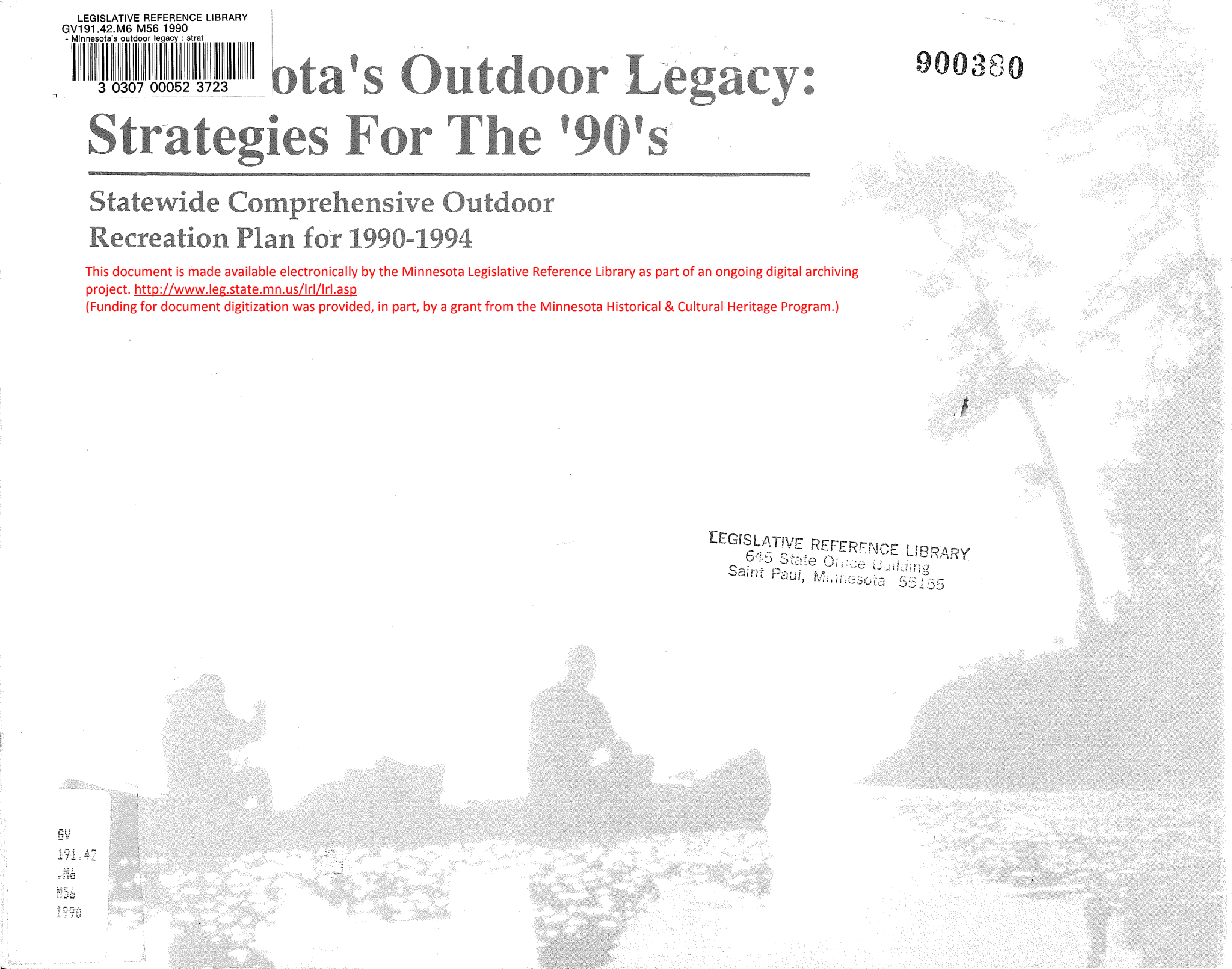
ota's Outdoor Legacy: Strategies For The '90's

Statewide Comprehensive Outdoor Recreation Plan for 1990-1994



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Additional guidance and public comment was provided by the DNR's Outdoor Recreation Planning Advisory Committee - a standing recreation advisory committee representing a diverse cross-section of Minnesota's public and private sector outdoor recreation interests. The authors would especially like to thank those who testified before the Governor's Commission On Minnesotans Outdoors as part of its 1986 fact-finding tour of Minnesota. Transcripts of the six COMO hearings provided a wealth of information and insights into contemporary outdoor recreation issues facing Minnesota.

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Minnesota's Outdoor Legacy: Strategies For The '90's

Statewide Comprehensive Outdoor Recreation Plan for 1990-1994

Assessment & Policy Plan

Prepared By: Minnesota Departments of Natural Resources and Trade & Economic Development

STATE OF MINNESOTA

Proclamation

WHEREAS: *The Land and Water Conservation Fund has had a significant impact on outdoor recreation in Minnesota and has greatly contributed to the quality of life in this state; and*

WHEREAS: *Recreation areas funded with Land and Water Conservation grants are protected in perpetuity by a provison of the Land and Water Conservation Fund Act, thus assuring a statewide recreation and conservation legacy for the benefit of future generations; and*

WHEREAS: *All state governments have benefited greatly from the Land and Water Conservation Fund grant program by using these funds to acquire over three million acres and to develop more than 22,000 recreation facilities; and*

WHEREAS: *Minnesota state and local governments have acquired 87,665 acres and participated in 709 development projects with Land and Water Conservation Fund grant assistance; and*

WHEREAS: *Minnesota state and local governments have contributed over $56 million to match Federal support for this program; and*

WHEREAS: *The legislation enacting the Land and Water Conservation Fund was signed 25 years ago on September 3, 1964 becoming effective on January 1, 1965;*

NOW, THEREFORE, I, Rudy Perpich, Governor of the State of Minnesota, do hereby proclaim that I endorse the

25TH ANNIVERSARY COMMEMORATION OF THE LAND AND WATER CONSERVATION FUND

and support activities that positively contribute to this important occasion. Also, I call upon all jurisdictions within this State to commemorate this year-long event with rededication of Land and Water Conservation Fund facilities and parks, as appropriate to this important event.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Minnesota to be affixed at the State Capitol this eighth day of February in the year of our Lord one thousand nine hundred and ninety and of the State the one hundred thirty-first.

Rudy Perpich
GOVERNOR

Joan Anderson Growe
SECRETARY OF STATE

RUDY PERPICH
GOVERNOR

STATE OF MINNESOTA
OFFICE OF THE GOVERNOR
ST. PAUL 55155

December 26, 1989

Dear Friends:

It is my pleasure to present Minnesota's **Statewide Comprehensive Outdoor Recreation Plan for 1990-1994.** This five-year plan for outdoor recreation builds upon earlier efforts, including the recommendations of my 1986 ***Commission On Minnesotans Outdoors.*** It represents a broad consensus among the many groups and individuals who actively participated in its development.

With over 12,000 lakes, 90,000 miles of streams and rivers, 17 million acres of forest, along with the abundance of fish and wildlife that these waters and forests support, Minnesota truly offers a wealth of outdoor recreation opportunities. This forward-looking plan for outdoor recreation seeks to preserve and protect these valued resources, while expanding recreation opportunities across the state.

Outdoor recreation is also a vital component of Minnesota's economy. Now estimated at nearly $2 billion annually, outdoor recreation provides income and employment for thousands of Minnesotans. We will continue to support new initiatives to maintain our healthy recreation and tourism industry in the years to come. We also intend to work closely with the federal administration and Congress to build upon the federal/state partnership begun under the Land & Water Conservation Fund Program. This important program has guided over $100 million to state and local government agencies in Minnesota for land acquisition and recreation facility development since it began 25 years ago.

I hope you will take the time to familiarize yourself with this important document and join my family and me in enjoying Minnesota's natural heritage. We can all be better stewards of this legacy if we take the time to appreciate the beauty of our state, to learn more about our natural surroundings, and to rediscover our heritage.

Sincerely,

RUDY PERPICH
Governor

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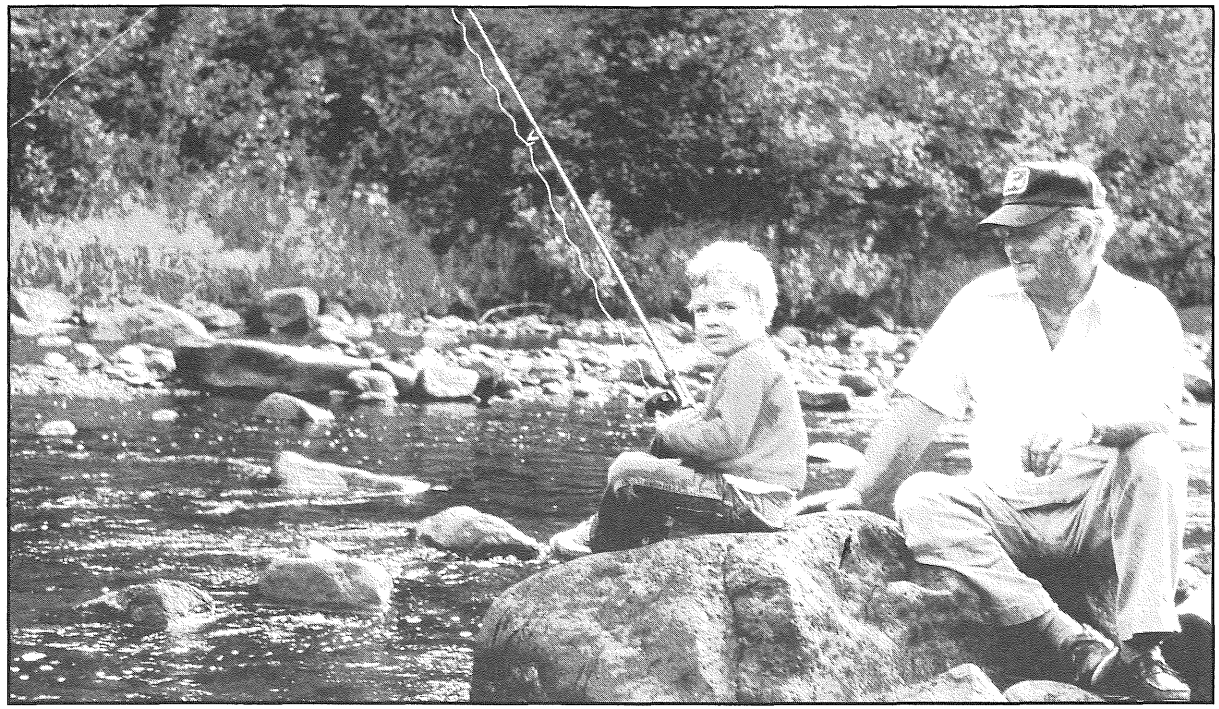
Introduction

Outdoor recreation has been an important part of Minnesota's social fabric for many years. The state's abundant natural resources provide for diverse outdoor recreation opportunities that are enjoyed by growing numbers of Minnesotans and non-Minnesotans alike. Participation in outdoor recreation has grown tremendously in the past and projections call for continued growth, although at a more moderate rate than that of past decades.

Expenditures for outdoor recreation, and for the closely allied travel and tourism industries, also play an important role in Minnesota's economy. In 1985, recreators spent more than $1.8 billion in the state, of which 21 percent (or $386 million) were travel expenditures by non-residents of Minnesota. Minnesota ranks 13th among states in per capita tourism expenditures, with $1,185 spent annually for every citizen of the state. With per capita tourism spending higher than the national average, Minnesota's tourism industry income fuels growth in the state and local economies, contributing to the overall economic well-being of the region.

Because of this steady growth, more and different outdoor recreation facilities and services will be needed in Minnesota in the years to come. At the same time, however, opportunities for providing additional recreation opportunities will become increasingly more limited as the state's fixed supply of land, water, shorelands, scenic and natural areas, and open space are developed to meet the needs of a growing population.



Minnesota's Outdoor Recreation System Defined

Minnesota's "Outdoor Recreation System" is formally defined by Minnesota Statutes, Chapter 86A (1975) to include all lands and facilities established by the Minnesota Departments of Natural Resources and Transportation to provide public access to outdoor recreation. Examples include State Parks, State Trails, State Forests, State Wild, Scenic and Recreational Rivers, Scientific and Natural Areas, Wildlife Management Areas, Historic Sites, Public Water Accesses, Public Waysides and Rest Stops. Federal recreation agencies provide a similar range of public facilities and services on federal lands in Minnesota.

Recreation Roles and Responsibilities

County, township and municipal governments are charged with providing local parks and close-to-home recreation opportunities for communities throughout Minnesota. They provide an extensive network of local parks, athletic facilities, nature preserves, golf courses, swimming beaches, picnic sites and urban open space. Regional (or multi-county) parks and open space agencies serve to coordinate the planning and development of area-wide recreation systems.

Publicly-sponsored recreation facilities provide access to the outdoors for many who would otherwise be unable to enjoy recreational benefits, including the aged, the unemployed, the economically disadvantaged,

physically disabled individuals, and the state's young people - who all benefit from free or low-cost recreation opportunities.

Private sector recreation providers generally focus on those activities that offer a higher level of services or amenities than provided by the public sector, and those with greater potential for generating profit. For example, private providers supply hotel/motel rooms, recreational vehicle parks, swimming beaches, resorts and marinas, golf courses, group camps and, to a lesser extent, camping and picnic sites, water access sites and hiking trails.

Together, recreation providers at the federal, state, local and municipal levels, and in the private sector, interact to supply the land, facilities and program opportunities that, in sum comprise Minnesota's total outdoor recreation system. Each supplier has goals and objectives that guide the management, development and use of recreation resources, consequently defining the overall scope and character of available recreation opportunities.

With the variety of recreation providers arises the risk of duplication, missed opportunities or a lack of coordination. This Statewide Comprehensive Plan for Outdoor Recreation (SCORP) is intended to provide a unified source of direction and a mechanism for coordinating future development of Minnesota's outdoor recreation resources.

Planning for Outdoor Recreation in Minnesota

Purpose

This Statewide Comprehensive Outdoor Recreation Plan has been prepared to guide recreation-related land acquisition, facility development and recreation programming for the period 1990-1994. It is the fifth in a series of such plans developed as part of the state's commitment to continuous planning for outdoor recreation. As such, it satisfies requirements of the Federal Land and Water Conservation Fund (LWCF) Act of 1965 (P.L. 88-578), which requires states to have an approved SCORP on file with the National Park Service in order to participate in LWCF cost-share funding.

Federal LWCF dollars, generated by a tax on off continental shelf oil drilling, may be used to finance state and local government land acquisition and recreation development programs. Since the program began in 1965, Minnesota has received over $56.5 million for these purposes. Of this, about half of the monies have been used for land acquisition and the remainder for recreation facility development.

Over 87,665 acres have been directly acquired with LWCF dollars in Minnesota. Among the statewide facilities developed with LWCF funds are 64 State Parks, 6 Waysides, 5 State Trails, 13 Public Water Accesses, 4 Wild & Scenic Rivers, 32 State Forest Campgrounds, 6 Scientific and Natural Areas, and 11 Wildlife Management Areas.

From 1966-1988, over 700 local projects received LWCF funding totaling $27 million, with an additional $15 million in state and local matching funds. Every county in Minnesota has received LWCF funding.

