.

MOOSE LAKE AREA
FOREST RESOURCE MANAGEMENT PLAN
SUMMARY

October 1985

Prepared Pursuant to the
Forest Resource Management Act of 1982
(1982 Minnesota Laws, Chapter 511, Section 6)


Minnesota Department of Natural Resources
Division of Forestry
Box 44, 500 Lafayette Road
St. Paul, MN 55146

MOOSE LAKE AREA
FOREST RESOURCE MANAGEMENT PLAN SUMMARY

This plan has been prepared and approved pursuant to 1982 Minnesota Laws, Chapter 511, Section 6, which provides:

Each geographic administrative unit of the division of forestry identified by the commissioner as an appropriate unit for forest resource planning shall have a unit forest resource plan which is consistent with the forest resource management policy and plan, including state reforestation and road policies. The scope and content of the plan shall be determined by the commissioner. A unit plan shall not be implemented until approved by the commissioner.

A unit plan shall set forth the specific goals and objectives for the management, protection, development, and production of forest resources in the administrative unit. A unit plan shall be integrated with other uses not managed under the multiple use, sustained yield principles policy when those uses have been authorized and approved according to law, including compliance with environmental review procedures. Unit plans shall be revised as necessary to remain consistent with the forest resource management plan.



Joseph N. Alexander, Commissioner
Minnesota Department of Natural Resources

30 Oct 85
Date

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● INTRODUCTION

FORMAT AND CONTENT

This summary of the Moose Lake Area Forest Resource Management Plan contains five major sections. The Introduction provides an overview of the planning purpose and process. The Area Overview presents information on the natural, social and economic character of the Moose Lake Area. Resource management guidelines for all Division of Forestry administered lands in the area are summarized in the Land Management Plan. The Program Summary provides a brief description of 18 Division of Forestry programs active in the Moose Lake Area. Program priorities are identified and budget, staffing and accomplishment targets are projected for a 10 year period. The final section, Implementation and Monitoring, outlines a procedure for implementation, revision, and update of the Moose Lake Area Forest Resource Management Plan.

Appendices include:

- Appendix A: Wildlife Species List for the Moose Lake Area
- Appendix B: Description of Principle Game and Non-Game Wildlife Species in the Moose Lake Area
- Appendix C: Evaluation of Unique Plants and Plant Communities in the Moose Lake Area
- Appendix D: Moose Lake Area Forest Resource Management Compartments
- Appendix E: Timber Regulation Model
- Appendix F: Moose Lake Area Fire Management Plan
- Appendix G: Moose Lake Area Forest Recreation Sub-Area Plan
- Appendix H: Soil Resource Interpretations and Forest Management Guidelines for Geomorphic Regions in the Moose Lake Area
- Appendix I: Wild and Scenic River Rules
- Appendix J: Protected Waters Map and Inventory

For more detailed information on these appendices please consult the Moose Lake Area Forest Resource Management Plan, available from the Minnesota Department of Natural Resources, Division of Forestry at the following addresses:

Moose Lake Area Forest Supervisor
DNR, Division of Forestry
Route 2, 701 South Kenwood
Moose Lake, MN 55767
(218) 485-4474

Forest Planning Supervisor
DNR, Division of Forestry
Box 44, 500 Lafayette Road
St. Paul, MN 55146
(612) 297-2115

PLANNING PURPOSE AND PROCESS

The purpose of an Area Forest Resource Management Plan is to set forth specific goals and objectives for the management, protection, development and production of forest resources in a Division of Forestry administrative area

for a 10 year period. Area plans combine assessment, land management and program elements to provide guidance for area forestry programs and management activities. The plans are also designed to help coordinate the Division of Forestry's activities in an area with those of other Department of Natural Resources (DNR) administrative units, other agencies, local governments and the private sector.

The Moose Lake Area Forest Resource Management Plan was developed by a DNR interdisciplinary planning team. The team consisted of DNR natural resource specialists from several divisions, including foresters, wildlife managers, fisheries managers, recreation specialists, hydrologists, minerals specialists, enforcement officers, and others.

PUBLIC INVOLVEMENT

Public meetings or open houses on the plan were held at area and district Forestry offices or various towns in the area in February and August 1984 as well as July and September 1985. Meetings also were held with interest groups such as timber industry representatives, off-road vehicle organizations, environmental groups and others. Both large formal meetings and small informal sessions were conducted.

Public review drafts of the plan and plan summary were made available for public review in mid-June 1985. Over 70 letters, phone calls, and petitions were received regarding the plan. Significant changes have been made in the plan and plan summary as a result of public comments.

LEGAL REQUIREMENTS

The Minnesota DNR is required by state law to complete forest resource plans for geographic administrative areas. The Forest Resource Management Act of 1982 (Minnesota Laws 1982, Chapter 511) also requires the DNR to maintain a comprehensive statewide forest resource management plan designed to implement multiple use, sustained yield policies for management of forest lands under the authority of the commissioner. The Minnesota Forest Resources Plan (MFRP) provides the statewide policy and budget framework within which Area Forest Resource Management Plans are developed. Since the MFRP will be updated every four years, plans must be flexible enough to allow for possible adjustments in management priorities and program direction.

● AREA OVERVIEW

The Moose Lake Area is one of 19 Division of Forestry administrative areas (Figure 1). It includes about 1.5 million acres in Pine and Kanabec counties, and the southern half of Carlton County. Five district offices serve the area with a permanent staff of 20.

The Division of Forestry presently administers 172,403 acres in the Moose Lake Area, including 6 public campgrounds with over 100 campsites, 11 trails totaling 224 miles, and some 250 miles of state forest roads.

Timber sales on state and county lands contribute substantially to the local and regional economy. Fiscal year 1985 timber sales from state lands in the

ADMINISTRATIVE BOUNDARIES & OFFICE LOCATIONS



Moose Lake Area amounted to 25,652 cords. Total economic activity generated from these sales is estimated to have been \$4,032,000 (Douglas Ford, Forest Economist, MN DNR - Forestry, 1985).

Local responsibility for forest fire and pest protection and private landowner assistance rests with the Division of Forestry. Other DNR divisions administer state parks, wildlife management areas, water access sites, trails, and other facilities in the area.

SOCIAL PROFILE

Population

Between 1970 and 1980, the population of the Moose Lake Area increased by 18 percent from 33,319 to 39,301, compared to a 7 percent increase statewide. Net increases were greatest in Pine (18.1 percent) and Kanabec (24.4 percent) counties.

The population of Carlton, Kanabec and Pine counties is expected to increase by 31.9 percent to 81,758* by the year 2010, with the greatest growth in Pine (41.3 percent) and Kanabec (60.4 percent) counties.

Population increases will undoubtedly increase the demand for forest-related products and services in the Moose Lake Area, especially for forest-based recreation opportunities.

Manufacturing

The total payroll for manufacturing in Carlton, Kanabec and Pine counties in 1981 was \$69,569,000, or one percent of the total state payroll. This economic sector was the largest contributor to the total payroll for the three counties. The largest manufacturing category (as measured by employment) was paper and allied products. Lumber and wood products firms are also present in the area. Cloquet area industries exert a major influence over income and employment in the Moose Lake Area.

There are presently 39 active wood products mills in the three county area (Table 1). They consume approximately 84,796 cords per year. The pulp and paper industry generates the major demand for forest products harvested in the Moose Lake Area. Annual demand for wood resources from commercial forest land in Minnesota is projected to increase steadily from the current 2.4 million cords to 3.8 million cords by 1990 and then more gradually to 4.2 million cords by the year 2000.

Recent harvest levels for the Moose Lake Area illustrate a substantial decline in the amount of timber cut. Approximately 54 percent of the 1980 allowable cut from state land was actually harvested. This figure dropped to 27 percent in 1983. Similar figures apply to both county and private lands. The decline was due to the slump in economic activity during this period.

*Figure includes all of Carlton County.

Table 1. Number of Primary Wood Processing Mills by Production Class.

● Active Sawmills (Volume in cords/year)

Production Class	No. of Mills	Production	% of Production
10000+	1	56,800	74
1001-5000	3	12,800	16
251- 500	3	3,540	4
101- 250	8	2,280	3
51- 100	7	1,220	2
0- 50	15	616	1
TOTAL	37	77,256	100

● Active Mills Excluding Sawmills (Volume in cords/year)

Production Class	No. of Mills	Production	% of Production
1001-5000	2	7,540	100

NOTE: North half of Carlton County included.

Source: MN DNR, Division of Forestry, 1983.

Travel and Recreation

Travel, tourism, and outdoor recreation are an important industry in east-central Minnesota. The total travel-generated payroll in the three county area in 1979 amounted to just over \$5.5 million, or 0.6 percent of the state total.

Because of their proximity to the Twin Cities and Duluth, some Moose Lake Area recreation facilities receive considerable use. Future projections of recreational use trends show a need for increased trail mileage, swimming and bicycling opportunities, and additional camping, backpacking and picnic facilities. Also recommended are an increased number of public water access sites for canoe and boating use.

The area receives heavy fish and wildlife-related recreational use. For example, 21,210 resident hunting licenses, 814 trapping licenses, 169 non-resident hunting licenses and 1,591 state waterfowl stamps were sold in Pine, Kanabec and Carlton counties in 1982. Revenues from these sales totaled \$327,512. An additional \$22,000 in issuing fee revenues was also returned directly to the area economy.

Most public recreational facilities in the Moose Lake Area are administered by the Minnesota Department of Natural Resources. The DNR, Division of Parks and Recreation administers St. Croix, Moose Lake and Banning state parks. The DNR's Trails and Waterways Unit has responsibility for most area public water accesses, canoe and boating route rivers and campsites, and many miles of grants-in-aid trail. The Division of Forestry administers 172,403 acres for dispersed recreation, 6 campgrounds, one day use area and 224 miles of trail, as well as several hunter parking lots, primitive campsites and trail shelters.

Other major public recreation providers include the National Park Service, which administers the St. Croix National Wild and Scenic River and is the lead agency for the proposed North Country Trail; the Minnesota Department of Transportation, which provides highway rest areas; and local units of government, which provide county and municipal parks. Over 92,000 acres of county-administered land are available for dispersed recreation.

Private sector recreation facilities in the Moose Lake Area include 18 campgrounds and 3 group camps with 825 and 467 sites, respectively. Private resorts are few.

Transportation

Highways

The Moose Lake Area is reasonably well served by existing transportation facilities. Interstate 35 runs the entire length of the area through Pine and Carlton counties, while State highway 65 provides north-south access through Kanabec County. State highway 23 cuts diagonally across the area from southeastern Kanabec County to east-central Carlton County. Other state highways as well as county and township roads feed into these major arteries, providing good access to most of the area.

Access is also provided by approximately 65 miles of year-round and 185 miles of seasonal state forest roads. State forest road maps, inventory information, and proposed maintenance and improvement projects are described under the State Forest Road Program section of this report.

Airports

Intermediate airports (i.e., paved, lighted runways less than 5,000 feet long) are located at Sandstone and Cloquet. Landing strips (i.e., unpaved, not lighted, and generally 2,500 to 3,500 feet long) are maintained at Mora, Pine City and Moose Lake. The landing strip at Mora is presently being upgraded to an intermediate airport with lights and a paved runway. The airports at Moose Lake and Sandstone, and a private landing strip at Hinckley, are used by the Division of Forestry for fire protection purposes.

Railroads

Two rail companies serve the Moose Lake Area. The Soo Line Railroad operates a line from St. Paul through Danbury, Wisconsin to Superior, Wisconsin and one from Brooten to Superior, Wisconsin through Moose Lake. Burlington Northern Railroad operates a line from the Twin Cities to Duluth paralleling Interstate 35 to Hinckley where it joins with a line which follows

State Highway 23 from Brook Park to Superior, Wisconsin. An additional Burlington Northern line runs from Minneapolis to Brook Park through Grasston and Henriette.

As profitability declines on individual rail lines they sometimes are identified by the rail companies for abandonment. Several rail lines have been or are proposed to be abandoned in the Moose Lake Area. These abandoned corridors provide potential routes for new state forest roads or trails.

ENVIRONMENT AND NATURAL RESOURCES

Geology and Mineral Potential

The Moose Lake Forest Management Area has a diversity of bedrock types which support a high potential for mineral discoveries and development. Historically, the area has been important for dimension stone and copper. Several quarries have produced dimension stone from the Keweenaw sandstone and Warman quartz monzonite. Traces of native copper are common in outcrops of the volcanic rock group. Several old copper mine workings exist in Pine County near Pine City and Hinckley. The volcanic rocks in Minnesota are the southwest continuation of the lava sequence in the Keweenaw Peninsula of Michigan, which has produced copper for more than a century.