Scope and Objectives

Minnesota's 1990-1994 SCORP provides a mechanism and framework for coordinating outdoor recreation planning throughout the state. It differs from its predecessor, the state's 1984-1989 SCORP, in the level of detail presented. It also represents a shift from the preparation of a data-based reference document to an issue-oriented discussion of goals and strategies needed to move outdoor recreation interests forward in Minnesota. By identifying emerging issues and opportunities, the plan focuses public attention on pressing recreation problems in an effort to guide decisionmakers toward suggested solutions.

Minnesota's SCORP is not a "blueprint" for the future. Rather, it is intended to guide future development of outdoor recreation programs, services and facilities by public and private sector recreation providers. The plan was written for a broad, non-technical audience who share an interest in recreation. And, although it is intended to address long-range concerns, major emphasis is on recreation needs for the period 1990-1994. Other specific objectives include the need to:

1. Present timely and accurate information on the current status of recreation resources in Minnesota, including their supply and user demand, as well as public attitudes and expectations regarding outdoor recreation.

2. Identify and assess recreation resource issues and opportunities, as well as strategies and actions needed to address them.

3. Provide a forum for public discussion and debate concerning outdoor recreation issues, needs and alternative courses of action.

4. Recommend goals and priorities for public land acquisition, facility development, recreation programming and visitor services.

5. To examine the roles and responsibilities of public and private sector recreation providers in meeting future recreational demands.

6. Revise and update Minnesota's 1984-1989 SCORP, providing an equitable basis for the distribution of LWCF funds to state and local governments through the Open Project Selection Process.

Key Assumptions

The following basic assumptions were used to guide the development of Minnesota's **SCORP:**

1. The overall demand for outdoor recreation in Minnesota will increase commensurate with growth in population, leisure time, personal disposable income, increased mobility, and higher per capita participation rates for various outdoor recreation activities.

2. Minnesota's outdoor recreation resources play an important role in promoting tourism and economic development, both at the state and local levels.

3. Preservation of Minnesota's historic, cultural and natural resources is essential for the continued growth and development of the state, and is central to its renowned "quality of life".

4. Each level of government, and the private sector, has a legitimate role and responsibility for providing outdoor recreation opportunities for Minnesotans and their visitors.

Planning Process, Products and Participants

Minnesota's Statewide Comprehensive Outdoor Recreation Plan consists of three parts. First, the Assessment & Policy Plan assesses the supply of and demand for Minnesota's outdoor recreation resources, along with the social, economic and environmental trends which affect our state. This assessment leads to the development of issues, strategies and recommended actions needed to move recreation interests forward in Minnesota over a five-year period. The Assessment & Policy Plan serves as a guide for public and private sector recreation providers.

Next, the Action Program identifies specific land acquisition and recreation facility development priorities for a two-year period.

These priorities stem directly from recommendations contained in the Assessment & Policy Plan. Only those actions that qualify for federal LWCF cost-share assistance are addressed.

Finally, the Open Project Selection Process (OPSP) serves as a systematic and objective method of selecting specific acquisition and development projects to be funded by the LWCF grant program. LWCF grants are available only to local governments and state agencies, and competition for funds is intense. The OPSP includes a priority ranking system which awards points to grant applications based on how well they address the priorities established in the current SCORP Action Program.

Minnesota's Assessment & Policy Plan, Action Program and Open Project Selection Process are issued as separate documents. All three SCORP documents are available upon request through the DNR's Office of Planning.

Plan Development

Minnesota's SCORP was developed over a multi-year period through the efforts of many groups and individuals. It is also the product of several previous planning efforts, including the Governor's Commission On Minnesotans Outdoors (COMO) and the DNR's Strategic Directions planning process (See planning schematic).

Governor's Commission On Minnesotans Outdoors

The Commission On Minnesotans Outdoors (COMO) was a six-member commission appointed by Governor Rudy Perpich in 1985 to study and report on Minnesota's future outdoor recreation needs. The Commission was chaired by the state's Lieutenant Governor, Marlene Johnson. Six public hearings were held to collect public testimony across the state. In their June 1986 report entitled "Recommit To Recreation", the commission highlighted seven broad issue areas, including:

1. Natural Resource Conservation
2. Outdoor Recreation Financing
3. Acquisition of Recreation Lands and Facilities
4. Recreation Programs and Facilities
5. Outdoor Recreation Marketing
6. Environmental Education
7. Coordination Among Outdoor Recreation Providers

Twenty-two separate recommendations were made in the report which was submitted to the Governor and to the President's Commission On Americans Outdoors.

DNR, Directions For Natural Resources (1989)

Directions is the strategic planning document for the Minnesota Department of Natural Resources. It represents an annual interdisciplinary effort to identify emerging natural resource issues in Minnesota, and to develop goals, strategies and actions to address these issues. DNR staff from across the state are involved in the preparation of this report, and public comments are also invited. The 1989 Directions process produced five key outdoor recreation strategies and over a dozen specific actions in response to the five issues identified below:

1. Maintaining Outdoor Recreation Facilities
2. Expanding Opportunities For Outdoor Recreation
3. Strategic Planning for Minnesota's Outdoor Recreation System
4. Increased Resource Management in Recreation Areas
5. Expanding Interpretive Opportunities and Visitor Services

Planning Participants

Information from both the COMO report and from the DNR Directions planning process was reviewed and refined first by the DNR's Outdoor Recreation Coordinating Committee (ORCC), followed by the Outdoor Recreation Planning Advisory Committee (ORPAC).

The ORCC technical planning advisory includes representatives of each of the DNR disciplines with responsibility for recreation programs or activities (e.g., Enforcement, Forestry, Fish and Wildlife, Minerals, Parks

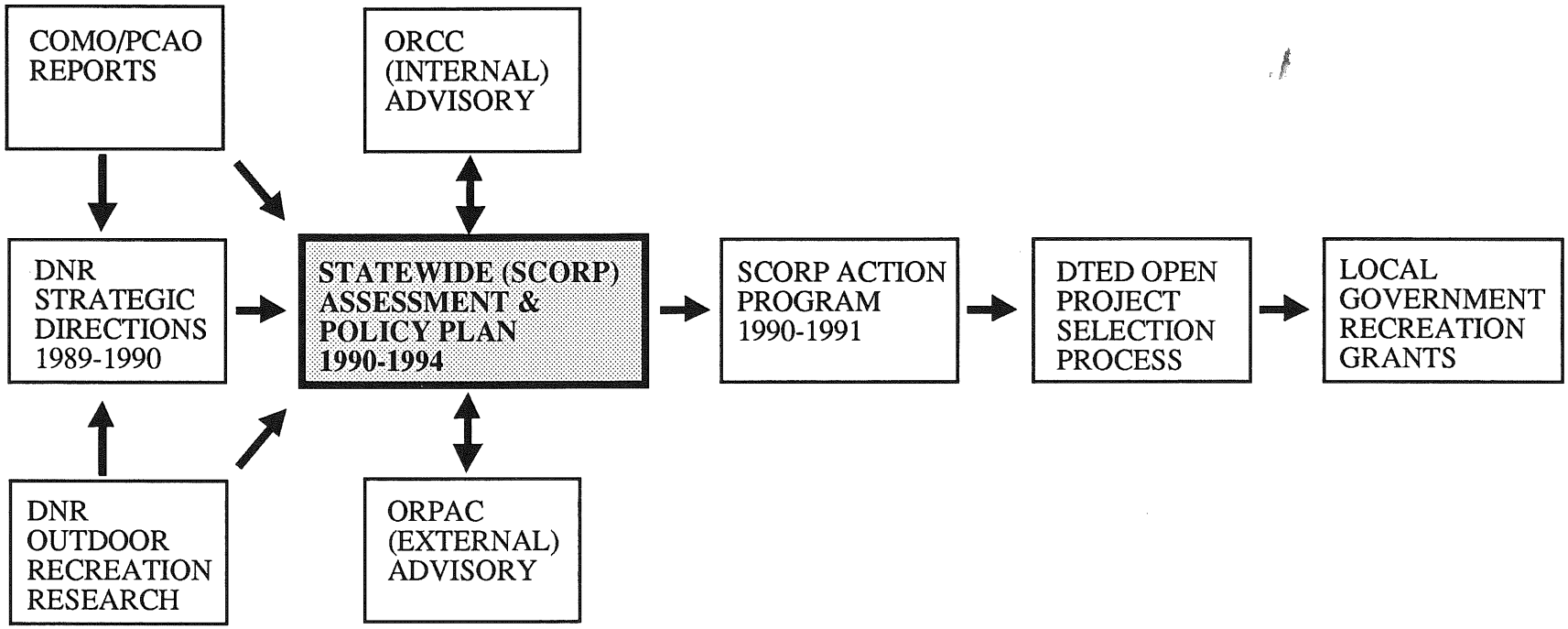
and Recreation, Trails and Waterways, and the Waters Division).

The ORPAC public advisory group includes over seventy federal, state, local and regional agency representatives, as well as representatives from Minnesota's minority and handicapped communities, parks and recreation interests, the University of Minnesota and various organized private interest groups. The ORPAC advisors participated in a series of mailings and meetings designed to solicit information and ideas at each step of the SCORP planning process.

Issue Development

Five broad issue areas were selected by planning participants for further study: 1) Natural Resource Protection and Management; 2) Public Land Acquisition; 3) Recreation Facility Development, Redevelopment

Minnesota Outdoor Recreation Planning Process (1989)



Key:

COMO = Commission on Minnesotan's Outdoors

PCAO = President's Commission on Americans Outdoors

ORCC = Outdoor Recreation Coordinating Committee

ORPAC = Outdoor Recreation Policy Advisory Committee

SCORP = Statewide Comprehensive Outdoor Recreation Plan

DTED = Department of Trade and Economic Development

DNR = Department of Natural Resources

and Rehabilitation; 4) Recreation Programming and Visitor Services; and, 5) Maintenance and Operations of Existing Outdoor Recreation Facilities. These five issues were assessed broadly resulting in policy-level recommendations keyed to specific planning, financing, coordination and information needs in each area.

Information Sources

Current outdoor recreation survey and research information was used to analyze each of the issues as appropriate. Key sources of information included the following:

Public Opinion Poll On Natural Resource Issues (MDNR,1989)

Outdoor Recreation Facility Adequacy Poll (MDNR,1989)

Minnesota Registered Boaters Attitude Survey (MDNR,1988)

Minnesota Outdoor Recreation Participation and Expenditure Survey (MDNR,1978, 1985-86)

In total, the above surveys involved individually contacting several thousand persons in all geographic regions of Minnesota to solicit their opinions on contemporary recreation needs and issues. Many of the issue discussions were derived from more lengthy studies, plans or reports. Consult the Bibliography for a complete listing of information sources.

Findings and Recommendations

Key findings and recommendations were distilled from issue discussions and are presented at the conclusion of each major issue area. Recommendations also appear in the Executive Summary section of the report. Recommended actions represent a consensus among plan reviewers. Where concensus could not be reached, proposed goals and strategies were dropped from the final report.

Plan Format and Contents

The problem-solving orientation of Minnesota's 1990-1994 SCORP is reflected in the overall structure of the Plan and its Appendices. Chapter One provides an overview of the supply of and demand for outdoor recreation in Minnesota. Key assumptions, trends and projections are described, as are the projected impacts of socioeconomic and demographic changes on future recreation demands. Current research and survey results are also discussed, as appropriate, to provide a better understanding of recreation trends and projections.

Chapter Two focuses on five key issue areas identified by Minnesota outdoor recreation providers. Preliminary findings and recommendations follow each major issue discussion and are also summarized in the Executive Summary.

Chapter Three contains a discussion of the mechanism used to implement SCORP findings and recommendations. The Action Planning and Open Project Selection Process are explained, as are plans to update, revise and/or amend each of these planning documents.

Plan Appendices

Recreation Facility Adequacy Survey (1988)
In 1988, the Minnesota Department of Natural Resources polled 2,400 Minnesotans to gauge public perceptions of the adequacy of outdoor recreation facilities available to their households. The poll was conducted by the Minnesota Center for Survey Research, University of Minnesota. Poll results were used to develop this Statewide Comprehensive Outdoor Recreation Plan, and will be used in subsequent DNR strategic planning and marketing efforts. A tabulation of survey results is available upon request from the Office of Planning, Minnesota Department of Natural Resources, St. Paul, MN 55155-4010.

Wetlands Component
The SCORP Wetland's Component entitled: "Preserving Minnesota's Wetlands" is referenced in this report and will be submitted to the National Park Service under separate cover. This 57-page report highlights Minnesota's efforts to conserve wetland areas, and it documents wetland protection and enhancement programs currently in effect. This addendum to Minnesota's SCORP complies with provisions of the 1985 Federal Food Security Act and the Emergency Wetland Resources Act of 1986. The SCORP Wetlands Component is also available through the DNR's Office of Planning.

Executive Summary

Outdoor Recreation in Minnesota: Trends Influencing the Future

Use of Minnesota's outdoor recreation resources has grown substantially in recent years - by as much as 30% at some facilities. Along with increased numbers of visits, Minnesotans are seeking more diverse settings in which to pursue both traditional and non-traditional recreational activities. Increasingly, recreation providers must accommodate activities such as recreational vehicle camping, off-road vehicle use, skate-skiing, mountain biking, use of personal watercraft, and long-distance hiking, biking, snowmobiling and cross-country skiing.

Trends creating demands for innovative recreation programs and facilities include greater public interest in health and fitness, improved recreation technology, the rise in dual-income households, and a rapidly growing number of special interest groups who seek a wider range of recreation services and facilities. On the other hand, there are also more single-parent families and others with special needs who often lack the time, money, mobility or the outdoor experience to make use of traditional recreation facilities.

Other trends shaping Minnesota's outdoor recreation market include the rapid aging of the state's population, and a gradual move towards greater urbanization in many areas. Recreation researchers expect twenty-first century Minnesotans to recreate more often, but for shorter periods and closer to home. They will seek less strenuous forms of recreation, in close proximity to other leisure time opportunities and amenities.

Meanwhile, changing attitudes and values signal renewed interest in resource conservation and environmental issues. Witness the nearly 80 percent voter approval of the 1988 Constitutional Amendment creating Minnesota's Environment and Natural Resources Trust Fund. Increasingly, Minnesotans wish to better understand their natural surroundings, and the cultural significance of the recreational areas they visit. They also wish to participate in planning and policy decisions that affect natural resources.

The Challenge Ahead

The changing face of outdoor recreation mirrors the growing social, economic and cultural diversity of Minnesotans. It calls for renewed emphasis on public land acquisition and the development of new and different outdoor recreation facilities. The 1990's may well prove to be the last opportunity to preserve many of the state's truly outstanding recreational resources, particularly those in close proximity to fast-growing urban and rural population centers, where facilities are already in short supply and where land values are rapidly escalating. Innovation in recreation programming and visitor services is also needed to provide the range of opportunities that today's recreators are demanding.

At the same time, however, land acquisition and new facility development plans must be tempered by the need to maintain and protect past investments in Minnesota's outdoor recreation infrastructure. Much of the state's outdoor recreation system is currently operating at or below generally accepted health, safety and service standards. Many facilities remain inaccessible by those with physical disabilities.

These important challenges call for careful re-examination and redefinition of Minnesota's outdoor recreation system, as it currently exists. Public funds must be reinvested in deteriorating recreation facilities. And, the roles of public and private sector recreation providers must also be reassessed and modified to reflect changed conditions, and to ensure a balanced approach to meeting future recreation needs.

Protecting and Managing Recreation Resources

Minnesota is generously endowed with outdoor recreation resources. With over 12,000 lakes, 90,000 miles of streams and rivers, 17 million acres of forest land, and the abundance of fish and wildlife that these lands and waters support, Minnesota offers a wealth of recreational opportunity.

Outdoor recreation in Minnesota is also big business. Over 500,000 hunters, 2 million anglers, 200,000 registered snowmobilers and 700,000 registered boat owners are among those who contribute nearly $2 billion annually to the state's economy. Outdoor recreation provides income and employment for thousands of state residents, and an economic boost for local economies. The larger value of this resource, however, is immeasurable.

Each year more and more Minnesotans are fishing, hunting, camping, hiking, viewing nature or just enjoying the outdoors. Meanwhile, the state's lakes and streams, forests, and fish and wildlife habitats are being threatened in many areas by rapidly growing land use pressures. Urban, suburban and rural development is taking its toll, as is the drainage of wetlands, the clearing of wooded areas, lakeshore and streambank erosion, and the overuse of sensitive natural areas. This dilemma is causing growing concern among avid resource users who recognize the vital links between man and nature.

Growing, changing recreational demands often focus on Minnesota's most sensitive natural resources, such as the state's prime lakes, wetlands, shorelands, vanishing urban open space, and on increasingly crowded waterways. User conflicts have intensified, and new and emerging demands, in many cases, conflict with established uses of public lands.

By their very nature, natural resource management and protection programs imply long-term investments. They require a dedicated source of financial support free of frequent shifts of emphasis. Only then can a steady and predictable flow of resource benefits be attained. A vision of Minnesota's future must, therefore, include increased funding for natural resource protection and management programs. Additional professional resource management and law enforcement personnel should also be provided based on an analysis of the growing field workload. We must strive to balance resource use and preservation, and make a strong, long-range commitment to restoration.

Planning and Funding Future Recreation Development

Since the Federal Land & Water Conservation Fund (LWCF) Program began in 1965, Minnesota has received over $56.5 million in federal dollars for recreation-related land acquisition and facility development. State and local units of government have matched these funds, funneling over $100 million into outdoor recreation projects. Every county in Minnesota has received LWCF funding.

Competition for LWCF dollars has, however, become increasingly intense. Over the period 1985-1989, less than $4 million in LWCF funding was available to fund over $67 million in grant requests - an average of less than $.06 for each dollar requested. Despite steadily decreasing annual apportionments, however, federal LWCF cost-share funds continue to provide the major source of funding for many local park and recreation programs.

Reduced funding, and funding instability, limits opportunities to protect and enhance Minnesota's outdoor recreation estate. Tight agency budgets have resulted in cutbacks in programs and services, especially those with indirect or long-term effects such as facility maintenance and resource management. Continued federal funding is needed to challenge and leverage state, local and private investment in Minnesota's outdoor recreation system.

Environmental Education: Building An Informed Constituency

In our increasingly urban society, many Minnesotans are becoming further and further removed from their natural, ecological surroundings. Consequently, many lack even a basic understanding of environmental concepts, outdoor and life skills, or the ethical behavior and values associated with natural resource conservation.

Education is increasingly recognized as the key to protecting and preserving Minnesota's environment and natural resources over the long term. Incorporating environmental education concepts into elementary and secondary school curriculum materials, emphasizing the inter-relationships between contemporary environmental issues, helps students to better understand how their actions affect environmental quality. Awareness of critical resource issues can lead to strong, active, visible and vocal support for resource conservation programs.

Interpretive programs provide first-hand experience with natural and cultural resources, leading to a deeper awareness and concern for the stewardship of those resources. Interpretive learning provides a valuable framework for understanding the facts and concepts taught in our schools. However, because the results of interpretive programs are often difficult to measure, funding support for these programs has been inconsistent. Unlike statutorily authorized responsibilities, there is no comprehensive state or federal mandate requiring public recreation providers to offer interpretive services.

Building public awareness of resource issues is critical to the protection of Minnesota's natural and cultural heritage. The ability to manage controversial issues and to secure public cooperation hinges upon providing Minnesotans of all ages with timely, factual and balanced views on current issues.

Protecting Minnesota's Investment In Outdoor Recreation

Minnesotans have made substantial investments over the past 25 years in developing one of the finest outdoor recreation systems in the nation. Adequate maintenance and effective operations are essential in order to protect this investment, and to safeguard the health and safety of recreators.

Unfortunately, many state and local outdoor recreation facilities are rapidly deteriorating due to their age, increased use and vandalism. In recent years, funding for facility repair and preventative maintenance has been insufficient to reverse this disturbing trend.

Maintenance and operations funding for units of the state's outdoor recreation system has remained relatively constant during the 1980's, despite the eroding effects of inflation, salary increases, cuts in base-level funding, increased operating expenses, and costs resulting from growing visitor use and new facility construction. As a result, visitor safety and satisfaction are jeopardized, and public services have been reduced.

Long-neglected maintenance and operations needs have reached a critical point. A 1989 series of status reports on Minnesota's State Parks, for example, identified more than $55 million in capital budget needs for land acquisition and resource management projects, as well as for major repair, rehabilitation and replacement of existing State Park facilities.

At the local level, outdoor recreation funding must compete with other important public needs such as police and fire protection, road repairs and the need to provide for basic human services. Recreation is not often accorded as high a priority as these essential services.

An ongoing program of facility rehabilitation and repair is essential to protect past investments in outdoor recreation facilities, and to minimize new facility development costs to taxpayers. Dollars spent for routine maintenance and rehabilitation can save major redevelopment costs later on, and can ensure full and extended use of existing facilities. The development of minimum facility maintenance and service standards among public recreation providers would assist in early identification of unmet management needs.

Partnerships For Progress

Whether at the federal, state or local levels, it is imperative that the public and private sectors work together to provide recreation. At the simplest level, government must provide those facilities and services that meet public needs, especially when some segments of the public would otherwise be unable to access them, or where the private sector cannot operate profitably. Although the state's basic recreation framework will continue to be publicly administered, private sector participation should be encouraged whenever possible.

Where there are common goals and interests, partnerships can thrive. Partnerships enable private facility developers and operators to take advantage of public recreation resources. Likewise, they enable public providers to draw upon resources more readily available to the private sector.

On the public side, government funds are tight; the need to diversify funding sources in a competitive environment has resulted in innovative financing arrangements that closely resemble those of private sector operations. On the private side, limitations in available capital and potential profits are resulting in more and more public/private joint partnerships, building upon mutual strengths in order to offer more options to a growing recreation market.

If Minnesota's outdoor recreation system is to thrive, it will require a knowledgeable, committed constituency. Partnerships can build public understanding and commitment to outdoor recreation. Forward looking recreation providers will continue to find partners who will join them in planning, developing and implementing innovative approaches to providing a diverse and balanced range of recreation programs and services.

Summary of Recommended Actions

I. Natural Resource Protection and Management

Goal: Protect and manage water-related natural resources.

Strategy: Implement and enforce shoreland management regulations and other local land-use controls.

Strategy: Continue the development and implementation of local water management plans.

Strategy: Acquire and protect wetlands, shorelands and floodplains of special ecological or recreational significance.

Strategy: Develop and implement a comprehensive watershed approach to lake and river system management.

Strategy: Accelerate the clean-up of Minnesota's rivers.

Strategy: Implement a comprehensive program of surface and groundwater quality monitoring.

Goal: Protect and enhance scenic, aesthetic and recreational values.

Strategy: Inventory and protect Minnesota's outstanding scenic, historic, natural and cultural features.

Strategy: Actively manage landscapes for user appreciation and for their scenic and aesthetic qualities.

Strategy: Develop additional recreation opportunities along Minnesota roadways, parkways and trails, and in areas of scenic or historic interest.

Strategy: Initiate a major statewide urban reforestation effort.

Goal: Preserve, protect and manage critical habitats, native biotic communities, and endangered and threatened species.

Strategy: Provide incentives to private landowners for forest management, wildlife habitat improvement, and for recreation-related development.

Strategy: Expand fish and wildlife population census and survey research.

Strategy: Protect, restore and manage Minnesota's remaining native prairie landscape.

Strategy: Accelerate efforts to control and eradicate problem exotic plants and animals.

Strategy: Continue interdisciplinary ecosystem research and training.

Goal: Encourage environmental stewardship and conservation education at all levels, for all ages.

Strategy: Promote a better understanding of the trade-offs and environmental consequences of various human activities.

Strategy: Encourage private citizens to assume greater responsibility for environmental protection, reclamation and conservation education.

Strategy: Link volunteers and volunteer services to education needs and program opportunities.

Strategy: Provide environmental learning opportunities for all Minnesotans.

Strategy: Encourage non-consumptive resource use.

II. Land Acquisition

Goal: Provide a stable, reliable source of funding for public land acquisition.

Strategy: Explore alternative sources of funding for public land acquisition and recreation facility development.

Strategy: Encourage land acquisition through new and existing grants-in-aid pro-

Strategy: Urge continued federal funding to challenge and leverage state, local and private investment in outdoor recreation.

Goal: Acquire lands in areas of heavy recreational use and demand.

Strategy: Identify appropriate areas for off-road recreational vehicles and other special uses.

Strategy: Acquire open space, especially in urban or rural areas experiencing rapid population growth and development.

Strategy: Acquire land and scenic easements along recreational rivers, trails, lakes and streams, and in other high amenity areas.

Strategy: Expand opportunities for hunting, fishing, nature study and wildlife observation.

Strategy: Expand long-distance trail recreation opportunities.

Goal: Protect outstanding recreational resources threatened by encroachment, development or by other incompatible land uses.

Strategy: Accelerate the acquisition of critical habitat, rare biotic communities, and endangered species habitat before these sites are lost.

Strategy: Encourage greater private participation in the protection of open spaces from unsuitable development.

Strategy: Establish uniform standards for setting aside recreational lands in developing urban areas.

Strategy: Implement and enforce local land-use controls.

Goal: Complete the acquisition of parcels needed to complement existing outdoor recreation sites and facilities.

Strategy: Coordinate land acquisition and facility development plans with those of other recreation providers to ensure a balanced approach to meeting recreational needs.

Strategy: Acquire abandoned railroad rights-of-way to create or expand trail recreation opportunities, and to link existing trail segments.

Strategy: Acquire private inholdings within public recreation areas.

III. Recreation Facility Development, Redevelopment and Rehabilitation

Goal: Develop/redevelop those facilities needed to meet growing, changing public demands for outdoor recreation.

Strategy: Address recreation facility shortages in identified areas.

Strategy: Encourage recreation facility development through new and existing grants-in-aid programs.

Strategy: Disperse new and existing recreational use.

Strategy: Conduct recreation research and site monitoring to determine the need for new or expanded recreational facilities.

Strategy: Develop year round, multi-purpose facilities that are both durable and flexible in their use.

Strategy: Develop and restore recently acquired lands and facilities in priority areas.

Strategy: Address the needs of urban residents for nearby recreation facilities.

Goal: Ensure a balanced approach to recreational use and development.

Strategy: Redirect intensive recreational uses to less sensitive areas where feasible.

Strategy: Develop plans to link compatible recreation uses and to separate conflicting uses.

Strategy: Balance resource use and preservation considerations in land-use and development decisions.

Strategy: Extensively market lesser known and used outdoor recreation facilities.

Strategy: Monitor, measure and control visitor use of sensitive areas.

Strategy: Conduct research into the social, economic and environmental effects of outdoor recreation.

Goal: Enlist greater private sector support for the development of public recreation opportunities.

Strategy: Consider private entrepreneurial investments in some public recreation areas.

Strategy: Identify and assess barriers, constraints and possible limitations to creating public/private recreation partnerships.

Strategy: Provide incentives and remove impediments to providing public recreation opportunities on private lands.

Goal: Ensure public health and safety, visitor security, and physical access to outdoor recreation facilities.

Strategy: Ensure access to outdoor recreation facilities by removing physical barriers and by providing appropriate visitor information.

Strategy: Implement risk management practices to reduce the possibility of injury.

Strategy: Seek legislation to limit and control the legal liability of public and private recreation providers.

Strategy: Consider the need for visitor management and control in facility planning and design.

IV. Outdoor Recreation Programming and Visitor Services

Goal: Provide information on recreation programs, facilities and available services to current and potential customers.

Strategy: Develop visitor service plans that integrate visitor services information, activity programs, visitor access and safety considerations, and which include visitor feedback to ensure quality.

Strategy: Cultivate a "customer orientation" within public recreation agencies and among recreation professionals.

Strategy: Establish a cooperative visitor information network between the private sector and all levels of government.

Strategy: Actively involve citizens and citizens groups in park and recreation planning and policy development.

Strategy: Monitor visitor satisfaction in order to be more responsive to changing public needs and expectations.

Strategy: Explore the social and economic links between outdoor recreation, travel and tourism.

Goal: Build knowledge, awareness, and understanding of natural resource management and protection issues through environmental learning programs.

Strategy: Form a Minnesota Environmental Education Coordinating Committee with broad stakeholder representation to focus, advise and coordinate environmental education planning and program development.

Strategy: Assess the need for environmental education and interpretation programs through regular surveys of state residents and educators.

Strategy: Monitor and assess the social and economic benefits of environmental learning programs.

Goal: Expand the availability of interpretive services.

Strategy: Develop interpretive opportunities at public outdoor recreation sites.

Strategy: Expand experiential, non-personal and non-formal learning opportunities.

Strategy: Expand the use of partnerships and volunteers in providing public recreation programs and services.

Strategy: Promote responsible resource use through environmental education and interpretive programs.

Goal: Ensure access of disabled persons and other special needs groups to outdoor recreation programs and services.

Strategy: Tailor environmental learning programs to meet the needs of Minnesotans of diverse racial, ethnic, cultural and educational backgrounds.

Strategy: Adapt environmental education programs, equipment and learning materials to accommodate disabled persons and others with special needs.

V. Maintenance and Operations of Existing Outdoor Recreation Facilities

Goal: Renew the focus on needed maintenance, rehabilitation and on the redevelopment of existing recreational facilities.

Strategy: Explore alternative methods of financing the maintenance and redevelopment of outdoor recreation facilities.

Strategy: Include projected facility maintenance and operations costs in all new facility development proposals.

Strategy: Develop/update comprehensive facility maintenance management plans and schedules based on a current inventory of facility needs.

Strategy: Minimize facility maintenance costs by designing and constructing low-maintenance facilities.

Strategy: Increase natural resource management activities in designated outdoor recreation areas.

Goal: Provide the necessary staff, budget, training and equipment needed to operate outdoor recreation facilities at generally accepted levels of public service.

Strategy: Encourage public/private partnerships and the use of cooperative management agreements for recreation facility maintenance, management and operations.

Strategy: Provide federal LWCF support for outdoor recreation facility maintenance and rehabilitation.

Strategy: Explore the impact of pricing decisions on recreation participation, and the extent to which consumers are willing to pay higher prices for recreation-related goods and services.

Strategy: Provide additional natural resource management and law enforcement field personnel based on an analysis of growing workload.

Strategy: Expand in-service training and continuing education opportunities for professional recreation and natural resource managers.

Goal: Ensure compliance with public health, safety, access and other standards.

Strategy: Focus increased attention on recreation facility inspections and monitoring.