More recently, in the 1985 Copper-Nickel lease sale, bids were made by private exploration companies on parcels in four sections of land in Carlton County and one section in Pine County that are within the forest management area. Exploration for minerals on these parcels could lead to mining. Mining potential is an important consideration in making state forest land allocation decisions. Also, oil and gas interest has developed in Pine, Carlton, and Chisago counties in Minnesota and in adjoining Douglas County, Wisconsin. There are now thousands of acres of oil exploration leases on private lands in the Minnesota counties and the several hundred thousand acres of leases in Douglas County. This interest is due to the fact that the mid-continent rift extends north to south through the area.

The geologic setting for the metallic mineral interest includes 1) metamorphosed volcanic-sedimentary rocks with a potential for zinc, copper, lead, gold and silver; 2) volcanic sedimentary rocks and associated (ultramafic) intrusives with good potential for iron, nickel, zinc, copper, lead, gold, silver, and the platinum group metals; 3) a younger group of volcanic sedimentary rocks with potential for copper and silver as well as oil in the rocks overlying the rift zone; and 4) paleozoic rocks in the southeast part of the area with potential for lead and zinc. Other metals or elements that could occur include phosphate, manganese, uranium, and graphite.

Mining potential is an important consideration in making allocation decisions for Division of Forestry administered lands. Mineral resources planning in the DNR, Division of Minerals takes place in a sequence of activities beginning with the evaluation of mineral potential through aero-magnetic, ground geophysics and geochemistry, and geologic mapping projects. Private mineral exploration companies use this data to develop specific areas of interest for detailed exploration. Based on these expressions of interest, and upon the mineral potential studies themselves, the Division of Minerals conducts frequent mineral lease sales.

Water Resources

The many lakes, streams and rivers of east-central Minnesota give this region its particular character. The region, known as the St. Croix Delta, forms a roughly triangular area between the Mississippi and St. Croix River drainages and contains five of Minnesota's major watersheds.

There are 84 area lakes ranging in size from 8 to 1,536 acres and totaling 12,656 surface acres. Most of the lakes are concentrated in a band running from southwestern Kanabec County to just northeast of Barnum in Carlton County. Just over 1,000 miles of streams in the area are designated as protected waters, as are 21,712 acres of water and wetland basins.

The region contains two designated Wild and Scenic Rivers, the Kettle River and the St. Croix National Scenic Riverway. Both rivers and their watersheds contain extremely diverse and outstanding geology, topography, stream bank vegetation and overall recreation opportunities.

Land Use and Ownership

Of the 1,471,258 acres of land in the Moose Lake Area, 320,350 acres (22 percent) are publicly administered, including 223,748 acres by the DNR, 92,221 acres by counties and 4,381 acres by federal agencies. Private lands comprise 1,150,908 acres, or 78 percent of the total area. The Division of Forestry presently administers 172,403 acres and the Divisions of Parks and Recreation and Fish and Wildlife administer 36,784 acres and 11,700 acres, respectively. The remaining state land is administered by other DNR units. Within the state forest boundaries, 149,713 acres (82 percent of the land) is state administered. The rest is held by county and private interests.

Land Use Trends

Development pressures on productive agricultural and forest lands will increase as the population increases, resulting in conversion of agricultural land, clearing of forested lands and drainage of some area wetlands for urban and residential development. The southern part of the Moose Lake Area is likely to experience the greatest change. Permanent single-family housing development pressures will be greatest near existing population centers, along major transportation routes, and in environmentally aesthetic areas (e.g., forest and park lands, rivers and lakes). Seasonal home development is expected to occur throughout the area, primarily in forested areas near lakes and along rivers.

Land Cover

The presettlement vegetation of the Moose Lake Area was a mosaic of five major vegetation types: aspen-birch forest, white and red pine forest, northern hardwood-conifer forest, bog and swamp. Floodplain forest and jack pine forest were minor components. The white and red pine and the northern hardwood-conifer forest have undergone the greatest alteration. Old growth stands of these communities are now rare in the region.

The major causes of alteration to these forest communities were logging and subsequent severe fires. Many of the presettlement vegetation types were

maintained by occasional fires, but these fires in most cases were not as severe as those which followed logging. Much of the land formerly covered by pine forest today supports stands of aspen-birch and jack pine.

Forested lands now comprise 51 percent of the Moose Lake Area (Table 2). Cropland covers 27 percent of the area. Twelve percent of the area is marsh (non-wooded wetland). The remainder of the area's land is made up of urban areas (3 percent), pasture (3 percent), water (2 percent), and windbreaks, idle farmland and other farmland (2 percent).

Table 2. Land Use in the Moose Lake Area.

Land Use (acres)	Total	Carlton*	Kanabec	Pine
Commercial forest	734,187	171,612	134,428	428,147
Cropland with trees	2,820	0	2,820	0
Cropland-no trees	401,450	51,356	128,248	221,846
Farm-idle	4,411	0	0	4,411
Farm-idle with trees	1,550	0	0	1,550
Farm-other	12,522	5,552	4,182	2,788
Improved pasture	27,035	8,230	14,375	4,430
Marsh	180,257	18,080	33,564	128,613
Productive reserve forest	1,606	0	0	1,606
Unproductive forest	15,346	2,794	0	12,552
Urban and other	46,534	9,990	6,941	29,603
Water-census	19,460	2,384	4,269	12,807
Water-noncensus	5,194	1,378	1,272	2,544
Windbreaks	7,179	1,415	0	5,764
Wooded pasture	11,707	3,034	2,971	5,702
TOTAL	1,471,258	275,825	333,070	862,363

*Southern Carlton County only.

Source: Jakes, 1980.

The most extensive forest cover in the area occurs in southeastern Carlton and eastern Pine counties where there are sizable holdings of state and county land. Large tracts of public land such as the remote eastern section of the Nemadji State Forest provide resource management and recreational opportunities not available on private land.

Forest Types

Hardwood forest types comprise 89.6 percent of commercial forest lands* in the Moose Lake Area, with softwood types making up the remaining 11.4 percent. Hardwood timber species make up 93 percent (6,737,000 cords) of the total net timber volume.

*Commercial forest lands are lands that are producing or capable of producing crops of industrial wood and are not withdrawn from timber utilization.

The hardwood forest types are comprised primarily of aspen (54 percent of the total commercial cover types) and northern hardwoods (15 percent), much of which is overmature. Within the aspen type, 180,000 acres are 40 years of age or older. Other major hardwood cover types include lowland hardwoods, paper birch, oak, and balsam poplar, comprising 7 percent, 6 percent, 5 percent and 2 percent, respectively of the area's forest land.

The softwood types are composed of black spruce, balsam fir, tamarack, jack pine, white pine, red pine and white spruce. Of these commercial softwood types, 11 percent are plantations.

Commercial Forest Ownership

Public agencies administer 28 percent (207,000 acres) of the Moose Lake Area's commercial forest land (CFL). The State of Minnesota is the largest public commercial forest landowner with 18 percent. County and municipal governments own 10 percent of the CFL, and miscellaneous federal owners own less than 1 percent.

The remaining 72 percent (527,000 acres) of CFL is held by private owners. Farmers are the largest group of private landowners in the southern half of Carlton, Kanabec and Pine counties, accounting for roughly 40 percent of the CFL. Miscellaneous private individuals own about 27 percent, private corporations hold about 4 percent and forest industries hold approximately 2 percent.

Forest Pests

Canker disease, white pine blister rust, shoot boring insects and the white pine weevil have caused seedling mortality and stem deformation in the Moose Lake Area. In addition, the pine tussock moth and jack pine budworm have periodically caused defoliation and top kill to pine stands in and around the General Andrews State Forest.

The forest tent caterpillar has caused extensive defoliation, growth loss and limited tree mortality in aspen and mixed hardwood stands throughout the Moose Lake Area. The gypsy moth has been collected in urban areas to the east, south and west of the Moose Lake Area. In the next ten years it could become a serious threat to oak stands in the Mora, Hinckley and Eaglehead districts. High hazard areas for early introduction and spread include parks and scenic areas along river corridors.

Existing unmanaged plantations of Scots, Austrian, and ponderosa pine on private land near the Willow River Nursery currently contain numerous needlecast and insect problems. Planting stock imported from out of state nurseries by local Christmas tree growers can also serve as a source for pest introduction. Sites requiring special pest management attention in the area include the Willow River Nursery, seed orchards and recreation areas.

Fish and Wildlife

Major land conversions and habitat changes have altered the distribution of wildlife species in the Moose Lake Area. Moose formerly ranged throughout Pine and Kanabec counties. The peripheral range of caribou used to extend

southward through northern Pine and Kanabec counties, and elk ranged from the prairie to the hardwoods in the southern part of the Moose Lake Area. Prior to 1860, white-tailed deer were rare.

Logging, subsequent fires and settler activity changed the habitat to types that favor transitional zone, prairie and farmland species of wildlife (e.g., sharp-tailed grouse, white-tailed deer and ring-necked pheasant). These habitat conditions persisted until the mid 1960's when maturing forests, improved fire control and farm abandonment in the forested parts of the Moose Lake Area again began to favor presettlement wildlife species. These habitat changes are still occurring. Due to past and current market conditions, timber harvesting has not offset the trend.

There are presently 210 species of birds, 49 species of mammals and 27 species of reptiles and amphibians reported in the Moose Lake Area. An additional 20 species of birds can be considered as casual migrants or nesters, irregular migrants or accidental. The majority of these species are affected by forest management practices. Management needs vary depending on the species, and in some cases are not well documented.

● LAND MANAGEMENT PLAN SUMMARY

IDENTIFICATION OF FOREST RESOURCE MANAGEMENT COMPARTMENTS

The basic purpose of the land management plan is to describe how Division of Forestry administered lands in the Moose Lake Area will be managed. Forest resource management compartments defined in terms of resource characteristics and ownership patterns are the basic unit in the land management plan. A forest resource management compartment is defined as a contiguous or nearly contiguous area of Division of Forestry administered land with resource characteristics that permit management under a specified set of guidelines to produce a desired mix of forest resource outputs.

Approximately 125 forest resource management compartments were identified in the Moose Lake Area. Twenty of the compartments fall within existing state forest boundaries. District Foresters were responsible for delineating preliminary compartments within state forests based on their perception of areas that are currently managed under various sets of guidelines. These preliminary compartments were modified when necessary to reflect future management direction. Ten of the compartments are administrative sites. The remaining compartments include all forestry administered lands outside of state forests (i.e. undedicated lands). The compartments are shown on the Moose Lake Area Land Ownership/Land Administration map attached to this summary.

Appendix A to this summary includes two examples of compartment descriptions: the proposed Black Lake Bog Scientific and Natural Area and the Nemadji East compartment, both in the Nemadji State Forest in northeastern Pine County. Copies of other compartment descriptions are available upon request from the offices listed in the Introduction.

SUMMARY OF RESOURCE MANAGEMENT GUIDELINES AND PROPOSED ACTIONS

The following sections describe the standard management guidelines that apply to Division of Forestry administered lands and list specific projects or exceptions to the standard guidelines that are proposed for various compartments.

Access

In general most of the land in the Moose Lake Area within state forest boundaries is well accessed by 249.2 miles of state forest roads. About 64.3 miles of this total are considered permanent, all weather road (Class 1 to 4). The remaining mileage is Class 5 and generally useable during dry periods or in the winter only.

Access proposals for the Moose Lake Area are of two types: those which concern the construction, upgrading, and redevelopment of the existing state forest roads and those to acquire legal access to Division of Forestry administered lands. This plan recommends 12 miles of new permanent road (Table 3). If the Soo Line Railroad right-of-way is acquired in the Nemadji and St. Croix state forests, one of the potential uses of the grade could be a state forest road. Another 13.8 miles are scheduled for major redevelopment to better serve transportation needs. Class 5 roads for timber access will continue to be developed on an as needed basis. Road development proposals will be reviewed by the Division of Waters for compliance with water permit and floodplain management requirements. Two compartments, the Nemadji-East and the Nemadji-Black Lake Bog SNA, restrict new road building.

Table 3. Proposed State Forest Road Construction - Moose Lake Area, 1985-94.

Road Name	County	State Forest	Construction	
			Miles	Class
Net Lake	Pine	Nemadji	3.0	4
General Andrews	Pine	General Andrews	9.0	4
TOTAL			12.0	

Table 4. Proposed State Forest Road Reconstruction - Moose Lake Area, 1985-94.

Road Name	County	State Forest	Miles of	
			Reconstruction	Class
Park Trail	Pine	Nemadji	4.4	4 to 3
Tamarack	Pine	St. Croix	5.1	4 to 3
Kanabec	Kanabec	Rum River	4.3	4 to 3
TOTAL			13.8	

Access to some areas of state forests and a number of undedicated parcels is constrained by lack of adequate legal access. Adequacy of legal access to each compartment was determined as part of the compartment analysis. Proposals for acquisition of legal access were made for selected compartments which were proposed for continued Division of Forestry management (those

within state forests or those proposed for addition to state forests). Acquisition of 10.75 miles of new right-of-way is proposed. Most acquisition will probably take the form of easements across private property. Table 5 identifies access proposals on a compartment basis.