Strategy: Focus law enforcement efforts on the need to assist and protect recreation visitors, facilities and resources.

Introduction

Studies show that the huge growth experienced in the past several decades in outdoor recreation appears to be slowing. Still, free time has increased slightly in recent years, in contrast to Louis Harris's contention that the decline in free time is steady and unending. Culture appears to influence, to a large extent, how we spend our free time. As social preferences change, so too does the amount of free time we allocate to outdoor recreation.

While it is difficult to define leisure in a way that reflects everyone's perception, it is defined here as time not occupied with work or other obligatory activities. Part of our leisure time is devoted to recreational pursuits. Similarly, outdoor recreation consumes a portion of the time and energy allotted to recreational activities in general.

Leisure is largely discretionary - to be used as one chooses. Individuals reflect their perceived choice and motivation in deciding how to use their leisure time. Some completely plan or program the use of this time, booking up all their free time, and leaving none unscheduled. Some seek physical activity when they are not at work, while others find their jobs physically tiring and use their leisure time to rest.

Trends in Leisure Time

During the last 100 years, leisure hours in the U.S. rose greatly. While available only to a few until recent decades, today leisure time is enjoyed by most Americans.

In recent years, however, surveys suggest that only a small growth in free time has been experienced (Robinson, 1986).

Growth In Free Time

Year	1954	1965	1975	1981
Free Time	37.2	33.6	41.2	41.8

(Total= 168 Hours/Week)

In contrast to Robinson's slight upward trend in free time, Louis Harris finds that our leisure time has decreased from 26.2 hours per week in 1973 to 16.6 in 1987. This drop amounts to a 37% loss, or 1.4 hours per day, and it is larger than the 15% increase in work time from 40.6 hours per week in 1973 to the 46.8 hours worked in 1987.

Harris examines only the amount of unoccupied leisure time and not leisure time activities. Unoccupied leisure time may, however, not reflect the true quantity of time over which we have complete control and choice as to how we use it. A more accurate defini-

tion of Harris's leisure time is, perhaps, unstructured or unprogrammed time. What Harris may be describing is a loss of this kind of time. While Harris gives a negative connotation to this decline in leisure hours, the trend may be due to the structuring of free time, which could be good. People may be able to fit more activity in a given space of time once they structure it.

According to a Gallup Poll conducted in 1988, Americans are more satisfied with their free time now than they have been for 15 years, the same 15 years that Harris associates with an increasingly harried frame of mind.

Percent Satisfied With Their Job Compared With Free Time Satisfaction

	1974	1981	1984	1988
Job	75	70	70	76
Free Time	79	75	78	87

Percent Satisfied

Major Components of Leisure Time

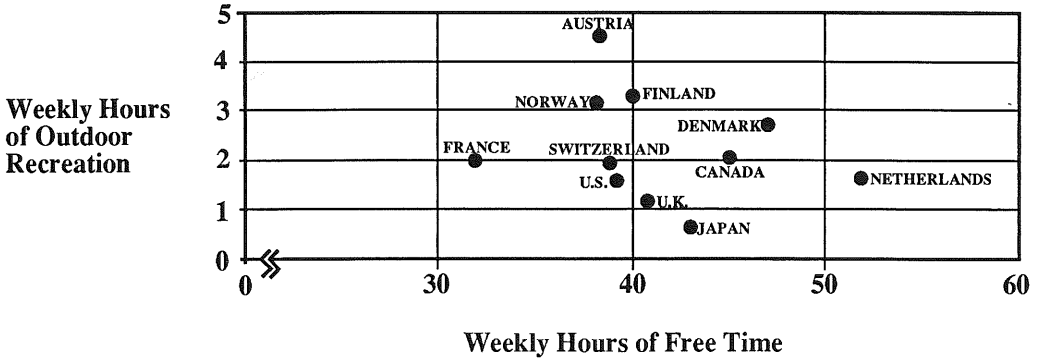
Robinson (1977) studied individuals' daily activities in order to establish what competes with our free time. He divided these competing activities into three groups:

Activities Competing With Free Time

	Percent of Total Time
Necessary Time (sleeping, eating, personal care)	47
Contracted Time (paid work, commute to work)	17
Committed Time (housework, family care, shopping)	14
Total	78

Robinson's free time, the remaining 22%, is the time left after obligatory duties are completed. This is the time over which we have maximum control, power and discretion. According to Robinson, the major components of free time are as follows:

Figure A Outdoor Recreation Component of Free Time in Developed Nations



SOURCE: Data taken from Robinson, 1984.

Major Components of Free Time

	Hours	%
Watching TV	15.9	40
Socializing	7.6	19
Reading	3.7	9
Outdoor Recreation	1.5	4
Organizational Activities	1.1	3
Cultural Pursuits	.6	2
Subtotal	30.4	77
Other	9.6	23
Total	40.0	100

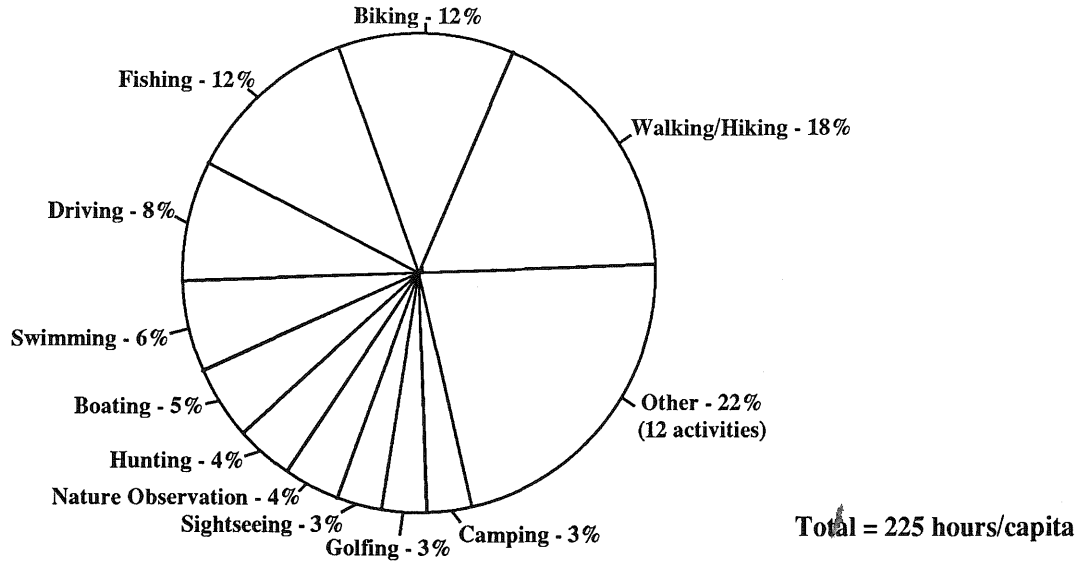
In other words, Robinson found that six activities accounted for 30.4 hours/week of the 40 hours/week of free time available.

Robinson's estimate of the annual quantity of outdoor recreation for American adults compares favorably with the annual recreation of Minnesota adults as determined by the DNR's 1978 general population survey. The 1985-86 DNR Outdoor Recreation Survey, however, expanded earlier definitions of specifically which activities constitute outdoor recreation. As a result, DNR's current estimate of recreation time spent annually by Minnesota adults exceeds Robinson's estimate.

Trends in the Outdoor Component of Leisure Time

According to Robinson, outdoor recreation grew tremendously in the period between 1954 and 1981, a period when the amount of free time increased only slightly (1986). From this, it appears that the amount of free time devoted to outdoor recreation is not constant, and instead depends on how we choose to allocate the free time. Preferences in the allocation of free time are embedded in the American culture.

Figure 1. Minnesotans' Outdoor Recreation Hours per Capita Activity, 1985



Outdoor Recreation As A Percent Of Free Time

	1954	1965	1975	1981
Free Time	37.2	33.6	41.2	41.8
Recreation(hrs)	.75	1.0	1.55	1.45
Recreation %	2.0	3.0	3.8	3.5

Outdoor Component of Leisure Time in Developed Nations

As illustrated above, the amount of free time does not completely control the amount of time Americans devote to outdoor recreation. Other factors, notably culture, are instrumental in the allocation of free time. This is further demonstrated in Robinson's international work (1984).

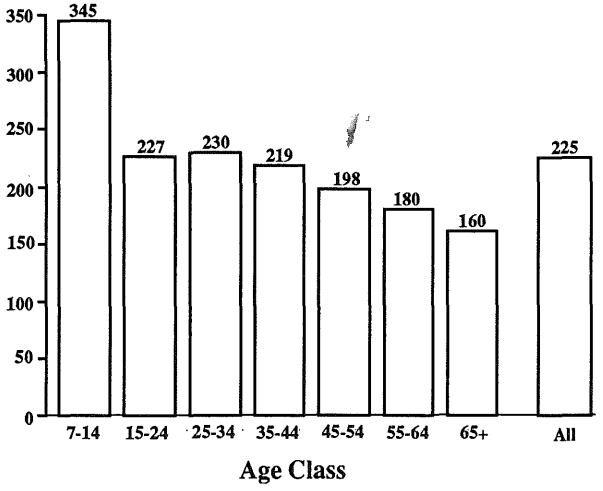
Figure A illustrates the impact of culture by depicting the interaction between the available amounts of free time and the amount of outdoor activity. The countries that fall on or near the line that would connect France and The Netherlands all participate in outdoor activities for approximately two hours weekly, although their weekly hours of free time vary dramatically. On the other hand, if we examine the vertical distribution around forty hours per week of free time, we see national preferences in how much of that time goes to outdoor recreation.

From such studies it becomes evident that although defining leisure time and its use is difficult, cultural change is probably the largest and least understood factor that determines the amount of time Americans will devote to outdoor recreation in the future.

Recreation Participation

The present participation of Minnesotans and non-Minnesotans in outdoor recreation has been estimated through surveys, and by estimating the level of expenditures made by recreators. This information is presented according to demographic, geographic and seasonal breakdowns. It is followed by forecasts of future participation of Minnesotans and nonresidents, based on the above data and projected demographic changes.

Figure 2 Total Outdoor Recreation Hours per Capita of Minnesotans by Age Class, 1985



Present Participation

Minnesotans

During 1985-86, a year-long random telephone survey with a sample of 5,700 Minnesota households was conducted. From this survey, information on Minnesotans' outdoor recreation activities was gathered, including the types, frequency and the location of these activities.

According to the survey, Minnesotans participate most widely in walking/hiking, biking, fishing and driving (Figure 1). They recreate outdoors an average of 225 hours per capita per year.

Age strongly influences the amount of time devoted to outdoor recreation (Figure 2). Those aged 7-14 years spend by far the most time recreating, and after a leveling of hours for 15-44 year olds, the time spent decreases steadily with age. This age class distribution significantly affects the mix of recreation activities since children, middle-aged and older adults typically choose to pursue different activities. This trend is also seen at the national level.

Income and education similarly affect the amount of time devoted to outdoor recreation (Figures 3 & 4). Those Minnesotans with less income and education tend to recreate less than those with more income and educa-

Figure 3 Minnesotans' Outdoor Recreation Hours per Capita by Income, 1985

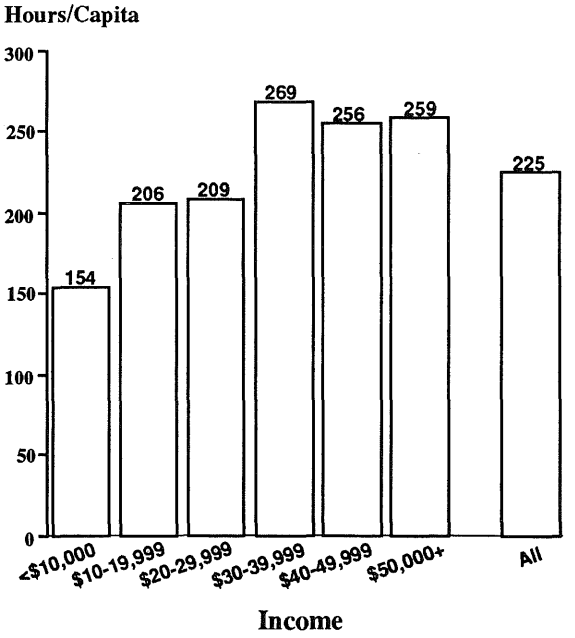
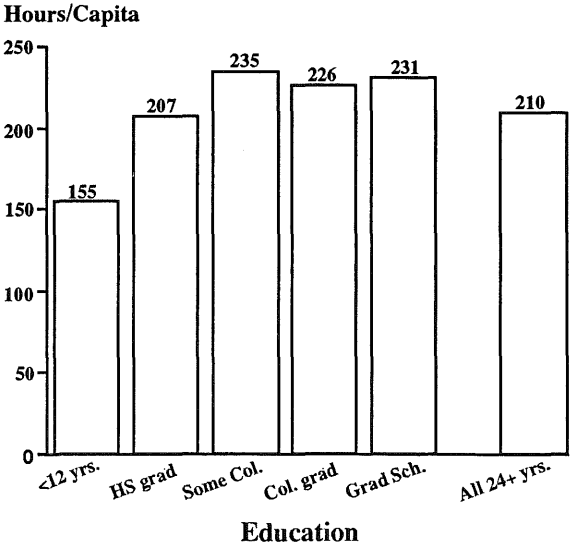


Figure 4 Adult Minnesotans' Outdoor Recreation Hours per Capita by Education, 1985

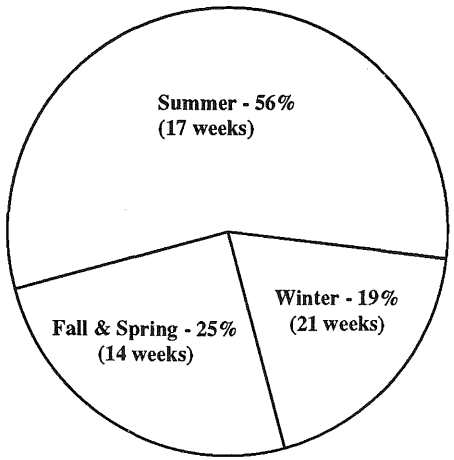


tion. The amount of recreation time levels off in the middle of the range for both income and education. These patterns also hold at the national level.

Recreation is seasonally pronounced in Minnesota. Summer is only 17 weeks in length, but over half of all recreation takes place during that season (Figures 5 & 6). Activity is greatly reduced in winter, with under 10 million hours per week (as compared to over 20 million per week in summer).

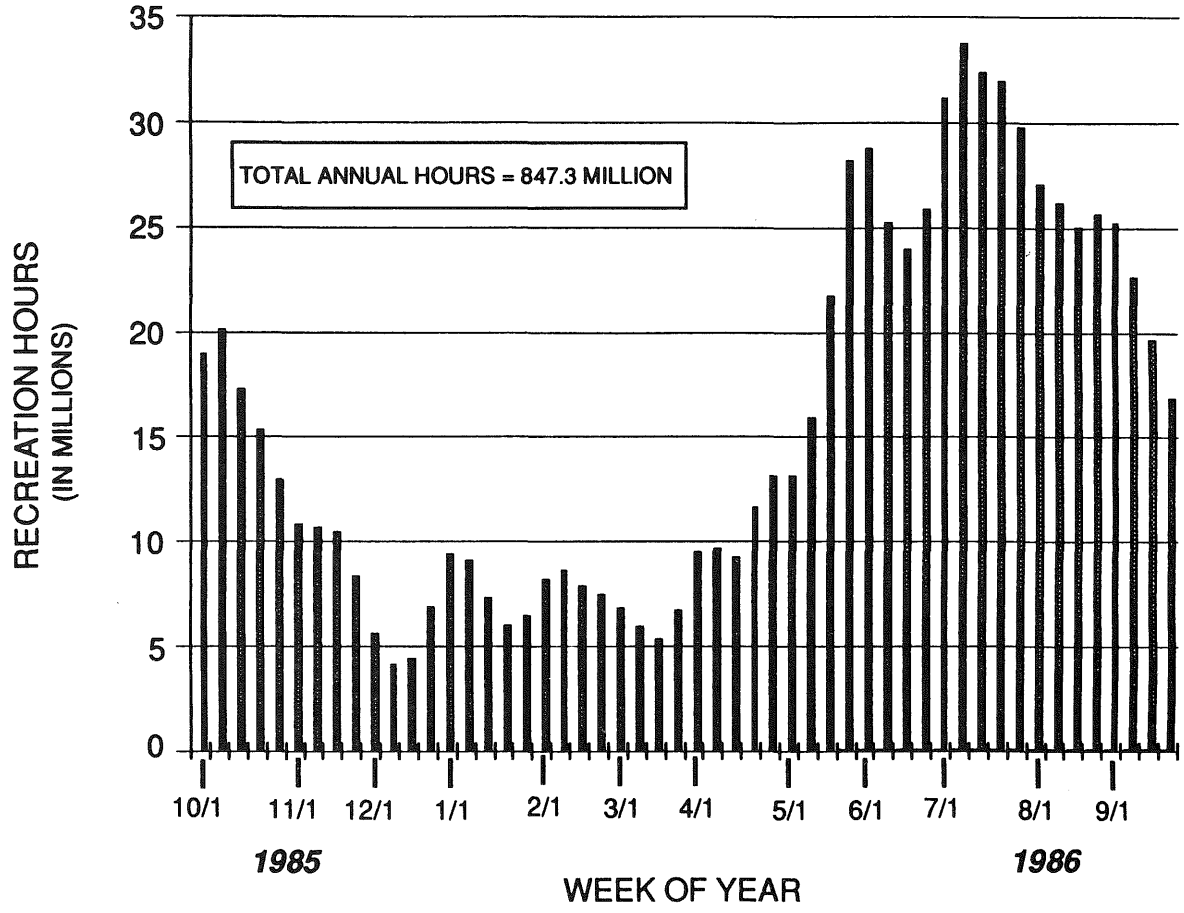
Nearly three-fourths of Minnesotans' recreation time is spent within a half hour of home (Figure 7). Travel more than 2 hours from home captures the next largest share of time. Thus, most outdoor recreation takes place near large population centers, including the Twin Cities and other outlying regional

Figure 5 Outdoor Recreation Time of Minnesotans' In-State by Season, 1985



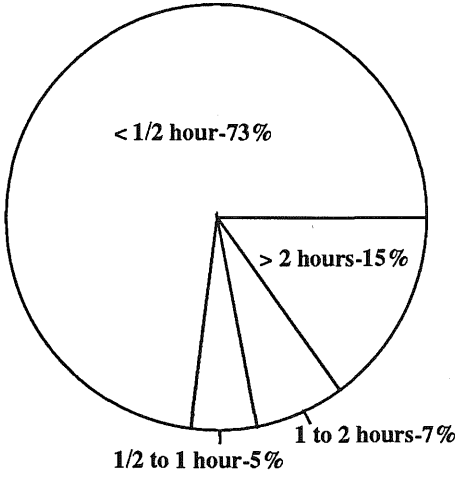
Total = 847 million hours

Figure 6 Annual Cycle of Outdoor Recreation by Minnesotans in Minnesota



Source: MN DNR, 1985-86 Outdoor Recreation Participation and Expenditure Survey of Minnesotans.

Figure 7 Minnesotans' Outdoor Recreation Hours per Capita by Travel Distance, 1985



Total = 225 hours/capita

centers, and in distant vacation destinations, such as the north-central and west-central lake areas (Figure 8).

Non-Minnesotans

Information on nonresidents' outdoor recreation activities was taken from a 1978 survey of visitors to Minnesota. The survey focused exclusively on summer activities, when nonresidents' travel to Minnesota for outdoor recreation is highest. In the mid-1980's, indices of the level of nonresident activity in the state were re-examined, and the level had not changed significantly since 1978.

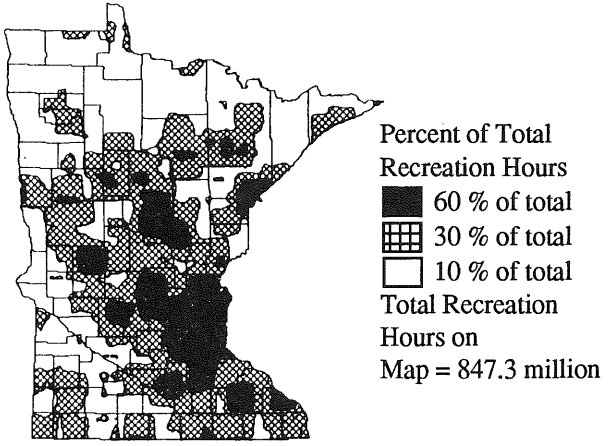
Nonresidents' activities are largely water-related, which is similar to Minnesotans' activities while on vacation in-state. The most popular nonresident activities are fishing, camping (often done near water), swimming and boating (Figure 9). The most common destinations of nonresidents are areas with water in Minnesota's northern forests, namely the BWCA and the northern, west-central and north-central lake regions of the state (Figure 10).

Minnesota "Tourists" & Non-Minnesotans

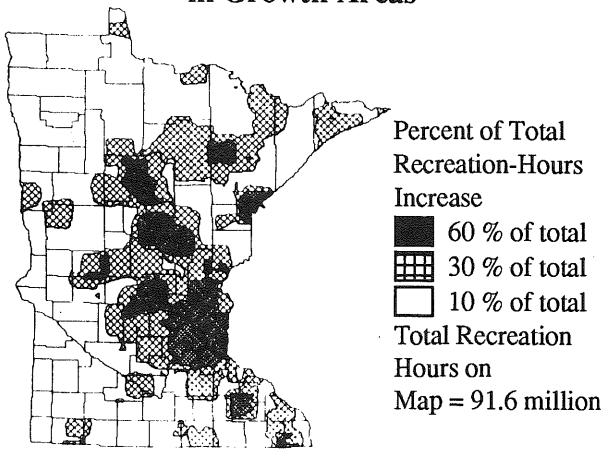
Minnesota "tourists" are those who have traveled over an hour to their recreation destination. When we combine this group with nonresidents, the "tourist" destinations begin to appear (Figure 11). These destinations include the BWCA and all of the north-central, west-central and central lake areas of Minnesota.

Figure 8 Outdoor Recreation of Minnesotans

1985 Distribution



1985 to 2000 Projected Increase in Growth Areas



Note: The increase in growth areas of 91.6 million hours is offset by a decrease in loss areas of 8.0 million hours to give a net change of 83.6 million hours.

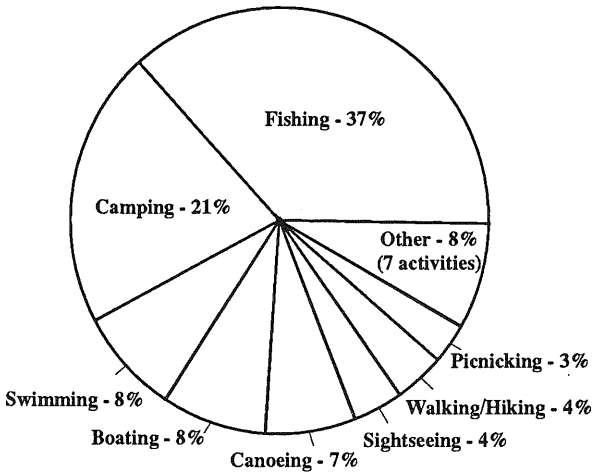
Source: MN DNR, 1978 Outdoor Recreation Participation and Expenditure Survey of Minnesotans.

Outdoor Recreation Expenditures

Information on travel-related recreation expenditures was also drawn from the two surveys mentioned above. Data on recreation equipment expenditures was obtained primarily from a nationwide survey on sporting goods.

Total travel-related expenditures in 1985 totaled $1.24 billion, with $854 million coming from Minnesotans and $387 million from non-Minnesotans (Figure 12). Total equipment expenditures by Minnesotans were $583 million in 1985 (Figure 13), bringing the total for expenditures in Minnesota to over $1.8 billion.

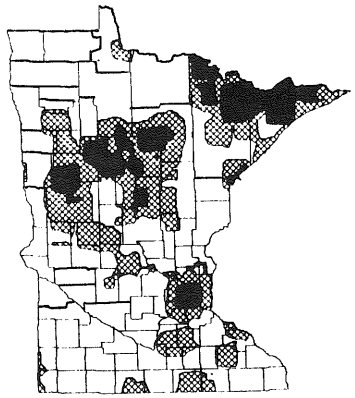
Figure 9 Nonresidents' Summer Outdoor Recreation Hours in Minnesota, 1985



Total = 83 million hours

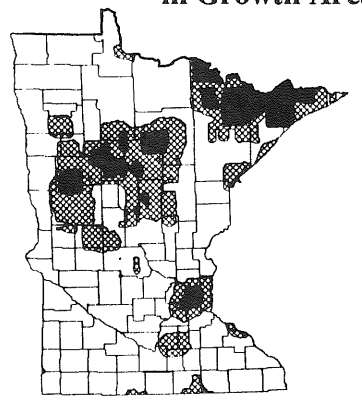
Figure 10 Outdoor Recreation of Nonresidents

1985 Distribution



Percent of Total Recreation Hours
60 % of total
30 % of total
10 % of total
Total Recreation Hours on Map = 83.2 million

1985 to 2000 Projected Increase in Growth Areas



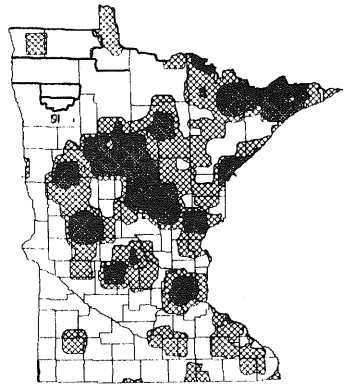
Percent of Total Recreation Hour Increase
60 % of total
30 % of total
10 % of total
Total Recreation Hours on Map = 10.5 million

Note: The increase in growth areas of 10.5 million hours is offset by a decrease in loss areas of 0.1 million hours to give a net change of 10.4 million hours.

Source: MN DNR, 1978 Outdoor Recreation Participation and Expenditure Survey of Summer Motor Vehicle Visitors to Minnesota.

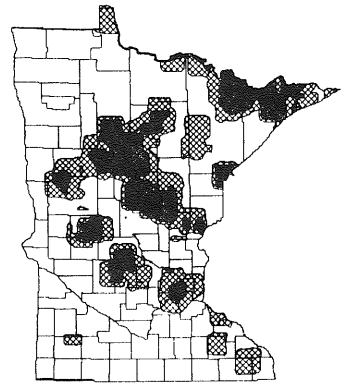
Figure 11 Outdoor Recreation of Minnesota Tourists and Nonresidents Combined

1985 Distribution



Percent of Total Recreation Hours
60 % of total
30 % of total
10 % of total
Total Recreation Hours on Map = 265.4 million

1985 to 2000 Projected Increase in Growth Areas

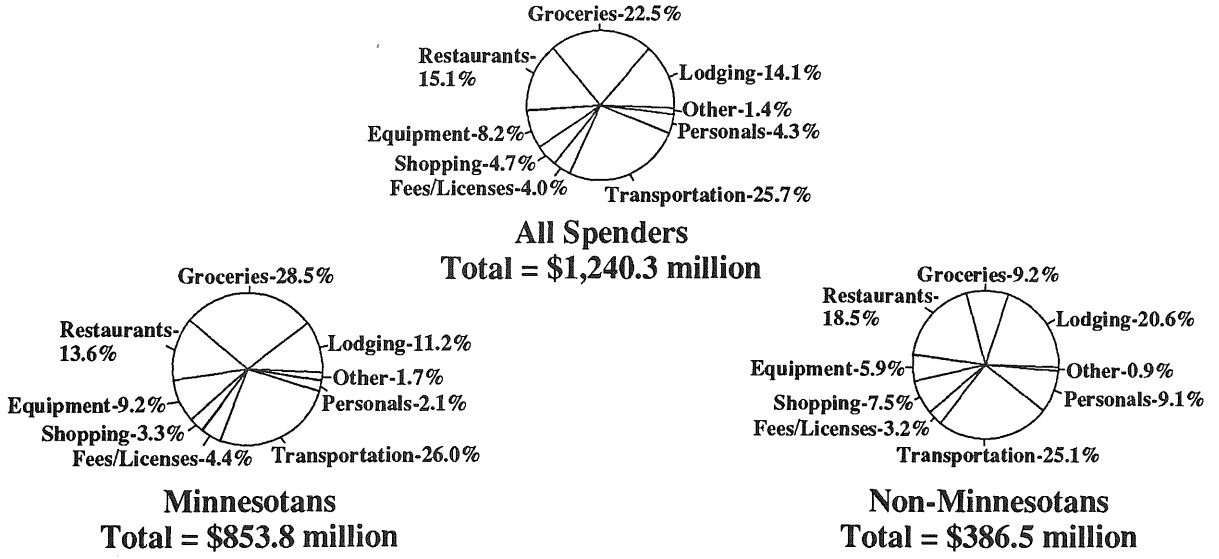


Percent of Total Recreation-Hour Increase
60 % of total
30 % of total
10 % of total
Total Recreation Hours on Map = 37.7 million

Note: The increase in growth areas of 37.7 million hours is offset by a decrease in loss areas of 4.4 million hours to give a net change of 33.3 million hours.

Source: MN DNR, 1985-86 Outdoor Recreation Participation and Expenditure Survey of Minnesotans. MN DNR, 1978 Outdoor Recreation Participation and Expenditure Survey of Summer Motor Vehicle Visitors to Minnesota.

Figure 12 Statewide Annual Travel-Related Outdoor Recreation Expenditures by Type of Purchase (1985 dollars)



Source: Minnesota DNR, 1985-86 Outdoor Recreation and Expenditure Survey of Residents and 1978 Summer Outdoor Recreation and Expenditure Survey of Visitors to Minnesota.

The value-added, or income, resulting from these expenditures was $1.3 billion, or 2.3 percent of the state's total value-added in 1985. In addition, the state received revenues as a result of the expenditures - fees, sales taxes and indirect taxes - that totaled over $218 million in 1985.