Table 5. Access Acquisition Proposals - Moose Lake Area, 1985-94.

Compartment	Acres of State Land Accessed	Approximate Mileage Necessary for Legal Access	Access Priority Score*	Comments
9. General C.C. Andrews (General Management)	NA	1	50, 46, 31	Three separate projects. See Appendix D in primary document for details.
14. Nemadji (General Management)	NA	2	65	See Appendix D in primary document for details.
19. St. Croix (General Management)	292	1/4	59	Possible road on Soo Line grade. Identify existing township rights-of way to northern portion of forest. Obtain legal land access to 36-42-16.
20. Snake River (General Management)	1,500	1/2	62	Construct class 5 road on easement.
37. 16-46-20	40	1/4	30	
39. 16-46-20	40	1/4	30	Possible gravel. Obtain access only if gravel is present. Otherwise dispose of land.
46. 16-47-20	130	1/4	26	Access land west of river.
56. 32-46-21	480	1/4	31	
61. 16-47-21	480	1/2		Access land south of river.
65. 16-44-20	104	1/4	39	On Fox Lake.
67. 16-44-20	77	1/4	39	On Little Mud Lake.
74. 34-43-21	153	1/2	23	On Elbow and Grass lakes.
76. 16-44-21	320	1/4	33	Access land east of Little Bremen Creek.

Compartment	Acres of State Land Accessed	Approximate Mileage Necessary for Legal Access	Access Priority Score*	Comments
79. 36-45-21	280	1/4	50	
81. 16-47-16	80	3/4		Total public land accessed 440 acres.
105. 36-43-19	640	1/4		Also access 206 acres of county land.
107. 36-41-19	100	1	35	Access land east of Sand Creek.
117. 36-41-22	560	1/2	54	Develop class 5 road on easement.
121. 16-42-23	160	1	30	Develop class 5 road on easement. Also accesses 200 acres of county and 80 acres of wildlife land.
124. 36-42-24	160	1/2	42	Develop class 5 road on easement.
126. 23, 24, 26-39-25	400	1/4	49	Develop class 5 road on easement.
TOTAL		10 3/4 miles		

*Access priority score determined based on number of years until access is needed for timber or wildlife habitat management, state forest status, and acreage accessed. Possible scores range from 23 to 65. The higher the number, the higher the priority for acquiring the access.

It is often desirable to use gates or other means to restrict vehicular access to selected roads. Minnesota Statutes 88.22 authorizes the Commissioner of Natural Resources to close roads into lands used for conservation purposes. The primary reasons for limiting access are to:

1. Prevent rutting of roads during wet periods.
2. Limit hunter access to foot traffic only on roads or trails developed as part of wildlife habitat improvement projects.
3. Limit use of certain sensitive areas and reduce the need for road maintenance.
4. Protect grass or clover ground cover planted on roads or trails without gravel surfaces.
5. Reduce fire hazards.
6. Effectively enforce timber trespass and game laws.

Table 6 lists the locations where gates are proposed on existing roads or trails. Gates or other means of closing roads will be included in plans for new roads.

Table 6. Road and Trail Gate Proposals - Moose Lake Area, 1985-94.

<u>High Priority</u>		
32. 36-46-18	Access Trail	36-46-18
14. Nemadji (Gen. Mgmt.)	Aspen Trail	11-44-17
14. Nemadji (Gen. Mgmt.)	Spruce Trail	13-44-17
14. Nemadji (Gen. Mgmt.)	Access Trail off Harlis Road	26-46-16
14. Nemadji (Gen. Mgmt.)	Round Lake Trail	27-46-16
14. Nemadji (Gen. Mgmt.)	Bald Eagle Trail	17-45-16
14. Nemadji (Gen. Mgmt.)	Lost Trail	4-45-16
88. 16-44-17	Black Bear Trail	16-44-17
19. St. Croix (Gen. Mgmt.)	Wilma Road	16-42-17
19. St. Croix (Gen. Mgmt.)	St. Croix Trail	4-41-16
19. St. Croix (Gen. Mgmt.)	Access Trail	31-42-16
14. Nemadji (Gen. Mgmt.)	Access Trail	32-44-16
14. Nemadji (Gen. Mgmt.)	Access Trail	18-44-16
19. St. Croix (Gen. Mgmt.)	Access Trail	30-42-16
2. Chengwatana (Gen. Mgmt.)	Chengwatana Forest Road	15-39-20
16. Rum River (Gen. Mgmt.)	Kanabec Forest Road	7-39-25
<u>Medium Priority</u>		
13. Nemadji (Gen. Mgmt.)	Ruffed Grouse Road	19-45-16
19. St. Croix (Gen. Mgmt.)	Basswood Trail	29-42-17
14. Nemadji (Gen. Mgmt.)	Access Trail	26-44-16
2. Chengwatana (Gen. Mgmt.)	Boundary Trail Crossing	---
1. Chengwatana (Snake River Campground)	Boundary Trail Crossing	---
2. Chengwatana (Gen. Mgmt.)	Access Trail at end of Chengwatana Forest Road Extension	19-39-19
<u>Low Priority</u>		
7. General C.C. Andrews (Separate Sect.)	Access Trail	36-45-19
2. Chengwatana (Gen. Mgmt.)	Access Trail at end of township road	36-40-20
20. Snake River (Gen. Mgmt.)	Chesley Brook Road Fuelwood Area	1-42-23

Fish and Wildlife Habitat Management

Division of Forestry administered lands in the Moose Lake Area are managed in accordance with the department policy on wildlife/forestry coordination and the associated Forestry/Wildlife Habitat Management Guidelines (MN DNR, Wildlife, 1985). This land management plan was developed in cooperation with Division of Fish and Wildlife representatives. Development and approval of this plan does not replace the project review procedure established by the wildlife/forestry coordination policy.

Wildlife management in most of the Moose Lake Area will emphasize forest game species including deer, grouse, bear, beaver, woodcock and snowshoe hare. These species are favored by young forests, smaller cuttings and a high proportion of aspen.

High populations of these game species benefit hunters and others interested in viewing wildlife. Habitat for these game species benefits many other kinds of wildlife that need openings and young forest. It also provides a good food source for various predators and scavengers.

Most forest resource management compartments will be managed for game species according to the Forestry/Wildlife Habitat Management Guidelines. However, there are many sites where management practices will be modified to benefit endangered, threatened, and special concern species or to provide for other significant wildlife or habitat conditions. Table 7 lists significant fish or wildlife conditions and habitat management proposals affecting various compartments in the Moose Lake Area.

To protect fisheries habitat in lakes, rivers and streams, there is a need to maintain buffer strips of vegetation along lake and stream margins; construct erosion control devices, especially on logging roads and harvested areas; properly design and locate stream crossings; use pesticide application methods that prevent pesticides from getting into water systems; and maintain good age class diversity of timber stands for watershed protection.

Resource management proposals, such as timber management and recreation or road development, will be modified as necessary to maintain or enhance the significant fish or wildlife conditions on these compartments. Additional habitat management proposals will likely be developed when the four square mile wildlife habitat compartment analyses and associated composition goals are completed.

Table 7. Significant Fish and Wildlife Conditions and Habitat Management Proposals - Moose Lake Area, 1984.

Compartment	Significant Condition or Management Proposal
2. Chengwatana (General Management)	Sandhill crane and American bittern habitat. Potential water impoundment sites.
5. General C.C. Andrews (Dago Lake Day Use Area)	Determine impact of proposed recreation development on use of Dago Lake as a fish rearing pond.
6. General C.C. Andrews (General Andrews Nursery)	Need to limit deer damage to seedlings and windbreaks, possibly through special hunting regulations.
7. General C.C. Andrews (Separate Section)	Possible great grey owl habitat.
8. General C.C. Andrews (Willow River Campground)	Stanton Lake is possible loon nesting habitat. Wild rice in lake is managed to improve waterfowl and furbearer habitat.
9. General C.C. Andrews (General Management)	Develop peat excavation sites as wildlife ponds if feasible. Manage proposed oak fire breaks for mast production.
10. Nemadji (Black Lake Bog SNA)	Continue to allow hunting and trapping. No active habitat management permitted.
11. Nemadji (East)	Bobcat, lynx, fisher, marten, moose, wolf and possible great gray owl habitat. Restrict logging to winter, restrict off-road vehicle use on new logging accesses, and monitor off-road vehicle use.
12. Nemadji (Gafvert Campground)	Post as loon nesting area and erect wood duck houses. Trout stream.
13. Nemadji (Grouse Management Area)	Modify timber management to increase grouse and other upland game populations.
14. Nemadji (General Management)	Moose, bobcat, wolf, possible lynx and great gray owl habitat, deer yards and trout streams. Three heron colonies. Potential bald eagle nest sites. Modify timber cutting and maintain beaver ponds in vicinity of heron colonies. Trout stream.
16. Rum River (General Management)	Maintain waterfowl impoundments and deer yards.
17. St. Croix (Boulder Campground)	Manage Rock Lake as walleye-yellow perch fishery.
19. St. Croix (General Management)	Sandhill crane, Louisiana waterthrush, bald eagle, osprey, and wood turtle present. Trout streams. A water control structure may be needed to maintain existing water level in Grace's Lake.
20. Snake River (General Management)	Deer yards. Potential for further waterfowl impoundment development. Amend Bean Dam WMA project boundary to reduce overlap in boundaries.
31. 16-46-18	Potential impoundment or sharp-tail grouse management. Trout stream.
32. 36-46-18	Trout stream.
34. 36-46-19	Retain snags for cavity nesting birds.
35. 16-47-19	Retain white cedar stand for deer yard.
42. 6-47-20	Field check for great grey owl nesting.
50. 36-47-20	Conduct field wildlife survey prior to disposal.

Compartment	Significant Condition or Management Proposal
51. 6-46-21	Possible impoundment or sharp-tail grouse management.
53. 8-46-21	Evaluate potential for sharp-tail management before exchange.
54. 16-46-21	Manage lowlands for waterfowl.
55. 24-46-21	Evaluate potential for sharp-tail management.
56. 32-46-21	Sharp-tail grouse management.
57. 36-46-21	Ruffed grouse management.
61. 16-47-21	Burn upland brush.
65. 8-44-20	Erect wood duck houses.
66. 16-44-20	Erect wood duck houses.
67. 16-44-20	Erect wood duck houses.
68. 20-44-20	Deer yard.
69. 30-44-20	Possible rail and American bittern habitat.
72. 16-45-20	Possible osprey breeding habitat.
73. 16-43-21	Field check for sandhill crane and sharp-tailed grouse.
74. 34-43-21	Waterfowl or loon management.
75. 36-43-21	Waterfowl management. Possible rail and American bittern habitat.
81. 16-47-16	Deer yard. Trout stream.
82. 36-47-16	Deer yard. Trout stream.
84. 16-46-17	Trout stream.
85. 16-47-17	Trout stream.
86. 36-47-17	Deer yard. Trout stream.
90. 16-44-18	Increase browse near deer yard.
92. 16-45-18	Provide waterfowl nesting structures.
95. 16-43-16	Possible great grey owl habitat.
97. 16-43-17	Possible sandhill crane habitat.
99. 16-42-18	Trout stream.
103. 16-42-19	Deer yard.
110. 10-41-20	Deer yard.
113. 36-42-20	Possible sandhill crane and sharp-tailed grouse habitat.
117. 36-41-22	Deer yard. Possible sandhill crane and sharp-tailed grouse habitat.
118. 36-42-22	Possible sandhill crane and sharp-tailed grouse habitat.
119. 36-38-23	Conduct field check of pheasant habitat before disposal.
120. 36-41-23	Deer yard.
121. 16-42-23	Remove from WMA project boundary.
123. 16-42-24	Possible sandhill crane habitat.
124. 36-42-24	Possible deer yard.
126. 23, 24, 26-39-25	Deer yard. Dam will be built to create wetland.

Fire Management

The Moose Lake Area Fire Plan describes fire management activities in the area. It also contains historical information on the location and causes of wildfires. A few compartments require special fire protection actions. Three recreation areas have been identified for increased prevention activities to inform users of fire hazards. These are the Gafvert Campground in the Nemadji State Forest, the Snake River Campground in the Chengwatana State Forest, and the Blackhoof River area (16-47-17), which receives heavy use by trout fishermen during the spring fire season. Efforts are also required to break up the extensive conifer types in the General C.C. Andrews State Forest by establishing oak strips and by maintaining hardwoods along natural fire breaks such as the Willow River.