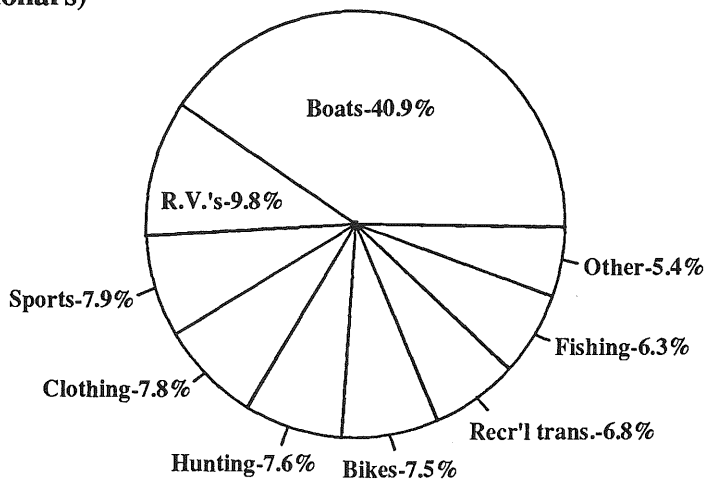
The economic regions in the state were not equal recipients of the $1.8 billion spent for outdoor recreation. Regional expenditures ranged from $175 million in the Southeast to $633 million in the Northeast, with varying portions of the totals coming from residents of the regions as compared to nonresidents (Figures 14 and 15).

Key For Figure 13

Boats: Boats, motors and accessories
R. V.'s: large recreational vehicles
Sports: equipment for sports not elsewhere listed
Clothing: all clothing and footwear except those for hunting & fishing
Hunting: equipment and clothes used exclusively for hunting
Bikes: traditional and trail bikes
Recr'l trans.: snowmobiles, 3-wheelers and 4 X 4 trucks
Fishing: equipment and clothes used exclusively for fishing
Other: equipment for camping and nonconsumptive fish & wildlife activities (field guides, binoculars, etc.) and sunglasses

Source: Primarily, "The Sporting Goods Market in 1986," prepared for the National Sporting Goods Association by Irwin Broh & Associates, Inc., 1986.

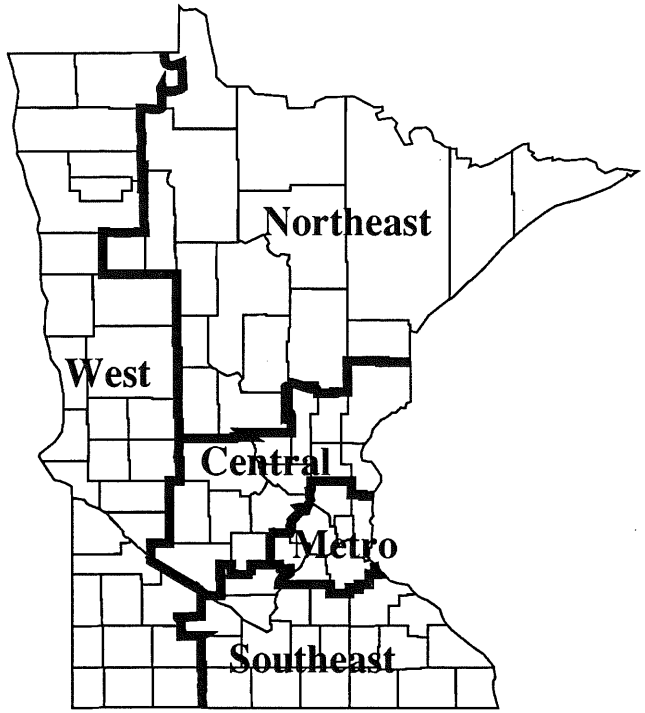
Figure 13 Statewide Annual Outdoor Recreation Equipment Expenditures by Type of Purchase (1985 dollars)



Minnesotans
Total=$583.3 million

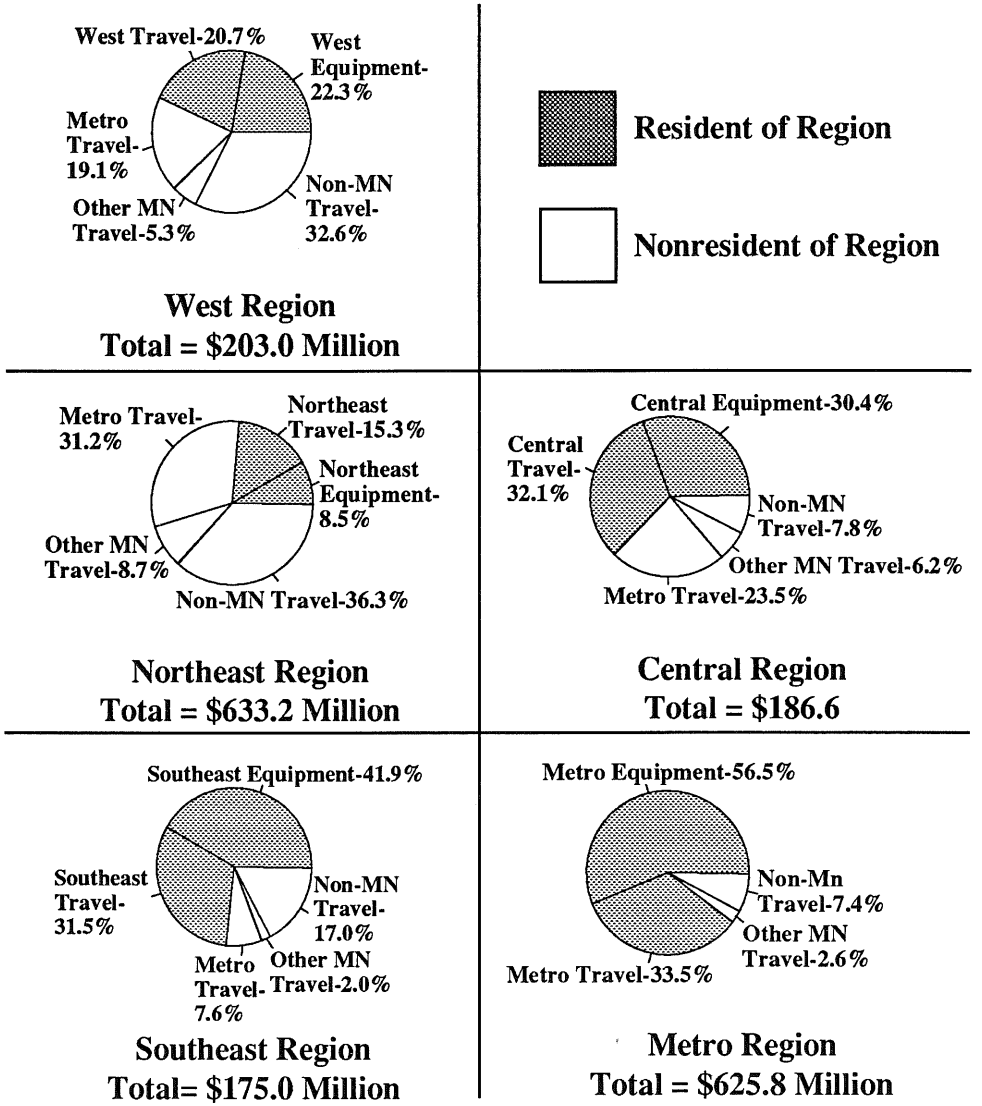
(excluding the $66.2 million included in travel-related equipment in Figure 12)

Figure 14 Minnesota Economic Regions



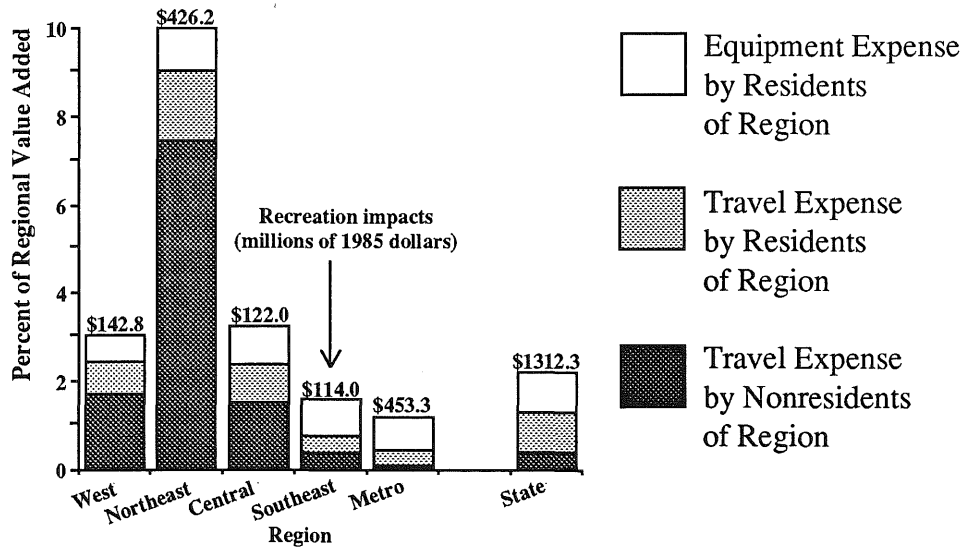
The impacts of these expenditures also varied from region to region. Focusing again on value-added, the percentage of a region's total value-added due to outdoor recreation provides a good indicator of the importance of recreation to that economy (Figure 16). Clearly the Northeastern Minnesota economy is the most affected by the expenditures, even though the Metro region received the same absolute amount of value added from the expenditures (i.e., the Metro economy is simply much larger). It is also noteworthy that the bulk of the Northeast's impact arose from nonresident expenditures.

Figure 15 Annual Outdoor Recreation Expenditures by Region (1985 dollars)



Source: Minnesota DNR, 1985-86 Outdoor Recreation and Expenditure Survey of Residents and 1978 Summer Outdoor Recreation and Expenditure Survey of Visitors to Minnesota.

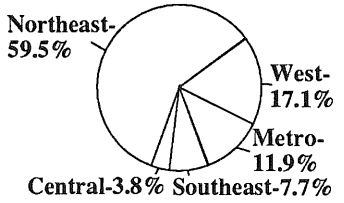
Figure 16 Percent of Regional Value Added Accounted for by Direct and Indirect Impacts of Outdoor Recreation Expenditures



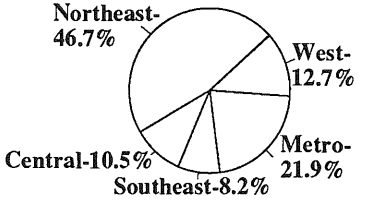
Source: Derived from processing data in Figure 15, excluding fees and licenses, through the IPASS Input-Output Model. Administrative Government is excluded.

Figure 17

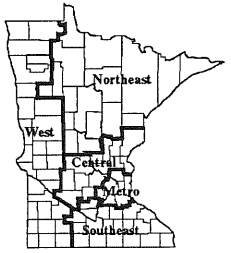
A. Destination of Non-Minnesotan's Expenditures



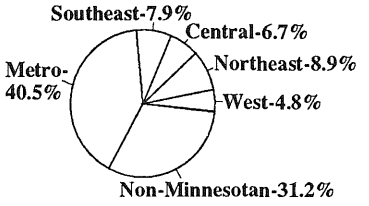
B. Destination of all Travel Expenditures



Economic Regions



C. Source of all Travel Expenditures



Expenditures for outdoor recreation shift dollars around the state, depending on where they are spent and where the spender resides, and brings "new" dollars into the state. The Northeast receives the majority of the non-Minnesotans' expenditures as well as the largest share of all travel expenditures (Figure 17). The largest source of these expenditures, however, is the Metro region. Recreation travel expenditures result in the redistribution of dollars among Minnesotans, with some regions gaining and some losing (Figure 18).

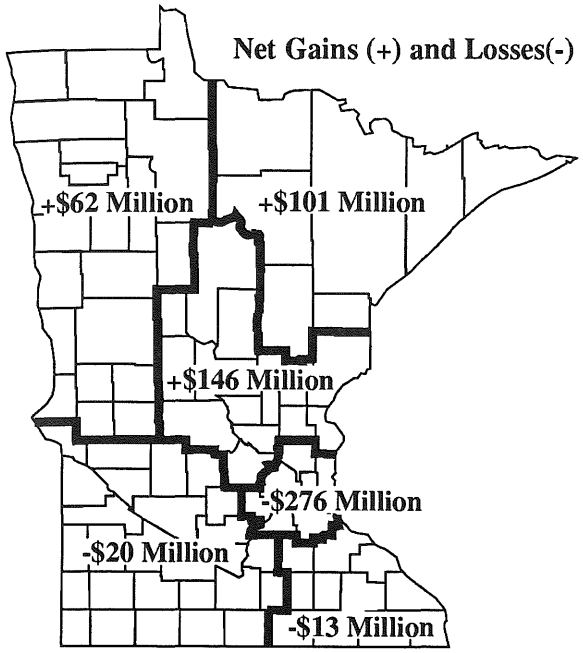
Future Participation

Forecast for Minnesotans

The Minnesota population projections for age, sex and residence were used to forecast the level of outdoor recreation of Minnesotans in 2000 (Figure 19). The location of recreation opportunities, and activity participation rates by age, sex and residence were held constant at 1985 patterns. This forecast methodology works well for stable recreational activities such as camping or fishing, but it is not an accurate predictor for those activities that are rapidly changing in popularity (e.g., off-road bicycling).

The total number of hours that Minnesotans devote to recreation is projected to increase at a slightly slower rate than the population (Figure 20). This is due to the reduced amount of time that older age classes will devote to recreation as compared to younger groups (see Figure 2), coupled with the aging of the population generally.

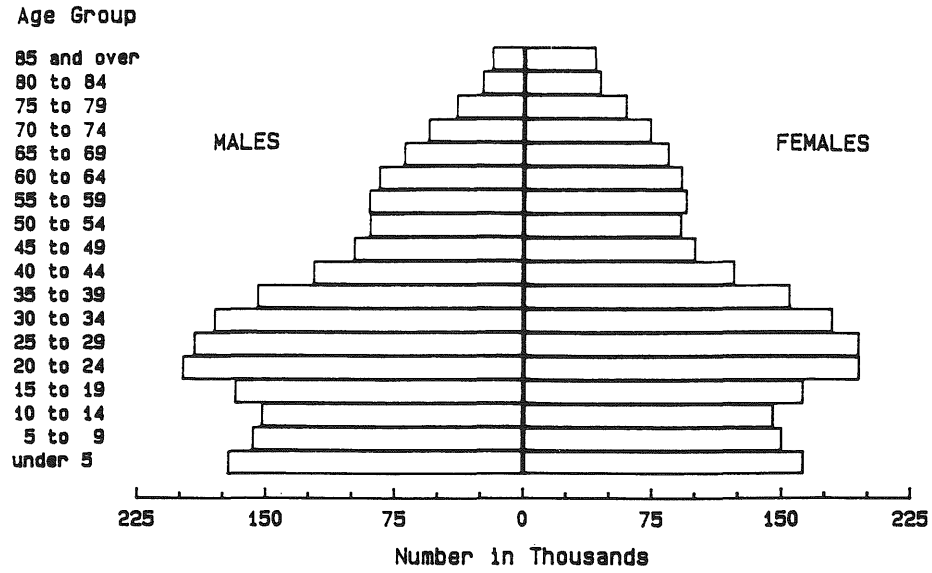
Figure 18 Annual Redistribution of Dollars Among Minnesotans Due to Outdoor Recreation Travel



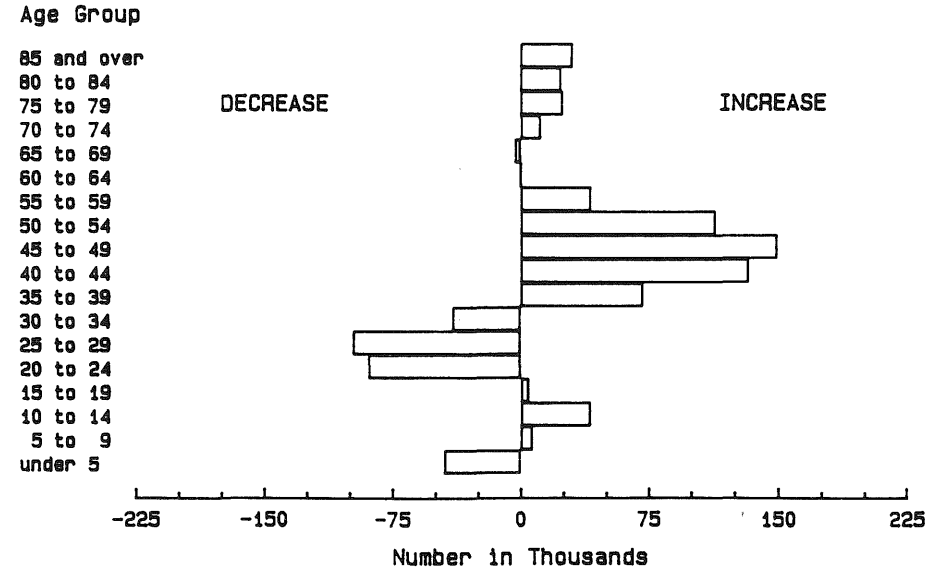
Source: MN DNR, 1985-86 Outdoor Recreation Participation and Expenditure Survey of Minnesotans.