Forest Pest Management

Insect and disease management guidelines have been developed for the major pests in the aspen, paper birch, oak, lowland hardwood, central hardwood, northern hardwood, red pine, white pine, jack pine, black spruce, white spruce, spruce-fir, northern white cedar and tamarack forest types. To the extent possible, these guidelines will be integrated with other proposed management activities on all compartments in the Moose Lake Area.

The pine tussock moth and jack pine budworm have caused extensive defoliation and top kill in pine stands in and around the General C.C. Andrews State Forest. To reduce future losses, annual detection and evaluation surveys will be conducted. Jack pine in this compartment will be managed on a 40 year rotation to remove mature stands, and timber stand improvement practices will be used to regulate basal area, remove culls and improve vigor. Newly established plantations will contain less susceptible species or will be closely regulated for increased growth.

Soils

Appendix H in the primary document describes the management limitations of the major soil types occurring in the Moose Lake Area. The limitations deal with such things as erosion potential, equipment trafficability, suitability for roads and suitability for various tree species.

Land Administration

Each compartment form in Appendix D in the primary document lists a "proposed disposition" based on resource characteristics, management opportunities, and legal constraints. Implementation of these proposals will require modification of management unit boundaries, transfers of administrative control or internal exchange, exchanges between the state and counties, disposal of surplus lands and acquisition of land. The Minnesota Forest Resources Plan includes a goal of achieving an optimum land ownership pattern for the multiple-use management of forest resources. The land administration proposals described below are designed to move toward that goal.

Retention as State Forest

This was the usual disposition decision for lands which are presently in state forests. Changes in state forest boundaries will be proposed to eliminate areas of private land, to incorporate adjacent state land or county land obtained in exchanges, and to reduce or eliminate overlap with other DNR management units. Compartments totaling 150,861 acres are proposed for retention in state forest.

Additions to State Forests

Thirty-six compartments comprising 9,762 acres were recommended for addition to state forests (see Table 8). These compartments are currently undedicated Division of Forestry administered trust land. Four compartments (1,680 acres) would be incorporated into adjacent state forests. The remainder would be designated as Administrative and Scattered State Forest land. Detailed boundary descriptions will be developed and submitted for department review prior to submission for legislative action as required by the Wildlife/Forestry Coordination and Transfer of Administrative Control policies.

Table 8. Compartments Proposed for Addition to State Forests - Moose Lake Area, 1985-94.

Compartment	Acres	State Forest Added to
34. 36-46-19	280	01. Admin. and Scattered
37. 16-46-20	112	01. Admin. and Scattered
38. 16-46-20	80	01. Admin. and Scattered
45. 16-47-20	123	01. Admin. and Scattered
46. 16-47-20	130	01. Admin. and Scattered
63. 8-43-20	80	01. Admin. and Scattered
65. 8-44-20	104	01. Admin. and Scattered
66. 16-44-20	144	01. Admin. and Scattered
67. 16-44-20	77	01. Admin. and Scattered
68. 20-44-20	160	01. Admin. and Scattered
69. 30-44-20	152	01. Admin. and Scattered
75. 36-43-21	120	01. Admin. and Scattered
77. 36-44-21	160	01. Admin. and Scattered
78. 16-45-21	160	01. Admin. and Scattered
82. 36-47-16	640	01. Admin. and Scattered
84. 16-46-17	360	01. Admin. and Scattered
88. 16-44-17	640	35. Nemadji
90. 16-44-18	360	01. Admin. and Scattered
92. 16-45-18	80	01. Admin. and Scattered
94. 36-44-19	280	01. Admin. and Scattered
95. 16-43-16	640	35. Nemadji
97. 16-43-17	320	35. Nemadji
99. 16-42-18	320	01. Admin. and Scattered
103. 16-42-19	520	01. Admin. and Scattered
106. 16-41-19	160	01. Admin. and Scattered
107. 36-41-19	400	01. Admin. and Scattered
115. 16-40-22	80	01. Admin. and Scattered
116. 16-41-22	280	01. Admin. and Scattered
117. 36-41-22	560	01. Admin. and Scattered
118. 36-42-22	160	01. Admin. and Scattered
120. 36-41-23	360	01. Admin. and Scattered
121. 16-42-23	560	01. Admin. and Scattered
123. 16-42-24	520	01. Admin. and Scattered
124. 36-42-24	160	01. Admin. and Scattered
125. 8-39-25	80	43. Rum River
126. 23, 24, 26-39-25	400	01. Admin. and Scattered
TOTAL	9,762	

State-County Land Exchanges

Thirty-five compartments containing 11,234 acres of state land have been identified for potential land exchanges involving state and county lands. All proposed exchanges will require additional analysis and agreement between the state and the appropriate county. The primary purpose of the exchanges would be to increase forest resource management efficiency through consolidation of ownerships. Individual exchanges would be processed according to the DNR Land Exchange Policy. Table 9 lists the state land acreage, estimated county acreage, and proposed administrator if the exchange is completed. In addition to the compartments listed there are possible exchanges involving county lands within or adjacent to existing state forests (e.g., Chengwatana, General C.C. Andrews, Nemadji, St. Croix and Snake River). It is anticipated that the land in state ownership after the exchanges are completed will be added to state forests.

Cooperative land management agreements are sometimes proposed as alternatives to land exchanges. Cooperative land management agreements have been successfully implemented by the Department and other agencies. Examples include the Salt Springs land management agreement between the DNR and the University of Minnesota, and several state-county agreements covering peat leases. In addition, the U.S. Forest Service engages in cooperative agreements with private landowners for forest management. Other examples of agreements are those between private timber companies and mining companies to promote timber management on mining company lands. In the Moose Lake Area, however, these agreements are not likely to be used since the counties are the primary land exchange partners and the Minnesota Association of County Land Commissioners has expressed a clear preference for land exchanges over cooperative land management agreements.

Table 9. Compartments with Potential State-County Land Exchanges - Moose Lake Area, 1985-94.

Compartment	Acres of State Land	Acres of County Land	Proposed Administrator
31. 16-46-18	354	160	State
32. 36-46-18	320	80	State
35. 16-47-19	560	40	State
40. 36-46-20	279	32	State
42. 6-47-20	109	500+	County
43. 10-47-20	40	280+	County
44. 12-47-20	40	400+	County
51. 6-46-21	51	470+	County
52. 6-46-21	40	470+	County
53. 8-46-21	40	120+	County
54. 16-46-21	560	120	State
56. 32-46-21	480	240	State
57. 36-46-21	360	80	State
58. 2-47-21	71	440+	County
59. 2-47-21	40	440+	County
60. 6-47-21	40	620+	County
61. 16-47-21	480	80	State
62. 36-47-21	240	200	Either
72. 16-45-20	537	80	State
74. 34-43-21	153	66	State
76. 16-44-21	320	80	State
79. 36-45-21	280	280	State
81. 16-47-16	160	280	State
83. 7-46-17	40	320+	County
85. 16-47-17	280	80	State
86. 36-47-17	560	640	State
91. 36-44-18	640	640+	County
93. 36-45-18	440	720	State
96. 36-43-16	240	320	Either
98. 36-43-17	640	2000+	County
101. 16-43-18	640	1000+	County
102. 36-43-18	640	1000+	County
105. 36-43-19	640	206	State
108. 16-40-20	400	720+	County
113. 36-42-20	520	60	State
TOTAL	11,234		

Transfer of Administrative Control or Internal Exchange

These compartments are usually Division of Forestry administered lands within or adjacent to other DNR management units which are better suited for management as part of the other unit. Table 10 lists the compartments, acreage, and present and proposed administrators for parcels suitable for transfer of administrative control. The Black Lake Bog Scientific and Natural Area is proposed as a secondary unit within the Nemadji State Forest. Additional transfers of administrative control or transfers of land status (i.e., transfer of trust fund status from lands in non-income producing management units to non-trust lands in state forests) may be proposed by other DNR divisions during the life of this plan.

Table 10. Compartments Proposed for Transfer of Administrative Control or Internal Exchange - Moose Lake Area, 1985-94.

Compartment	Acres	Current Administrator	Proposed Administrator
10. Nemadji-Black Lake Bog SNA	1,414	Forestry	SNA/Forestry
49. 28-47-20	40	Forestry	Trails & Waterways
64. 36-43-20	160	Forestry	Parks & Recreation
72. 16-45-20	112	Trails & Waterways	Forestry
109. 4-41-20	40	Forestry	Trails & Waterways
110. 10-41-20	80	Forestry	Trails & Waterways or SNA
112. 16-41-20	80	Forestry	SNA or Trails & Waterways
127. 36-40-25	60	Forestry	Wildlife
TOTAL	1,986		

Retention for Custodial Management

The compartments listed in Table 11 will be retained in state ownership but will generally not be actively managed. These parcels are typically small (40-80 acres) and inaccessible. These compartments are chiefly valuable for mineral exploration, since they are in geologic formations where metallic mineral bearing units are known to occur or are in geologic environments similar to other areas of the world that are known to contain economic mineral deposits (e.g., class B or C mineral potential). The Division of Forestry will retain custodial control of these parcels.

Table 11. Compartments Proposed for Custodial Management -
Moose Lake Area, 1985-94.

Compartment	Acres	Comments
33. 16-47-18	160	
36. 2-46-20	40	
39. 16-46-20	40	Assess gravel potential.
55. 24-46-21	80	Assess wildlife resources.
70. 36-44-20	40	
73. 16-43-21	80	
89. 6-44-18	40	
111. 16-41-20	40	
114. 4-42-21	40	
TOTAL	560	

Surplus Lands

Eleven compartments (806 acres) have been tentatively identified as surplus lands (Table 12). These lands generally lack resource characteristics or management opportunities which would make them suitable for continued management by the Division of Forestry or for transfer or exchange to other public agencies. In several cases a field assessment of plant communities, wildlife, gravel or peat resources will be necessary before a final decision on whether or not to dispose of these lands is made. Minnesota Statutes 92.461 prohibits sale of lands that are chiefly valuable for deposits of peat in commercial quantities. Two of the compartments contain public waters and would have to be exchanged for other land containing public waters. Land sales would be conducted according to Minnesota Statutes, Chapter 94.10.

Table 12. Compartments Proposed for Disposal as Surplus Lands - Moose
Lake Area, 1985-94.

Compartment	Acres	Comments
27. Eaglehead Fire Tower	1	Consider leasing tower.
30. Woodland Fire Tower	1	Consider leasing tower.
41. 4-47-20	40	Offer to exchange to county before sale.
47. 22-47-20	40	Offer to exchange to county before sale.
48. 22-47-20	40	Offer to exchange to county before sale.
50. 36-47-20	80	Assess wildlife and mineral resources potential before sale.
80. 16-46-16	40	
100. 36-42-18	440	Exchange for other land containing public waters.
104. 36-42-19	40	Exchange for other land containing public waters.
119. 36-38-23	40	Assess wildlife resources, exchange to Wildlife if retained.
122. 6-41-24	44	
TOTAL	806	

Land Acquisition

Table 13 lists lands that have been identified as desirable additions to state forests. Land will only be purchased from willing sellers. The Soo Line Railroad which crosses the Nemadji and St. Croix state forests is being considered for abandonment. Acquisition of the railroad land would prevent fragmentation of ownership within the forests. The 350 acre tract on the Snake River and the 40 acres in the Rum River State Forest are isolated by state land. The 198 acres in the Chengwatana would provide additional public land along the St. Croix River and would nearly connect the northern and southern portions of the state forest. The 40 acres in 16-46-18 would facilitate development of a wildlife impoundment. The remaining tracts are adjacent to developed state forest recreation facilities. The primary document contains criteria that will be used to evaluate additional tracts of land that become available for acquisition during the life of the plan.

Table 13. Land Acquisition Proposals - Moose Lake Area, 1985-94.

Compartment	Acres	Comments
2. Chengwatana (gen. Mgmt.)	198	NSP land along St. Croix River.
5&9. General C.C. Andrews (Dago Lake/General Mgmt.)	121	Willing seller of inholding adjacent to Dago Lake Day Use Area.
8. General C.C. Andrews (Willow River Campground)	1	Willing seller of inholding between campground and freeway.
12. Nemadji (Gafvert Campground)	99	Two parcels with shoreline on Net and Pickerel lakes adjacent to recreation facility.
11&19. Nemadji (Gen. Mgmt.) St. Croix (Gen. Mgmt.)	421	Acquire Soo Line R.R. land within boundaries of state forests when abandoned for use as road.
16. Rum River (Gen. Mgmt.)	40	Isolated inholding.
20. Snake River (Gen. Mgmt.)	350	Private land outside boundary that is cut off by Snake River and state forest land.
31. 16-46-18	40	Desirable for development of impoundment.
TOTAL	1,270	

Law Enforcement

Eleven compartments in the Moose Lake Area have special enforcement needs (Table 14). The majority of these compartments are associated with a developed recreation facility. Specific enforcement procedures have been established by the area for each of these facilities. They include having caretakers present during times of peak use, forest officer campground

patrols and campground patrols by conservation offices and other law enforcement agencies. If serious problems are encountered by forestry personnel, backup is requested by conservation officers and other law enforcement agencies as needed. These procedures will be continued and their adequacy monitored.

Table 14. Compartments with Law Enforcement Needs - Moose Lake Area, 1985-94.

Compartment	Enforcement Needs
1. Chengwatana (Snake River Campground)	Recreation
3. D.A.R. (General Management)	Recreation
5. General C.C. Andrews (Dago Lake Day Use Area)	Recreation
8. General C.C. Andrews (Willow River Campground)	Recreation
12. Nemadji (Gafvert Campground)	Recreation
13. Nemadji (Grouse Management Area)	Recreation/Hunting
16. Rum River (General Management)	Recreation
17. St. Croix (Boulder Campground)	Recreation
18. St. Croix (Tamarack River Horse Camp)	Recreation
82. 36-47-16	Check for agricultural trespass
85. 16-47-17	Check for littering in trout stream

Timber Management

State statutes require timber on Division of Forestry administered lands to be managed according to multiple use and sustained yield principles. The statutory reforestation policy requires the division to reforest harvested lands and other deforested or poorly stocked lands. Within these general policies the division seeks to match tree species to the site quality and to maintain diverse and productive forests to meet anticipated timber demand.

The Division of Forestry has adopted the "Manager's Handbook" series of general technical reports published by the North Central Forest Experiment Station as its basic guidelines for the management of the jack pine, red pine, black spruce, northern white cedar, aspen, oak, black walnut and northern hardwood forest types. Guidelines for other types are contained in conference reports on birch management and artificial regeneration of conifers and various technical articles and white papers. The division's insect and disease specialists have developed integrated pest management guidelines for 14 forest types to supplement the manager's handbooks and other guidelines.

The division's policy and guidelines on pesticide use are also part of the standard guidelines that apply to the majority of the compartments in the Moose Lake Area.

The procedures for developing area allowable cuts, planned cut lists and harvest reports for each cover type are described in the Timber Sales Manual (MN DNR, Forestry, 1982). A computerized timber regulation program uses timber inventory information to select stands for various management practices based on the following criteria: site index, stocking, damage, stand size and distance from road. The preliminary list of stands generated by the program will be reviewed to see if the proposed practice is consistent with the specific compartment guidelines in Appendix D in the primary document, wildlife objectives and other constraints. The amended lists of stands for various practices, included in Appendix E in the primary document, will form the basis for annual planned cut lists and site preparation, regeneration and timber stand improvement plans. The procedures for review of these detailed timber management proposals by the Division of Fish and Wildlife are described in the Wildlife/Forestry Coordination policy and associated guidelines.

Table 15 lists compartments (or portions of compartments) where the standard timber management guidelines will be modified. In these areas other resource management objectives take precedence over the general objective of production of a sustained yield of commercial timber and maintenance of wildlife habitat. In addition, to protect fisheries habitat in lakes, rivers and streams, efforts will be made to: maintain buffer strips of vegetation along lake and stream margins; construct erosion control devices, especially on logging roads and harvested areas; properly design and locate stream crossings; use pesticide application methods that prevent pesticides from getting into water systems; and maintain good age class diversity of timber stands for watershed protection.

Table 15. Forest Resource Management Compartments with Modified or Restricted Timber Management Guidelines - Moose Lake Area, 1985-1994.

Compartment	Modification or Restriction
1. Chengwatana (Snake River CG)	Maintain aesthetics and continuous forest cover.
2. Chengwatana (General Management)	Modify management along Kettle, St. Croix, and Snake rivers and Minnesota-Wisconsin Boundary Trail to comply with regulations and policies and to maintain aesthetics.
3. D.A.R.	Maintain aesthetics and continuous forest cover around campground.
5. General C.C. Andrews (Dago Lake)	Maintain aesthetics. Manage for larger trees and continuous forest cover.
6. General C.C. Andrews (Nursery)	See policy on timber sales adjacent to nursery (Appendix D in primary document). Change timber status of stands within 330 feet of seedbeds from normal to limited.

Compartment	Modification or Restriction
8. General C.C. Andrews (Willow River Campground)	Maintain aesthetics and water quality.
9. General C.C. Andrews (General Management)	Reduce jack pine rotation age to 40 years. Establish oak in selected areas for fire, pest, and wildlife purposes. Reserve peat for nursery. Manage seed orchard in cooperation with nursery.
10. Nemadji (Black Lake Bog SNA)	No timber management allowed.
11. Nemadji (East)	Winter logging only. Maintain remnant white pine.
12. Nemadji (Gafvert Campground)	Maintain aesthetics in campground, along lake, and along proposed nature trail.
13. Nemadji (Grouse Management Area)	Reduce rotation age, promote winter logging, use smaller clearcuts, consider regeneration without harvest in aspen type to meet wildlife objectives.
14. Nemadji (General Management)	Management along Minnesota-Wisconsin Boundary Trail in accordance with policy. Protect water quality.
15. Rum River (Mille Lacs WMA)	Modify to reflect wildlife emphasis.
17. St. Croix (Boulder Campground)	Maintain aesthetics and create uneven aged stand.
18. St. Croix (Tamarack River CG)	Maintain aesthetics.
19. St. Croix (General Management)	Limited management in maximum preservation zone along St. Croix River. Management along Minnesota-Wisconsin Boundary Trail in accordance with policy. Seed orchards managed in cooperation with nursery.
66. 16-44-20	Maintain aesthetics along Clear Lake for resort.
72. 16-45-20	Follow regulations within Kettle River land use zone.
78. 16-45-21	Manage seed orchard in cooperation with nursery.
81. 16-47-16	Protect soil, water and aesthetic values.
82. 36-47-16	Watershed protection.
83. 7-46-17	Field check for significant botanical feature.
84. 16-46-17	Protect trout stream.
85. 16-47-17	Maintain aesthetics and water quality along trout stream.
86. 36-47-17	Protect soil and water resources.
99. 16-42-18	Manage seed orchard in cooperation with nursery.

Recreation Management

Detailed recreation development proposals for the Moose Lake Area are contained in the Moose Lake Recreational Sub-Area Plan (Appendix G in the primary document). Recreation proposals (see summary by state forest below) call for the upgrading and continued maintenance of 6 existing campgrounds and a day use area. One day use area and 3 parking lots are scheduled as new development. One hundred fifteen miles of existing trail have been designated for appropriate uses and will receive continued maintenance. About 20 additional miles of new trail are scheduled for construction. Trails for the following uses have been provided for in the Moose Lake Area:

- Snowmobiling
- Cross-country skiing
- Hiking and backpacking
- Horseback riding
- 2 and 3 wheeling
- Hunting and dog training

The Kettle, St. Croix and Snake rivers are designated Canoe and Boating Routes. The Kettle is a State Wild and Scenic River and the St. Croix is a Federal Wild and Scenic River. Each of these rivers and the Minnesota-Wisconsin Boundary Trail cross or are adjacent to several compartments in the Moose Lake Area. The Kettle and St. Croix rivers and the Boundary Trail each have a separate management plan. Resource management activities on affected compartments will be compatible with the appropriate management plan.

Trails Policies

The Department of Natural Resources has developed policies for state, unit, and grants-in-aid trails. The Division of Forestry has guidelines concerning timber harvesting and extractive operations adjacent to recreational trails on state land. All of the trails in the Moose Lake Area were developed prior to the development of these policies. Previous unwritten policy allowed all trail uses on forestry-administered trails and roads except where posted otherwise. The new trail policies were used to develop the proposals for the Moose Lake Area trail system. Statewide rules and regulations concerning recreational motor vehicles are likely to be developed in the future and will be applied to the trails in the Moose Lake Area when they are adopted. In lieu of the rules and regulations, the following principles concerning recreational motor vehicles were developed for the Moose Lake Area to protect significant natural resources, resolve use conflicts, provide for user safety and aid in decision making.

- Because the extent and effects of recreational motor vehicle use is not known, closely monitor use and make changes in trail policies if necessary.
- Restrict recreational motor vehicle traffic to roads or trails. Unrestricted cross-country travel or off trail scrambling will not be permitted.

- Allow only vehicles licensed to operate on public highways to use permanent forest roads (Class 1-4) to provide for public safety and prevent use conflicts. Exceptions may be made where necessary to provide trail connections if it is determined that safety and use conflicts are not problems.
- 2 and 3 wheel vehicles* will be allowed to use trails or class 5 roads which have not been signed to prohibit motorized vehicles.
- Restrict 4 wheel drive vehicles to roads because of potential for environmental damage.
- Trails and roads may be designated and signed for specific uses to prevent user conflicts and provide for user safety.
- Certain roads and trails may be closed to vehicular traffic to prevent roadway damage or to protect resources on a temporary or permanent basis.
- Snowmobile trails are closed to other types of vehicular use December 1 through April 1.

The following sections summarize recreation proposals for each state forest.

St. Croix State Forest

Boulder Campground - Upgrade existing deteriorated facilities, construct boat dock, develop beach and fish cleaning house.

Tamarack River Horse Camp - Expand facility because of high use levels. Expand parking area, develop 6 vehicular camping spurs and add a well and pump.

Other Recreation Facilities - Develop 3 primitive campsites and an Adirondack shelter at McDermitt Creek in conjunction with the Minnesota-Wisconsin Boundary Trail.

Trails - Groom 45 miles of snowmobile trail. In summer maintain 26.4 miles of trail for horseback riding and hiking and 14.8 miles for 2 and 3 wheeler use.

*Two-wheel recreational vehicle. "Two-wheel recreational vehicle" means every motor vehicle having a seat or saddle for use of the rider and designed to travel on not more than two wheels in contact with the ground which is being used for off-road recreational purposes.

*Three-Wheel off-road vehicle. "Three-wheel off-road vehicle" means a flotation-tired vehicle of not less than three low pressure tires, but not more than six tires, which is limited in engine displacement not to exceed 800 cubic centimeters and total dry weight not to exceed 600 pounds, which is being used for off-road recreational purposes.

Chengwatana State Forest

Snake River Campground - Upgrade existing facilities and entrance road; provide user conveniences including a fish cleaning house.

Other Recreation Facilities - Develop an Adirondack shelter at Redhorse Creek near the existing primitive campsite in conjunction with the Minnesota-Wisconsin Boundary Trail.

Trails - More than 29 miles of trail will be groomed for snowmobiling and 5 miles for cross-country skiing. In summer 7.2 miles will be designated for hiking and horseback riding, 5 miles for hiking only and 5.75 miles for 2 and 3 wheel use.

Nemadji State Forest

Gafvert Campground - Reconst campsites with topographic problems, add gravel and define campsite parking areas with posts, repair the public access and access parking lot, and improve the picnic and beach area. Provide user conveniences including a fish cleaning house, handicapped accessible vault toilets and a portable dock.

Other Recreation Facilities - Develop 3 primitive campsites near the existing Adirondack shelter in the southern part of the Nemadji and three campsites at Keen Creek in conjunction with the Minnesota-Wisconsin Boundary Trail.

Trails - Maintain 53.9 miles of snowmobile trail in winter. A 14.7 mile segment of former snowmobile trail in the eastern Nemadji will no longer be maintained because wetness makes grooming impossible in most years. This trail segment has not been maintained for the past 3 years. In summer 24.5 miles of trail will be maintained for horseback riding and hiking. A new 2 mile hiking/interpretive trail is scheduled for construction in conjunction with Gafvert Campground. The Ruffed Grouse Society has proposed to construct a system of trails in the Grouse Management Compartment for field dog trials and hiking. A 15 mile loop system will be provided for 2 and 3 wheel vehicles in the northwestern portion of the forest. A permit for an annual enduro motorcycle event which has been occurring in the forest for many years will continue to be granted. Erosion control measures will be undertaken at State Line Creek, a trout stream, which the enduro route crosses. Off-road vehicle use in the Nemadji-East compartment (Appendix I) will be monitored).

General C.C. Andrews State Forest

Willow River Campground - This campground was upgraded during the summer of 1985 as a result of a prior rehabilitation plan. The Moose Lake Recreation Sub Area Plan, however, proposes that a beach and a connection to the Hinckley Fire Trail be added to this campground as user conveniences.

Dago Lake Day Use Area - This new day use area is proposed for ORV user parking and picnicking. The area has been a trouble spot in the past due to parties. Its designation will provide DNR foresters with increased enforcement authority. Proposed facilities include a small parking lot, a 5 site picnic area and handicapped accessible vault toilets.