The changing age structure will also affect the mix of activities in 2000. The activities showing the largest percentage increases in hours are those with increased participation rates in the older age classes, or high rates in what will be the baby boom age classes (35 to 54). These activities include: walking/hiking, golfing and nature study/observation (Figure 21). Fishing, hunting, and camping are popular across a wide span of age classes, and they are projected to increase at about the rate of the population growth (11% for ages 7 and older). Those activities

Figure 19 1985 Estimated Minnesota Population by Age and Sex

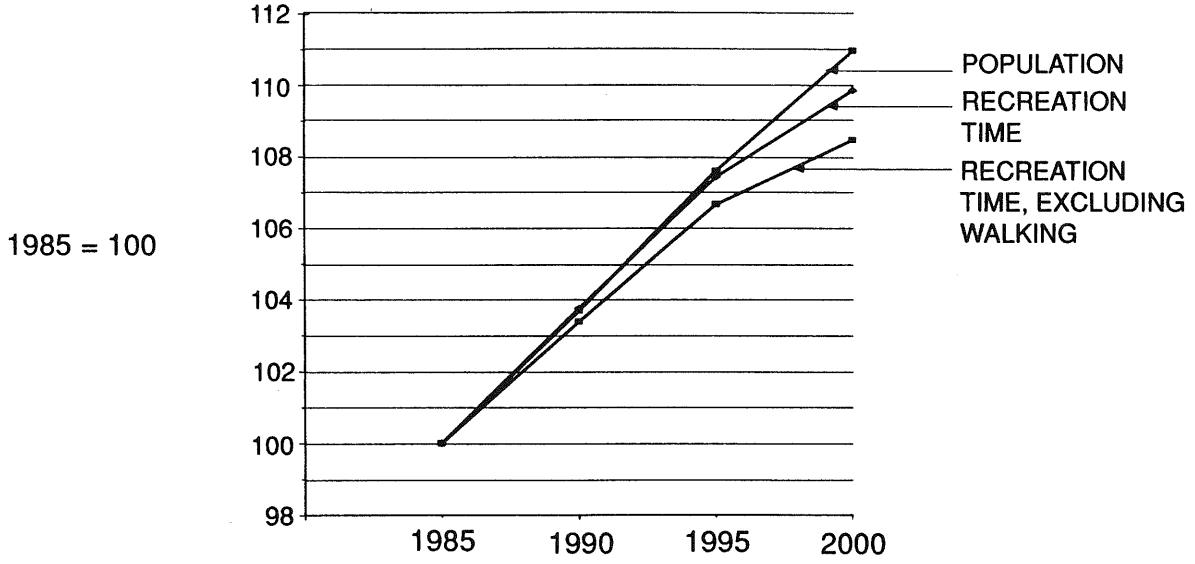


Projected Change in Minnesota Population by Age Group (1985-2000)



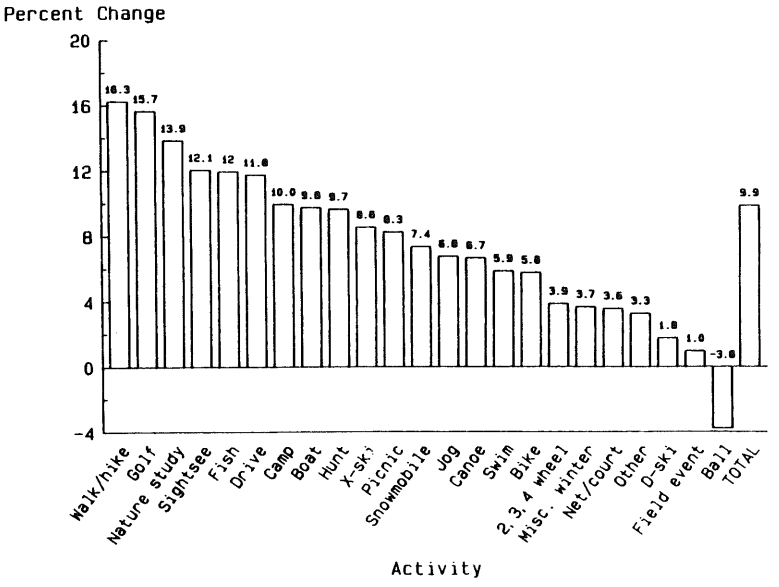
Source: State Demographer Unit, Minnesota Department of Energy, Planning and Economic Development. 1983. Minnesota Population Projections: 1980-2010.

Figure 20 Comparison of Projected Growth in the Minnesota Population with Projected Growth in Minnesotan's Outdoor Recreation Time Spent in Minnesota, 1985-2000



Source: MN DNR, 1985-86 Outdoor Recreation Participation and Expenditure Survey of Minnesota Residents. Office of the State Demographer. 1983.

Figure 21 Percent Change in Minnesotans' Outdoor Recreation Hours in Minnesota, 1985-2000



popular with children - such as biking and downhill skiing - will see the slowest growth.

The activities with the largest absolute increases in hours tend to be those with the largest percentage increases as well. Walking/hiking, fishing and driving are projected to have the largest absolute increases in hours of all activities in 2000 (Figure 22).

The changing distribution of the population will affect where recreation will take place in 2000. Since most recreation occurs within a half-hour of home, and since generally the population will be growing where it was the most dense in 1985, the metro area and surrounding counties will experience much of the growth in hours (Figure 23). The north-central lake region will also experience continued growth due to its popularity as a vacation destination for Metro Area residents.

Forecast for Non-Minnesotans

The forecast of participation rates for nonresidents' summer activities was based on the forecast for Minnesota "tourists", or recreators who travel more than an hour from home. Water-related activities will continue to be important to nonresidents in 2000, with fishing, camping, canoeing and boating making up 78 percent of the total absolute increase in hours (Figure 24). The location of this recreation will be very similar to where it occurred in 1985, namely the BWCA and the north and west-central lake regions (Figure 25).

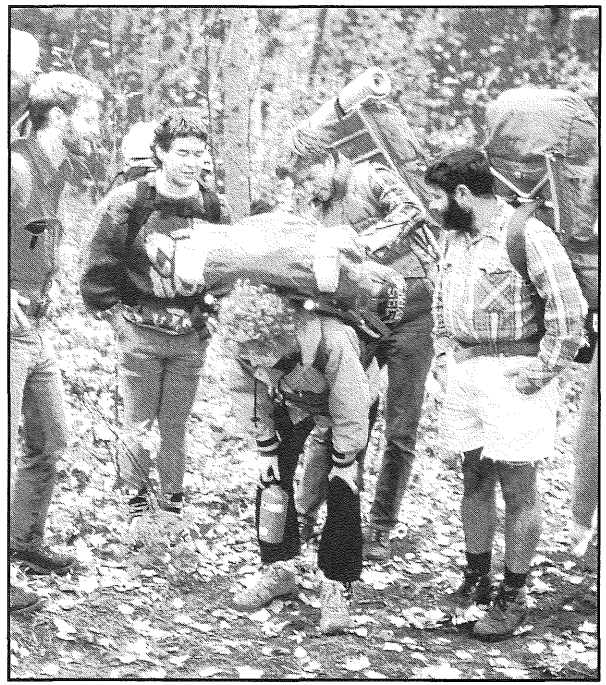
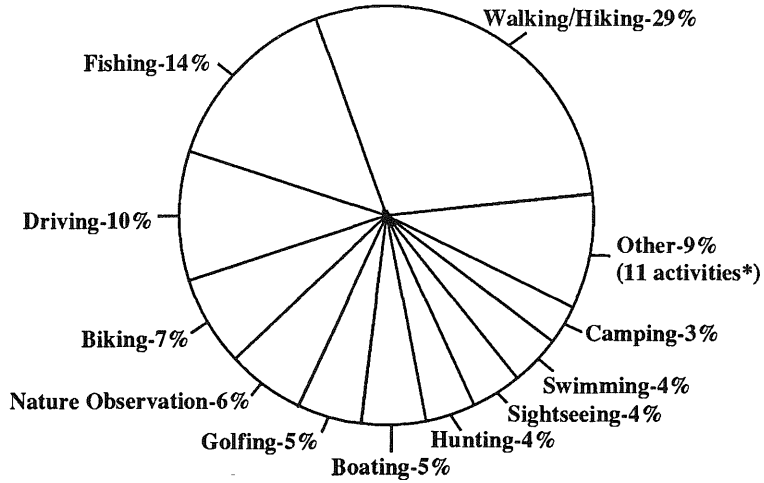


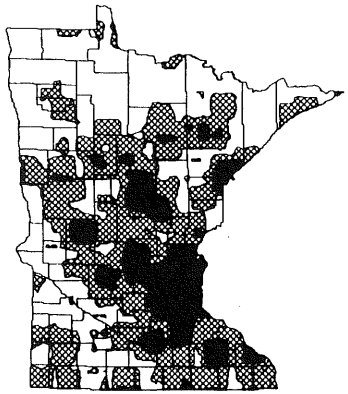
Figure 22 Increase in Minnesotans' Outdoor Recreation Hours in Minnesota by Activity, 1985-2000



* One additional activity shows a decrease for this time period.
Note: Hours projected to increase a net 83.6 million hours from 1985-2000. Total hours in 2000 = 930.9 million.

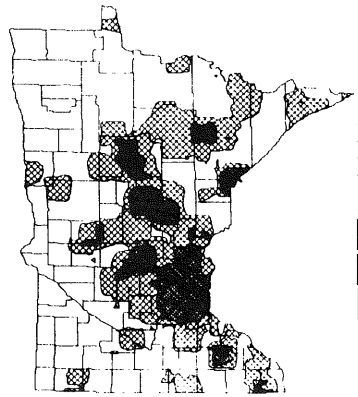
Figure 23 Outdoor Recreation of Minnesotans

1985 Distribution



Percent of Total
Recreation Hours
60 % of total
30 % of total
10 % of total
Total Recreation
Hours on
Map = 847.3 million

1985 to 2000 Projected Increase in Growth Areas



Percent of Total
Recreation-Hour
Increase
60 % of total
30 % of total
10 % of total
Total Recreation
Hours on
Map = 91.6 million

Note: The increase in growth areas of 91.6 million hours is offset by a decrease in loss areas of 8.0 million hours to give a net change of 83.6 million

Source: MN DNR, 1978 Outdoor Recreation Participation and Expenditure Survey of Minnesotans.

Forecast for Minnesota "Tourists" and Non-Minnesotans

For those traveling at least an hour from home, including nonresidents, the largest absolute increases in hours are for fishing, camping, boating and driving recreation (Figure 26). The "tourist" destinations show up clearly as the BWCA and all of the lake regions, just as in 1985 (Figure 27).

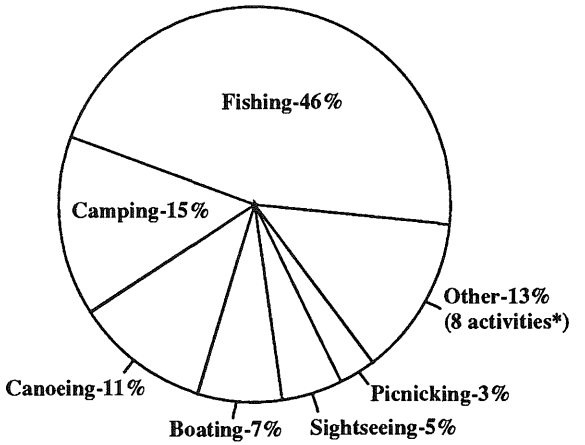
Recreation Facilities

Current Providers

Minnesota's outdoor recreation facilities are provided by federal, state,local and municipal governments, and by private sector providers. Certain types of facilities, however, have historically been provided by the public sector, while others have been provided by the private sector. Some facilities are developed by both public and private recreation interests.

The current providers of major recreation facilities are shown in Figure 28. It is ordered from left to right, from highest public supply to lowest public supply. Federal suppliers include the US Fish & Wildlife Service, the National Park Service, the Army Corps of Engineers, and the US Forest Service. State suppliers include the Minnesota Departments of Natural Resources and Transportation, and the Minnesota Historical Society.

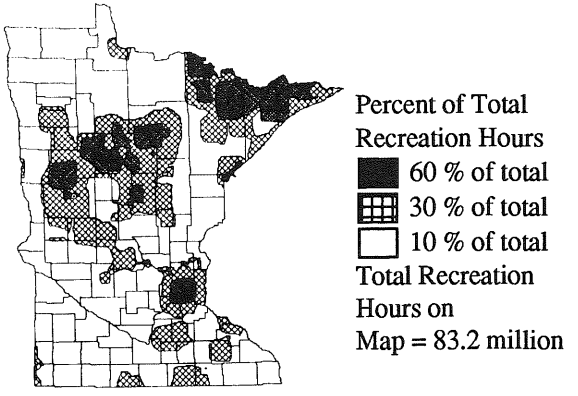
Figure 24 Increase in Nonresidents' Outdoor Recreation Hours in Minnesota by Activity, 1985-2000



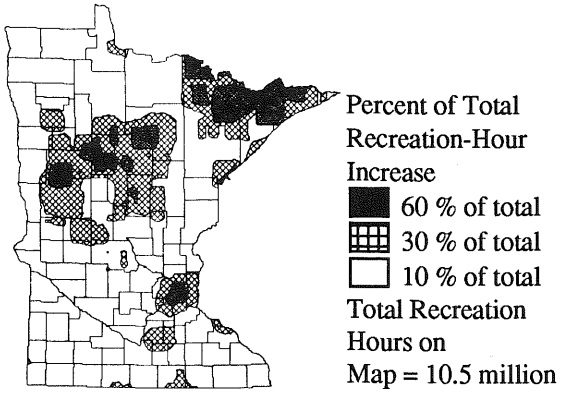
*One additional activity shows a decrease for this time period.
Note: Hours projected to increase a net 10.4 million hours from 1985-2000.
Total hours in 2000 - 93.6 million.