Trails - In winter 9.4 miles of trail will be groomed for snowmobiling. In summer 5 to 7 miles of trail are proposed for use by 2 and 3 wheel vehicles. The majority of the 2 and 3 wheel trail will be on the east side of Interstate Highway 35. However, a connector trail will be designated on the west side of the interstate to join the city of Willow River and the Willow River Campground to the trail system. Contingent on the amount of use on the Minnesota-Wisconsin Boundary Trail West Addition (the Hinckley Fire Trail), a paved entry for bicycles to the Willow River Campground is proposed. The paved entry would be either through the city of Willow River or from the north via a bridge across the Willow River. If the bridge is constructed it could also be used by 2 and 3 wheelers for entry to the campground. A 2 mile horseback loop on the west side of the interstate is proposed in conjunction with the Boundary Trail West Addition.

Rum River State Forest

Rum River State Forest Day Use Area - Proposals call for expansion of the existing parking lot and the replacement of the toilets with wilderness box toilets.

Trails - Nine miles of trail will be groomed for snowmobiling. Six miles of existing snowmobile trail will be closed on the Kanabec State Forest Road to provide for user safety. The Ruffed Grouse Society will construct a system of trails for field dog trials and hiking connected to the day use area.

Snake River State Forest

Trails - The proposal is to develop a 10 mile hiking and backpacking trail system in the forest, including a 10 car parking lot and 2 suspension bridges across the Snake River.

Other Recreation Facilities - Ten backpacking campsites are proposed for development in conjunction with the backpacking trail.

D.A.R. State Forest

D.A.R. Campground - The campground is scheduled for upgrading by defining campsite parking areas and installing handicapped accessible vault toilets.

Minnesota-Wisconsin Boundary Trail

The Minnesota-Wisconsin Boundary Trail, administered by the DNR Trails and Waterways Unit, passes through three state forests; the Nemadji, St. Croix and Chengwatana. Main uses of the trail are snowmobiling, hiking and horseback riding. Proposals for upgrading portions of this trail are made in the primary document. The Division of Forestry has requested and the Trails and Waterways Unit has agreed to reevaluate the Boundary Trail for use by 2 and 3 wheeled vehicles as that use is not presently allowed under DNR regulations.

Range Line Trail

The Range Line snowmobile trail is on a township road outside of state forest boundaries, but is maintained by the Division of Forestry. The proposal for this trail is to discontinue maintenance after the Minnesota-Wisconsin Boundary Trail is upgraded for snowmobile use. If local snowmobile clubs wish to maintain this trail it could be added to their trail systems as a grants-in-aid trail.

● PROGRAM SUMMARY

In this section, budget, staffing, and accomplishment targets are projected for each of the Division's programs in the Moose Lake Area for the next 10 years. The actual figures from 1984 are also presented to permit comparison of the current and proposed program. The proposals for 1985-1994 are based on estimates of the accomplishments, budget, and staff needed to meet ongoing responsibilities and long-term goals.

BUDGET AND STAFFING SUMMARY

Tables 16 and 17 summarize the actual and recommended budget and staffing levels from 1984 through 1994 for each of the 18 programs in the Moose Lake Area. Total Area staffing levels are projected to increase from 20 full-time equivalents (fte's) in 1984 to 24.5 fte's by 1994.

Significant shifts in emphasis among programs are proposed. Increased budget and time allocations are proposed for the following programs:

- Fire Management
- Timber Management
- Training, Information and Education
- Private Forest Management
- Utilization and Marketing
- Pest Management
- Nursery and Tree Improvement

Decreased budget and time allocations are proposed for the following programs:

- Maintenance and Administration
- County Assistance
- State Forest Roads
- Forest Resource Inventory
- Forest Resource Planning

Other programs are projected to remain at current levels.

Table 16. Proposed Budget Levels by Program, F.Y. 1984-94.¹

BUDGET (thousands of dollars)	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Forest Recreation Management	113.3	196.4	163.9	164.9	166.9	167.9	124.4	83.4	85.4	89.0	89.0
Forest Pest Management	3.1	3.1	3.1	6.2	6.2	6.2	6.7	6.2	6.2	6.2	6.2
Nursery and Tree Improvement	2.5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
State Forest Roads	35.5	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
Forest Soils ²	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fish and Wildlife Habitat	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
Land Administration	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
Timber Management	231.2	251.6	275.0	275.0	275.0	275.0	275.0	275.0	275.0	275.0	275.0
County Assistance	31.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
Private Forest Management	70.1	70.1	70.1	73.2	108.3	111.6	111.6	111.6	111.6	111.6	111.6
Urban Forestry	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
Forest Resource Inventory	19.0	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
Utilization and Marketing	0.6	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Forest Resource Planning	25.5	15.9	12.7	9.6	9.6	9.6	9.6	9.6	9.6	9.6	25.5
Fire Management	197.1	197.1	229.0	232.3	260.9	263.5	267.4	267.4	267.4	267.4	267.4
Maintenance and Administration	160.1	149.9	149.9	144.8	144.8	138.5	136.0	136.0	136.0	136.0	136.0
Training, Information and Education	38.2	47.8	54.2	54.2	54.2	54.2	57.3	57.3	60.5	60.5	60.5
Enforcement	19.0	15.9	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
TOTALS	965.7	1030.2	1053.0	1055.3	1121.0	1121.6	1083.1	1041.6	1046.8	1050.4	1066.3

¹All dollar figures are in constant 1985 dollars.

²This program is funded at the regional level.

Table 17. Proposed Staffing Levels by Program, F.Y. 1984-94¹

STAFFING (full-time equivalents) ²	1984 ³	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Forest Recreation Management	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7
Forest Pest Management ¹	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nursery and Tree Improvement	0.08	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
State Forest Roads	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Forest Soils ¹	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fish and Wildlife Habitat	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Land Administration	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Timber Management	5.2	6.4	6.5	6.5	6.5	6.5	6.6	6.7	6.8	6.8	6.6
County Assistance	1.0	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Private Forest Management	2.2	2.2	2.2	2.3	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Urban Forestry	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Forest Resource Inventory ¹	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Utilization and Marketing ¹	0.02	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Forest Resource Planning	0.8	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.8
Fire Management	2.4	2.4	3.4	3.5	4.4	4.5	4.6	4.6	4.6	4.6	4.6
Maintenance and Administration	2.8	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Training, Information and Education ⁴	1.2	1.5	1.7	1.7	1.7	1.7	1.8	1.8	1.9	1.9	1.9
Enforcement	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
TOTALS	20.0	20.0	21.0	21.0	23.0	23.2	23.5	23.6	23.8	23.9	24.5

¹Only Moose Lake Area staffing levels are shown on this sheet. Therefore, programs administered by the Region (Forest Pest Management, Forest Soils, and Utilization and Marketing) show lower staffing levels on this table than on the tables in the primary document for each program.

²One full-time equivalent equals approximately 1,730 working hours per year.

³F.Y. 1984 figures are based on actual time summary totals, while F.Y. 1985 through 1994 figures are based on 3-year time summary averages, position descriptions, the 1984 workload analysis and other projections.

⁴Through changes in time recording there will be a shift of hours from various programs to training.

FOREST RECREATION MANAGEMENT PROGRAM

Goals and Strategies

The goal of the Forest Recreation Program is to fulfill the outdoor recreation potential of Minnesota forest lands by providing developed recreational areas and opportunities for dispersed recreational activities. Recreational developments on state forest land are generally limited to primitive, minimum impact campgrounds, day-use areas and recreational trails.

Forestry administered lands in the Moose Lake Area offer a number of potential recreation opportunities. Some of these opportunities have the ability to fulfill immediate recreation needs and others are available if future recreation demand indicates. The Moose Lake Area Recreational Sub-Area Plan (see summary in the Land Management Plan section of this document) proposes rehabilitation and/or expansion of 6 campgrounds and 1 day use area, reconstruction of 115 miles of trail, and the closing of 40 miles of trail. Proposed new developments include 1 day use area, about 20 miles of new trail, and 3 new parking lots. The Recreational Sub-Area Plan, Appendix G in the primary document, includes detailed information on these proposals.

Forest Recreation Management Program Priorities for 1985-94

- Operate and maintain forest recreation facilities.
- Improve the enforcement of forest recreation regulations in cooperation with the Division of Enforcement and local law enforcement agencies.
- Improve coordination and communication with the Trails and Waterways Unit, Division of Enforcement, other DNR divisions, and other public agencies with recreational responsibilities in the Area.
- Rehabilitate or expand existing facilities and develop new facilities as outlined in the sub-area plan.
- Cooperate with the local tourism industry and other agencies to market outdoor recreation and tourism opportunities.

FOREST PEST MANAGEMENT PROGRAM

Goals and Strategies

The goal of the forest pest management program is to reduce resource losses and constraints on forest productivity to acceptable levels. The efficient and economical accomplishment of this goal will require the integration of forest pest management techniques into forest nursery production and forest management practices from site preparation to harvest.

Major historic pest problems in the Moose Lake Area will be addressed over the next 10 years through continuing survey, evaluation, and information transfer efforts. Pest survey, evaluation, prevention, and control activities will continue as part of the cooperative funding agreement with the U.S. Forest Service. Land managers will receive assistance in the identification of forest pest problems and training to reduce losses to forest pests. Work will continue to develop and evaluate harvest regulations and site preparation techniques to reduce the impact of weed competition, root rots, and regeneration insects on newly established plantations. To the extent possible, pest management guidelines will be integrated with other proposed

management activities on all compartments in the Moose Lake Area. Specific pest protection plans should be developed for the General Andrews Nursery, seed orchards, developed recreation sites, and scenic waterways.

Forest Pest Management Program Priorities for 1985-94

- Reestablish white pine in low and moderate blister rust hazard zones using genetically improved seedlings, annual plantation inspections, and pathological pruning.
- Complete risk rating of all jack pine stands and take appropriate actions to reduce potential losses to jackpine budworm and pine tussock moth.
- Conduct surveys and investigations to determine the presence of forest pests, monitor infestation levels, and evaluate the damage or potential for damage by forest pests.
- Implement pest management guidelines and control strategies for each major timber type to reduce losses to forest pests.
- Evaluate the effectiveness of prescribed pest management techniques and control strategies.

NURSERY AND TREE IMPROVEMENT PROGRAM

Goals and Strategies

The goal of the nursery program is to produce tree planting stock for use on public and private land for afforestation, reforestation, erosion control, soil and water conservation, wildlife habitat, and environmental education. The nursery program strives to meet the demand for tree seedlings in the most economical and efficient manner possible.

The tree improvement program seeks to increase the productivity of public and private forest lands in Minnesota through the use of genetic principles. The program results in the production or acquisition of genetically superior seeds, or cuttings, for use in the growing of planting stock or other regeneration activities. The target is the highest level of genetic improvement possible within the restrictions of available resources, current information, and probable economic returns.

Although the nursery and tree improvement programs are expected to grow considerably over the next ten years, the Area is only expected to increase its personnel commitment by 20 percent. Any additional staffing needs will have to be funded out of the state nursery budget.

Nursery and Tree Improvement Program Priorities for 1985-94

- For priority species, provide all seed needed by the nurseries for planting and by the Area for direct seeding from identified seed sources.
- Implement seed source control in the procurement of cones and seeds.
- Plant 16 acres of jack pine seedling seed orchards.
- Develop 40 acres of control-pollinated second generation white spruce seed orchards.
- Plant a 5 acre grafted white pine seed orchard, a 5 acre white pine seedling seed orchard, a 5 acre European larch seedling seed orchard, and a 5 acre grafted Scotch pine seed orchard.

STATE FOREST ROAD PROGRAM

Goals and Strategies

The goal of the State Forest Road Program is to develop and maintain Minnesota's state forest road system to facilitate the protection, management, and recreational enjoyment of state forest lands. This statewide system of roads also provides for public transportation, commerce, and development activities on several million acres of county, federal, and private forest lands.

In general, most of the land in the Moose Lake Area which is within state forest boundaries is well accessed by 249.2 miles of state forest roads. About 64.3 miles of this total are considered permanent, all weather road. The remaining mileage is generally useable only during dry periods or in the winter.

The proposal recommends 12 miles of new permanent road. Another 13.8 miles of road are scheduled for reconstruction to better serve transportation needs. Timber access roads will continue to be developed on an as needed basis. Road development proposals will be reviewed by the Division of Waters for compliance with water permit and floodplain management requirements. Two compartments, the Nemadji-East and the Nemadji-Black Lake Bog Scientific and Natural Area, restrict road building.

Proposals for acquisition of legal access were made only for lands proposed for continued Division of Forestry management (those within state forests or those proposed for addition to state forests). Twenty-one compartments were identified as needing legal access or improved legal access. To achieve this, acquisition of 10.75 miles of new right-of-way is proposed. Most acquisition will require unrestricted legal easements across private property.

Some state forest roads will be gated and vehicle use restricted based on the need to control access and protect the roads and adjacent lands from damage. A road identification system will also be developed and road signs installed as outlined in the State Forest Road Plan. Forest roads will then be mapped, signed, and identified on state trail maps for user safety and convenience.

State Forest Road Program Priorities for 1985-94

- Update and maintain the state forest road inventory for the Moose Lake Area.
- Select, evaluate, and rank state forest road and bridge construction and improvement projects.
- Develop a forest road and right-of-way maintenance schedule and budget.
- Coordinate timber harvest and recreational activities with forest road use and development.
- Establish priorities for road signing and installation of gates.

FOREST SOILS PROGRAM

Goals and Strategies

The goal of the forest soils program is to provide site specific forest soil interpretations to forest managers. These interpretations will enable the Division of Forestry to concentrate intensive timber management on the most productive forest land, to assist in the development of soil surveys in forested areas, and to provide technical soils information to forest managers and planners. Soils information is used by area land managers to assist in making management and forest development decisions.

Over the next 10 years increased emphasis will be given to analyzing soils data in understocked areas and nonstocked lowlands suitable for regeneration. Soils analysis will also be done on more potential harvest sites prior to harvest. More specific management guidelines for the Area will be developed as additional soils information becomes available.

Forest Soils Program Priorities for 1985-94

- Use soils information on sites that involve high levels of investment (e.g., species conversion, road construction, or site preparation).
- Use soils information in conducting management activities, including herbicide application, insect and disease management, timber sales, and timber stand improvement.
- Involve field foresters in training sessions on the use of soils information in forest management through silvicultural and soils workshops.
- Assist in developing management guidelines and productivity ratings on soils specific to the Area in order to provide foresters with interpretive information on forest soils.

FISH AND WILDLIFE HABITAT MANAGEMENT

Goals and Strategies

The goal of the Division of Forestry fish and wildlife habitat management program is to ensure that integration of forestry and wildlife management takes place on state administered lands in accordance with the Wildlife/Forestry Coordination Policy. The Division of Forestry provides assistance to the Section of Wildlife in planning timber management on Wildlife Management Areas to attain wildlife objectives. Regular meetings between the staffs of the Division of Forestry and the Division of Fish and Wildlife are an important part of maintaining coordinated management efforts.

Significant fish and wildlife conditions and habitat management proposals were identified on 56 compartments in the Moose Lake Area. Other resource management proposals, such as timber management or recreation development, will be modified in order to maintain or enhance the significant fish and wildlife conditions on these compartments. Additional habitat management proposals will likely be developed when the four square mile wildlife habitat compartment analyses and associated composition goals are completed. Specific project proposals will be developed and reviewed as this plan is implemented.

Reforestation of harvested lands also provides an opportunity for wildlife habitat enhancement. More emphasis will be placed on providing travel lanes and openings and on selecting tree species that provide food and cover for various game and nongame wildlife.

Fish and Wildlife Habitat Management Priorities for 1985-94

- Integrate Forestry/Wildlife Habitat Management Guidelines into forest management activities.
- Obtain interdisciplinary training for foresters and fish and wildlife managers.
- Provide assistance to the Section of Wildlife in using timber management and silvicultural treatments on Wildlife Management Areas to attain wildlife management objectives.
- Participate in annual joint regional meetings with the Section of Wildlife to facilitate communications and to develop complementary goals.
- Coordinate timber management activities with the Section of Fisheries to assure protection of fisheries resources.
- Establish the Nemadji-Black Lake Bog Scientific and Natural Area.

LAND ADMINISTRATION PROGRAM

Goals and Strategies

The goal of the Division of Forestry's land administration program is to maintain a state forest land ownership pattern that permits efficient multiple-use management and protection of forest resources. Achieving this goal requires not only an integrated effort among all administrative units of the division, but a close working relationship with the DNR Land Bureau, other DNR divisions, other public land agencies, the state legislature, and the private sector.

This plan proposes a number of administrative activities designed to increase the efficiency of forest resource protection and management. Emphasis will be on reducing the overlap in DNR management unit boundaries and adding selected parcels of undedicated state land to management units. There will be an attempt to consolidate ownership in state and county management units. Land exchange, transfer, disposal and acquisition proposals are described in more detail in the Land Management Plan section of this summary.

In the Moose Lake Area the Division of Forestry currently administers 88 leases (Table 18). The majority are hunting cabin leases in the Nemadji, St. Croix and Chengwatana state forests. Due to enforcement and other administrative considerations, no new hunting cabin leases will be offered and existing hunting cabin leases will be phased out whenever opportunities occur.

Table 18. Leases in the Moose Lake Area, July 1984.

Type of Lease	Number of Leases
Hunting cabin sites	50
Utility rights-of-way	15
Other rights-of-way	8
Gravel	3
Agricultural	3
Miscellaneous	9
TOTAL	88

Source: MN DNR Division of Forestry, Moose Lake Area Staff, 1984.

strategies tried. Both target areas, TSI and reforestation, will be developed gradually over a period of years and greater District participation will be needed to make the efforts successful.

Private Forest Management Program Priorities for 1985-94

- Provide management planning assistance on 4,900 acres of nonindustrial private forest (NIPF) land each year by 1994.
- Increase the number of NIPF landowners assisted annually to 475 by 1994.
- Improve the quality of management on NIPF lands through educational programs, technical assistance, and other means.
- Expand the role of consulting and industrial foresters in private forest management.

URBAN FORESTRY PROGRAM

Goals and Strategies

The goal of the division's urban forestry program is to help cities, towns, and suburbs maintain and improve their community forests and to assist private homeowners with the management of any trees or associated plants they are growing for ornamental, aesthetic, or conservation purposes.

The Area will focus on assisting each municipality within its jurisdiction in developing a tree planting program and on promoting Arbor Day activities within as many schools and communities as possible. If the division's proposed grant program for urban forestry is accepted and additional funds and responsibilities are assigned to the field offices, the Area's urban forestry activities and person years of effort will increase.

Urban Forestry Program Priorities for 1985-1994

- Increase the number of Arbor Day activities occurring in schools and municipalities.
- Assist communities with the development of tree planting programs, tree management plans, city tree ordinances, forestry budgets, and the utilization or disposal of urban forest resource wastes.
- Identify for homeowners and communities the insect and disease problems affecting residential and public trees.
- Increase the number of school and municipal forests.
- Distribute news releases concerning local urban forestry activities to the media and provide urban forestry information (pamphlets, books, etc.) to interested individuals.

FOREST RESOURCE INVENTORY PROGRAM

Goals and Strategies

The goal of the forest resource inventory program is to collect and maintain the data needed to develop effective forest management plans to meet present and anticipated demands for forest resources. The Division's forest inventory unit examines forest lands to determine the location and condition of various forest resources. On timbered lands species distribution, size class, density, productivity, and operability are recorded.

In addition to maintaining Phase II* forest survey data, there will be continued efforts to inventory nonindustrial private forest lands in the Moose Lake Area. Carlton County is being inventoried as a pilot project and is scheduled for completion in 1986. Pine and Kanabec counties are not currently scheduled for private lands inventories.

Forest Resource Inventory Program Priorities for 1985-94

- Maintain the alterations records to keep the computer files and maps up to date.
- Provide maps and summaries of forest inventory information to other land managers with management responsibilities on state and county lands.
- Transfer section corners and distribute 9x9 resource photography.
- Obtain supplemental (35mm format) air photos of specific project areas.
- Assist the Grand Rapids inventory staff in planning for a program to reevaluate and update the Phase II inventory data* for the Area at ten year intervals.

UTILIZATION AND MARKETING PROGRAM

Goals and Strategies

The goal of the Utilization and Marketing (U & M) Program is twofold: to improve the utilization of the forest resource through increased timber harvesting and processing efficiency, and to increase the utilization of currently under-utilized forest resources through marketing and economic development of the products industries.

Responsibilities for implementation of the U & M Program lie mainly with the Region and St. Paul staff. However, the Area staff does have the responsibility to recognize situations where U & M assistance is needed and to request specialized help. The Area staff also assists in various aspects of the U & M Program.

Opportunities for increased utilization of low-quality hardwoods and greater value-added processing exist within the area. The most favorable opportunities include combustion of wood for energy and the production of composition boards, printing papers and secondary manufacturing processes capable of utilizing relatively small pieces of wood.

*The "Phase II" inventory is based on a field examination of each timber stand on 6.9 million acres of state and county administered land. The primary outputs of the "Phase II" inventory are township maps showing the location of each stand and computerized files of inventory data. An important feature of this inventory is the capability to record changes in the forest cover due to harvest, fire, planting, and other events. The Phase II inventory of the Moose Lake Area was recently completed. The inventory information is being used to develop timber management and other plans for the area. Area personnel are responsible for keeping the inventory current.

Utilization and Marketing Program Priorities for 1985-94

- Assist primary processing industry with specific requests for assistance.
- Analyze the Area's forest resources for potential wood products industrial development opportunities.
- Assist local processors in bringing together suppliers and consumers of their products.
- Promote the best use of area timber resources.
- Identify timber and residue resources so that the wood energy program will be developed properly.

FOREST RESOURCES PLANNING PROGRAM

Goals and Strategies

The primary goal of the Division of Forestry's forest planning program in the Moose Lake Area is to maintain and implement a comprehensive management plan to guide the protection, management and use of the Area's forest resources. The Moose Lake Area Forest Resource Management Plan assesses the current forest resource situation in the area; includes a detailed land management strategy for all Division of Forestry-administered land in the Area; and proposes a program that sets forth 10-year budget, staffing, and accomplishment targets for the area's 18 forest resource management programs. The area's plan reflects the general direction for resource management established in the statewide Minnesota Forest Resources Plan (MFRP).

Planning at the Area level also includes helping prepare multiple-use management plans for other DNR-administered lands, including state parks and wildlife management areas. Planned timber cut lists and drain records are prepared as part of the plans. Periodic revisions are made to keep plans current.

Over the next several years Moose Lake Area staff will be involved in several activities designed to implement the area's plan. These activities include developing and testing a revised time and accomplishment reporting system as well as work planning and budgeting.

Forest Resource Planning Program Priorities for 1985-1994

- Implement the Moose Lake Area Forest Resource Management Plan by holding quarterly and annual reviews of how well accomplishment targets are being met.
- Develop a revised time and accomplishment reporting system that will provide a model for use elsewhere in the state.
- Help prepare multiple-use management plans for non-Forestry administered DNR lands in the Area.
- Develop annual accomplishment reports.
- Develop specific annual Area work plans and budgets.
- Establish four-year scheduled update of Moose Lake Plan.

MAINTENANCE AND ADMINISTRATION PROGRAM

Goals and Strategies

The goal of this program is to provide the administrative support needed to achieve the goals of other Division programs. Major activities include personnel management, equipment maintenance, and building maintenance. Over the past three years Moose Lake Area personnel have spent an average of 2.8 full-time equivalents per year on personnel or fiscal administration.

The current and proposed inventory of major equipment in the Moose Lake Area as well as a proposed equipment replacement schedule is included in the primary document. Trucks, tractors, all-terrain vehicles, and various fire-fighting equipment are in need of repair or replacement at a projected annual cost of approximately \$82,500.

Building repair and improvement needs in the Moose Lake Area and the timeframe within which the work should be completed are outlined in the primary document. Funds for the smaller, near term projects will be requested as part of the Area budget. Larger projects will be submitted for inclusion in the DNR Six Year Capital Improvement Plan.

Maintenance and Administration Program Priorities for 1985-94

- Improve equipment replacement schedule.
- Maintain or improve district headquarter buildings.
- Expand Area headquarters.

FIRE MANAGEMENT PROGRAM

Goals and Strategies

The goals of the fire management program are to provide effective wildfire control and to promote the safe and effective use of fire as a resource management tool. The Moose Lake Area Fire Plan (DNR, Division of Forestry, 1984) contains a detailed analysis of fire information for the period 1971-1981. It also proposes a balanced fire control program including prevention, presuppression, and suppression activities. The Area fire plan will be updated as necessary to reflect changing conditions and the overall direction set in this plan.

Plans exist to step up fire prevention and presuppression efforts in certain areas to compensate for historically high incidences of fire due to identifiable causes such as incendiary or railroad caused fires. Efforts are also needed to break up the extensive fire prone conifer types in the General C.C. Andrews State Forest by establishing oak strips and by maintaining hardwoods along natural fire breaks such as the Willow River.

The Area's prevention efforts should increase through 1989 and then should remain constant. The Area's fire suppression program budget and staffing requirements will vary depending on the severity of the wildfire problem in any particular year. During severe seasons nearly all Division of Forestry personnel in the Moose Lake Area are likely to be involved in fire control operations. It is anticipated that as more emphasis is placed on fire prevention and presuppression, less emphasis will need to be placed on fire

suppression. The 2.4 person years of effort spent on fire programs in 1984 was lower than normal. Projections for 1985-94 are based on anticipated program needs.

Fire Management Program Priorities for 1985-94

- Increase wildfire prevention efforts.
- Use the results of the LCMR-sponsored fire planning program in an effort to select and maintain an efficient mix of fire prevention, presuppression, and suppression efforts for the Moose Lake Area.
- Establish adequate depreciation and replacement schedules for specialized fire equipment in the Moose Lake Area.
- Train Division of Forestry and other emergency service agency personnel in the Moose Lake Area for conversion to, and use of, the National Interagency Incidence Management System (NIIMS), including the Incident Command System (ICS), to provide an integrated approach for dealing with emergency situations.
- Implement requirements of the fire compact with Wisconsin and Michigan.

TRAINING, INFORMATION AND EDUCATION PROGRAM

Goals and Strategies

To maintain a high level of professional expertise, Division of Forestry personnel in the Moose Lake Area are to receive approximately 100 hours of training each year. This represents slightly over 5 percent of each employee's work hours. Many of these employees are also called on to act as instructors at training sessions. Training received or given falls into all program areas.

Training plans are in the process of being developed for each individual employee. These plans will be tailored to each employee's needs and career goals. Training plans will address both short-term and long-term goals.

Information and education activities include news releases to newspapers, radio, and television stations; displays at fairs and other locations; open houses; tours; and presentations of movies, slide programs, or talks. Substantial quantities of fire prevention material are also distributed in the Area.

The information and education activities are directed both at the general public and at specific interest groups. Subject matter is often seasonal in nature or outlines specific projects that are planned, active, or completed. Area personnel are often requested to present material to clubs, schools, or other organized groups. The Area also coordinates I & E activities with the National Park Service, other DNR disciplines, County Extension personnel, and 19 local fire departments, to mention a few.

Training Priorities for 1985-94

- Complete individual personnel development plans for each Area employee.
- Outline training needs of all Area personnel on a priority basis and advise Division Training Officer.
- Develop monitoring system that allows for equitable training assignments to all employees.

- Annually update training plans.
- Update fire departments on strike team and NIIMS Programs.

Information and Education Priorities for 1985-94

- Develop educational activity calendar outlining annual or seasonal events.
- Improve slide tape and movie collection in Area library.
- Develop a trailer float that can be easily changed from year to year.
- Improve techniques for county fair displays using a team management approach.
- Continue to upgrade and provide a steady flow of news releases to the local media.
- See that all personnel are properly trained in public speaking.

ENFORCEMENT

Goals and Strategies

Coordination between the Moose Lake Area's Forest Officers and the Division of Enforcement will be an important factor in improving the overall enforcement of Forestry laws and rules. Better communications through personal contacts and development of a mutual radio frequency will be a major goal. Involvement by Conservation Officers will fall into two main activities: 1) assistance with the more serious violations that occur in all programs; and 2) coordinated patrols to monitor campgrounds and fire problems. It will be extremely important for the local Conservation Officers to work through the Area Forest Supervisor and his District Foresters when dealing with forestry laws.

Compartment analysis has identified 11 compartments in the Moose Lake Area that have special enforcement needs. The majority of these compartments are associated with a developed recreation facility. Specific enforcement procedures have been established by the Area for each of these facilities. They include having caretakers present during times of peak use, forest officer campground patrols, and campground patrols by conservation officers and other law enforcement agencies.

Enforcement Priorities for 1984-1994

- Assure that all Forestry personnel receive at least the minimum training required to carry out delegated enforcement tasks.
- Improve fire investigation activities through increased training, use of Arson Teams, and local Conservation Officers.
- Increase the level of patrols and inspections of campgrounds and day-use areas.
- Increase patrols for illegal burning activities during peak hazard periods.
- Develop better communications with the Division of Enforcement and local sheriffs.

● PLAN IMPLEMENTATION AND MONITORING

IMPLEMENTATION AND MONITORING

The monitoring and implementation system in the Moose Lake Area will consist of annual work plans, quarterly accomplishment reports, annual spending plans, expenditure records, position descriptions, time summaries and operational evaluations. These processes will be developed at the area level so that they can be integrated into the division's overall work planning, budgeting and accomplishment reporting structure.

IMPLEMENTATION RESPONSIBILITY

Area staff will have the primary responsibility for implementing the plan. Special assistance will be provided by the St. Paul Planning and Management Information Systems staffs in designing the accomplishment reporting and work planning systems. The planning staff will also provide assistance in the rewriting of the plan.

PLAN REVIEW AND REVISIONS

Continual revision of the Moose Lake Plan is necessary to ensure lasting plan utility and effectiveness. Factors that would result in plan revision include:

- Operating budget substantially differs from the projected figures.
- Program objectives change significantly.
- Management needs change significantly.
- New information and analytical methods become available that would have a major impact on planned activities.
- The Minnesota Forest Resources Plan changes focus significantly.
- Exceptional events occur such as:
 - a major fire year
 - a substantial change in the land base
 - major shifts in timber markets
 - major shift in recreational demands

An overall rewrite of the plan will be completed no later than 1990 and every four years thereafter. This will include a reassessment of the area's land base and the program directions for the area as well as development of new program objectives and an implementation plan.

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Volume 1 Concept Document 27 p.
Volume 2 Issues Document 54 p.
Volume 3 Assessment 304 p.
Volume 4 Goals and Strategies 47 p.
Volume 5 Objectives and Recommendations 78 p.
Volume 6 Program and Budget 115 p.
Volume 7 Annual Budget Implementation 37 p.
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*For a complete listing of bibliographic sources consult the Moose Lake Area Forest Resource Management Plan - Primary Document. Copies are available from the addresses listed on page 1.

COMPARTMENT ID: 10. Nemadji State Forest - Black Lake Bog Scientific and Natural Area MANAGEMENT CATEGORY:

<u>RAD</u>	<u>COUNTY</u>	<u>SECTION</u>	<u>TOWNSHIP</u>	<u>RANGE</u>
342 Nickerson	58 Pine	Parts of 18, 19, and 30	45N	15W
		Parts of 13, 24, and 25	45N	16W

<u>ACREAGE</u>	<u>LAND STATUS</u>	<u>CURRENT MANAGEMENT UNIT DESIGNATION</u>
1,414	LF. 50/50 (1,374 ac.)	35. Nemadji State Forest
	BA. Indemnity School Trust (40 ac.)	

This compartment contains Black Lake, a softwater bog lake located on the Minnesota/Wisconsin border, and surrounding wetlands. In T45N, R15W the compartment includes the Minnesota portions of sections 19 and 30, and the SWSW of section 18. In T45N, R16W the compartment includes all land east of the railroad right-of-way in sections 24 and 25, and that part of the S $\frac{1}{4}$ of section 13 east of the railroad right-of-way. This compartment is proposed for designation as a Scientific and Natural Area.

Access: Access is by foot via the Soo Line Railroad grade or by boat up the Black River in Wisconsin.

*Cover Type: Marsh 42%, lowland brush 32%, stagnant spruce 10%, aspen 8%, ash 6%. This compartment contains an inaccessible, undisturbed wetland complex located on an end moraine. The land surrounding the 80 acre lake is primarily muskeg. The open bog is dominated by leatherleaf with scattered patches of bog rosemary. Black spruce are mostly scattered and stunted but occasionally form a dense stand of full-sized trees.

Fish and Wildlife: There is considerable waterfowl hunting on Black Lake.

Minerals and Soils: Metallic potential Class D. Probable peat on lowland types, depth unknown. Geomorphic region 61.

Ownership/Land Use: Classified retain for multiple use. The Soo Line Railroad right-of-way forms the western boundary of the compartment. The compartment is surrounded by public land on all sides, including in Wisconsin. The Minnesota and Wisconsin Departments of Natural Resources have discussed establishing an interstate Scientific and Natural Area to protect the relatively undisturbed wetland communities surrounding Black Lake.

*Water: Protected waters - Black Lake (Minnesota portion).

RESOURCE MANAGEMENT GUIDELINES

The following management guidelines will apply on an interim basis pending development of the SNA management plan and official designation as an SNA. The SNA program will develop the management plan during the 1986-87 biennium.

Fish and Wildlife: No active habitat management.

Land Administration: Determine implications of placing trust fund land in a "non-income producing" compartment. Exchange trust status to land in another income producing compartment if necessary. Develop cooperative management agreement with Wisconsin to ensure compatible management of the entire wetland complex. Change administrator code to SNA and change land classification on DNR land ownership records when SNA is dedicated. The Division of Forestry will continue to conduct most management activities as outlined in a cooperative agreement with the SNA program.

Recreation: No developed recreation facilities permitted. Continue to allow waterfowl and other hunting and fishing activities.

Timber: Alter Phase II inventory timber status to reflect prohibition of logging in compartment.

PROPOSED DISPOSITION

Establish SNA as secondary unit within the Nemadji State Forest.

COMPARTMENT ID: 11. Nemadji State Forest-East MANAGEMENT CATEGORY:

<u>RAD</u>	<u>COUNTY</u>	<u>SECTION</u>	<u>TOWNSHIP</u>	<u>RANGE</u>
342 Nickerson	58 Pine	22, 23, 26, 27, 28, 33,	45N	16W
343 Eaglehead		and parts of 13, 14, 15, 24, 25, 34, 35 and 36 4, 9, 10, 15, 16 and parts of 3	44N	16W

<u>ACREAGE</u>	<u>LAND STATUS</u>	<u>CURRENT MANAGEMENT UNIT DESIGNATION</u>
10,240	LF. 50/50 (9,320 ac.) AA. School Trust (760 ac.) CB. Swamp Trust Exchange (120 ac.) BA. Indemnity School Trust (40 ac.)	35. Nemadji State Forest

COMPARTMENT HIGHLIGHTS

This compartment consists of a remote portion of the Nemadji State Forest, west of the Soo Line R.R. grade. This compartment will be managed to provide habitat for deer and wildlife species requiring remote conditions with low levels of human activity; timber; and dispersed recreation opportunities.

Access: Access to this compartment is via the Net Lake, Park Trail, and Beldon state forest road system of class 5 roads. The Soo Line R.R. grade adjacent to this compartment is proposed for abandonment. Development of a state forest road is a possible use of the grade with a connection to the Harlis State Forest Road in Carlton County.

*Cover Type: A number of large virgin white pines remain in this compartment. The cover type composition has not been recalculated for the new boundaries of this compartment.

*Fish and Wildlife: This compartment contains moose, bobcat, marten, fisher, wolf and possibly occasional lynx and great gray owl. These species are at the extreme southern edge of their present range in Minnesota. Reasons for their existence include a remote location and relatively undisturbed natural resource base.

Forest Pest: Remnant white pines are subject to blister rust infection and periodic defoliation by introduced pine sawfly.

Minerals and Soils: Metallic potential class D. Peat probably in lowland types, depth unknown. Geomorphic region 61.

Ownership/Land Use: The compartment is surrounded by state lands within the Nemadji State Forest which contain some permanent forest roads. The Soo Line Railroad track has not been used for several years and will probably be abandoned. Most land in the compartment is classified retain for multiple use management.

*Recreation: A state forest snowmobile trail that has not been groomed for the past 3 years because of wet terrain passes through the compartment. This trail formed a loop off of the Minnesota/Wisconsin Boundary Trail. One of the alternative trail alignments proposed for the Minnesota-Wisconsin Boundary Trail would use state forest roads and the Soo Line Railroad grade adjacent to this compartment.

RESOURCE MANAGEMENT GUIDELINES

Access: Maintain current low levels of motorized access to compartment to retain wildlife and solitude values. Analyze alternative uses of Soo Line R.R. grade if abandoned and acquired. No new permanent roads will be developed within this compartment. Temporary roads to permit winter logging and reforestation may be developed. All new temporary roads will be class 5 or lower standards and will be gated or otherwise closed where they leave existing roads or at the compartment boundary.

Fish and Wildlife: Manage to maintain species requiring remote, relatively undisturbed habitat. Maintain white cedar type where it occurs.

Forest Pest Management: Conduct periodic survey of remnant white pines to monitor rust infections and plan foliage protection if high sawfly populations persist for more than 2 years. Use genetically improved white pine stock to reestablish the species in targeted areas.

Land Administration: Acquire approximately 14 miles of Soo Line right of way within Nemadji State Forest if abandoned to prevent fragmentation of ownership. Analyze feasibility of alternative uses of the right-of-way, including road or trail development

Recreation: The remote location and wet terrain make this compartment suitable for dispersed recreation activities. Hunting and trapping will remain the most frequent activities occurring in the compartment. Snowmobiling and off road vehicle use will be allowed on existing trails and roads but the trails will not be maintained or groomed because of wet conditions, limited use, and availability of alternate trails within the Nemadji State Forest. New class 5 roads developed in conjunction with winter logging activities will be gated or otherwise closed to limit disturbance of wildlife and non-motorized users by motorized vehicles and prevent soil erosion.

Timber: Restrict harvesting operations to winter only. Maintain remnant white pines.

PROPOSED DISPOSITION

Retain in state forest.