Figure 25 Outdoor Recreation of Nonresidents

1985 Distribution



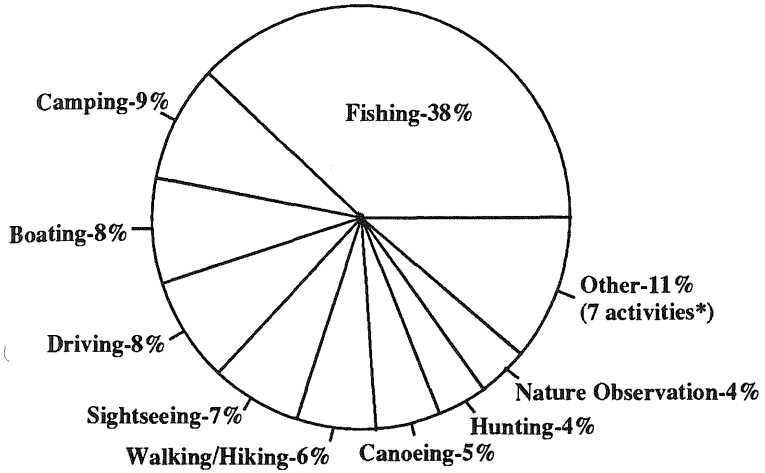
1985 to 2000 Projected Increase in Growth Areas



Note: The increase in growth areas of 10.5 million hours is offset by a decrease in loss areas of 0.1 million hours to give a net change of 10.4 million hours.

Source: MN DNR, 1978 Outdoor Recreation Participation and Expenditure Survey of Summer Motor Vehicle Visitors to Minnesota.

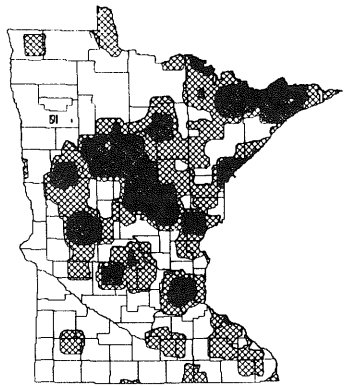
Figure 26 Increase in Outdoor Recreation Hours of Minnesota "Tourists" and Nonresidents in Minnesota by Activity, 1985-2000



***Seven additional activities show decreases in this time period.**
Note: Hours projected to increase a net 33.3 million hours from 1985-2000. Total hours in 2000=298.7 million..

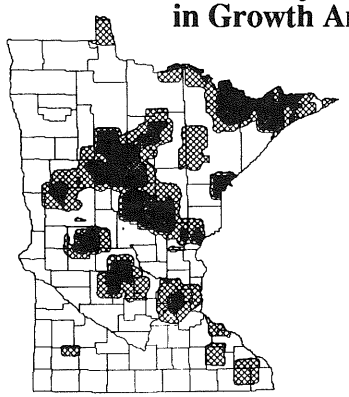
Figure 27 Outdoor Recreation of Minnesota Tourists and Nonresidents Combined

1985 Distribution



Percent of Total Recreation Hours
60 % of total
30 % of total
10 % of total
Total Recreation Hours on Map = 265.4 million

1985 to 2000 Projected Increase in Growth Areas



Percent of Total Recreation-Hour Increase
60 % of total
30 % of total
10 % of total
Total Recreation Hours on Map = 37.7 million

Note: The increase in growth areas of 37.7 million hours is offset by a decrease in loss areas of 4.4 million hours to give a net change of 33.3 million hours.

Source: MN DNR, 1985-86 Outdoor Recreation Participation and Expenditure Survey of Minnesotans. MN DNR, 1978 Outdoor Recreation Participation and Expenditure Survey of Summer Motor Vehicle Visitors to Minnesota.

The public sector provides all public wildlife areas. Many of these areas are remnant tracts of wet prairie, purchased primarily for waterfowl habitat. Both the federal and state government play an active role in the development of wildlife areas.

All levels of government supply parkland. The federal and state governments have developed parks that focus on natural resources. In contrast, county and local parks have a strong population focus. The federal government makes its contribution to park acres through two National Monuments and one National Park. State government administers Minnesota's State Parks and outdoor recreation areas. The majority of county and regional recreation facilities are located in and around the Twin Cities Metropolitan Area. Municipal and township parks are scattered as widely as the governments that administer them. Note: Because Figure 28 is based on park acres, rather than numbers of parks, the net impact of federal parks may be exaggerated.

The public sector has developed most of Minnesota's cross-country ski trails, snowmobile trails and hiking trails. Cross-country ski trails have been developed by all levels of government. Snowmobile trails have been developed largely by state and county governments, with major contributions from the grant-in-aid program. Private sector contributions are greatest in the development of hiking trails.

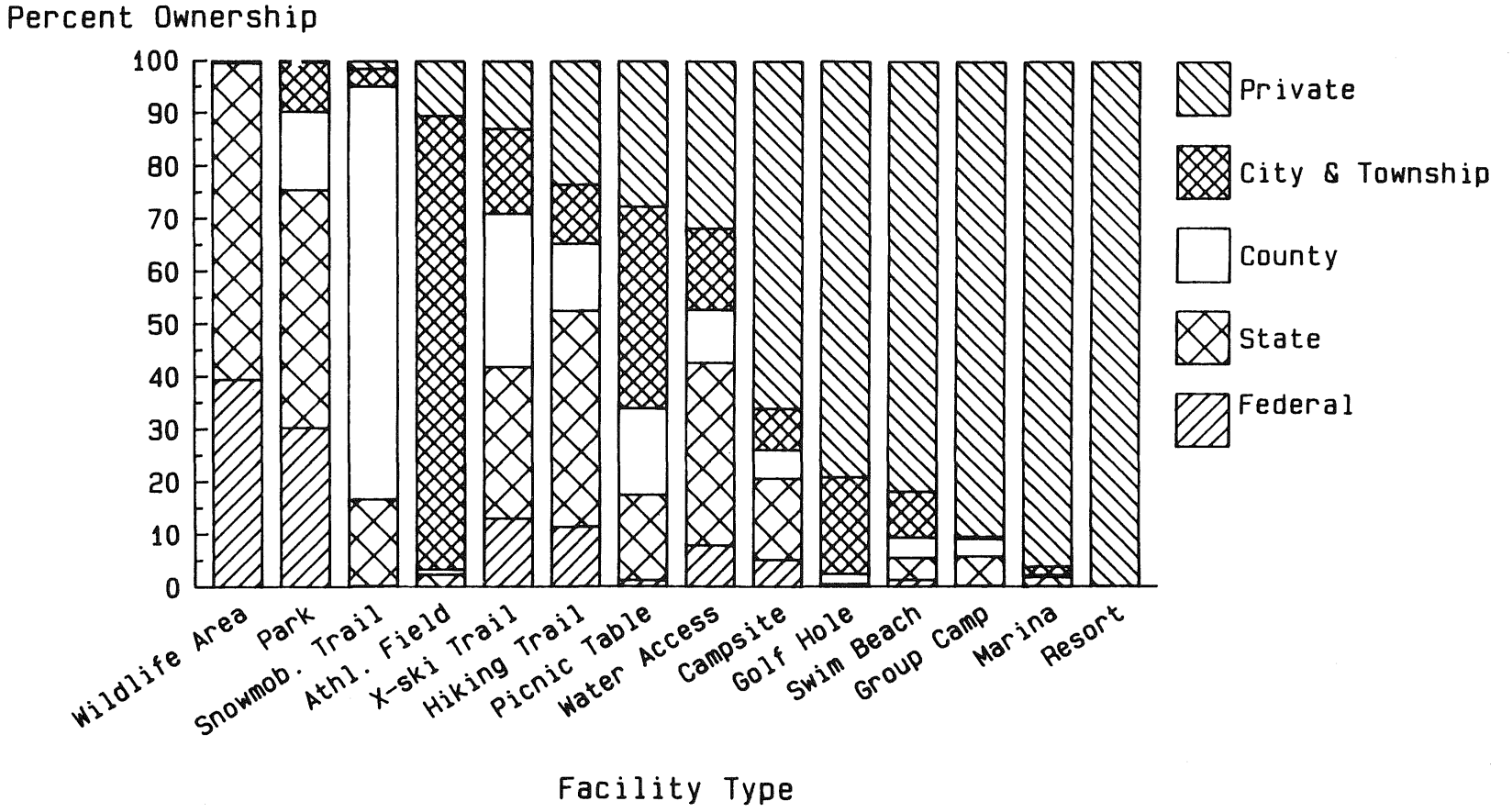
Municipal and township governments have been the principal developers of athletic fields. Other sports facilities (skating rinks, baseball/softball diamonds, and tennis courts) are typified by the distribution of athletic field acres, so they are not included in Figure 28. All of these facilities are distributed about the state in a pattern that closely matches the distribution of the state's population.

Picnic facilities have been developed primarily by the public sector, with municipal/township governments providing most picnic areas. The private sector provides just under 30 percent of the statewide supply.

Water access facilities have been developed by both the public and private sectors. Many of the private sector facilities are provided in conjunction with resorts. State government provides most of the public water accesses, followed by county and local governments.

The private sector has developed the majority of the state's supply of all remaining facilities shown in Figure 28. Campsites in the state are 66 percent privately owned. The state supplies most of the public camp-

Figure 28 Providers of Minnesota Recreation Facilities



Source: Minnesota Department of Natural Resources, Office of Planning. RECFAC Data Base.

sites, followed by municipal/township, federal and county governments.

Both golf courses and swimming beaches are 80 percent privately provided. The municipal/township contribution to each of these facilities is the largest of any public sector recreation provider.

Group camps, marinas and resorts are over 90 percent privately owned. Group camps are also provided by state and county governments. State and municipal/township governments together, provide most the public marinas. Resorts, except for Douglas Lodge at Itasca State Park, are exclusively provided by private entrepreneurs.

Future Providers

What is this the most appropriate or desirable mix of public and privately-sponsored outdoor recreation facilities for the future? Actually, the answer to this question depends on prevailing public attitudes and these are always in flux. Typically, the private sector must generate a profit on those facilities it provides. Consequently, it is difficult to imagine certain facilities (e.g., wildlife areas and natural parks) becoming increasingly private in the near future.

Other types of facilities, however, may offer incentive to private sector providers who could profit from them, depending on the level of government support and/or competition. Similarly, public sentiment could move shift government providers into more or less facility development.

A local perspective on this question of responsibility emerged from a 1984 DNR Public Opinion Survey. Local recreation leaders were asked what level of responsibility the different levels of government and the private sector should assume for providing various outdoor recreation facilities. Specifically, they agreed that athletic field facilities - skating rinks, baseball/softball diamonds, tennis courts and football/soccer fields - should be provided primarily by local government. They felt that golf courses should be provided primarily by the private sector, and cross-country ski trails and park and wildlife areas should be provided by federal, state and county governments. The leaders disagreed as to who should provide picnic grounds, swimming beaches, campgrounds, boat launches, snowmobile trails and hiking trails.

Although this comparison was somewhat limited, it does illustrate that local recreation leaders are in touch with the recreation needs of their constituents. It is also noteworthy that these leaders largely agree with the current mix of recreation providers.

Facility Adequacy

Two approaches have been taken in looking at the question of facility adequacy in Minnesota. Unfortunately, neither provides the information needed to determine priorities for supplying additional facilities.

First, the participation data was compared to the facility data to try to determine where facilities are in greater relative need in different regions of the state Second, Minnesotans were randomly surveyed to determine which facilities they thought were in short supply. The problems with each of these approaches are discussed below, along with the advantages of a third approach - site monitoring.

Comparison of Participation and Facility Data

In order to look at the adequacy of recreation supply in the various regions of the state, an attempt was made to compare the participation (demand) data with the facility (supply) data. By comparing the ratio of demand for an activity to supply of a facility in each region to the same ratio statewide, we hoped to be able to highlight the region(s) where efforts should be concentrated to expand supply. Unfortunately, a problem arose with a number of the comparisons, due in part to the independent establishment of the data bases. As a result, the data on participation could not be directly linked to the corresponding facility data.

A number of facility items were examined, ranging from resort lodging units, campsites, water accesses, fishing piers and various types of trails, to ball diamonds, golf courses and swimming pools. A basic problem with the facility data as it now exists is the lack of up-to-date information. For many items, the bulk of the data was collected before 1980. Even if the data were updated, however, the problem of matching these facility items with the participation data already collected would still exist.

Despite these problems linking demand with supply data, an attempt was made to compare activity participation with the most appropriate recreation facility in 15 cases. Three measures were used to compare demand/supply in each region with statewide figures: 1) the population in each region per unit of supply in the region; the demand arising from residents of a region per unit of supply in the region; and the demand taking place in a region per unit of supply in the region.

For each of these measures, if the ratio for a region deviates from the state ratio on the positive side (meaning the measure of demand per unit of supply is higher in that region than statewide), the region could be considered a priority when looking at increasing supply in the state. Examples of the results of this analysis and an explanation of the terms are shown in Tables 1 and 2, and in Figure 29.

Table 1 Camping/Campsites

	State	Northwest	Northeast	Central	Southwest	Southeast	Metro
Population (000s)	3766.00	323.00	321.00	420.00	476.00	377.00	1848.00
D-Origin (000s)	27192.00	696.00	4065.00	4152.00	3983.00	985.00	13311.00
D-Dest. (000s)	44371.00	7547.00	14763.00	9845.00	4560.00	4029.00	3599.00
Supply (000s) no. sites	35.46	7.91	11.52	9.41	4.35	4.53	2.13
Pop./site	106.20	40.83	27.86	44.63	109.43	83.22	867.61
Deviation from State		-0.62	-0.74	-0.58	0.03	-0.22	7.17
D-O/site	766.84	87.99	352.86	441.23	915.63	217.44	6249.30
Deviation from State		-0.89	-0.54	-0.42	0.19	-0.72	7.15
D-D/site	1251.30	954.11	1281.51	1046.23	1048.28	889.40	1689.67
Deviation from State		-0.24	0.02	-0.16	-0.16	-0.29	0.35

Note: Demand is measured in hours.

Table 2 Boating & Fishing/Public Access

	State	Northwest	Northeast	Central	Southwest	Southeast	Metro
Population (000s)	3766.00	323.00	321.00	420.00	476.00	377.00	1848.00
D-Origin (000s)	149086.00	10642.00	14472.00	19216.00	21050.00	10879.00	72824.00
D-Dest. (000s)	191565.00	31655.00	53919.00	58912.00	17643.00	6372.00	22977.00
Supply (000s) no. parking spaces	29.31	5.81	6.17	6.43	5.33	2.38	3.19
Pop./site	128.49	55.59	52.03	65.32	89.31	158.40	579.31
Deviation from State		-0.57	-0.60	-0.49	-0.30	0.23	3.51
D-O/site	5086.52	1831.67	2345.54	2988.49	3949.34	4571.01	22828.84
Deviation from State		-0.64	-0.54	-0.41	-0.22	-0.10	3.49
D-D/site	6535.82	5448.36	8738.90	9162.05	3310.13	2677.31	7202.82
Deviation from State		-0.17	0.34	0.40	-0.49	-0.59	0.10

Note: Demand is measured in hours.

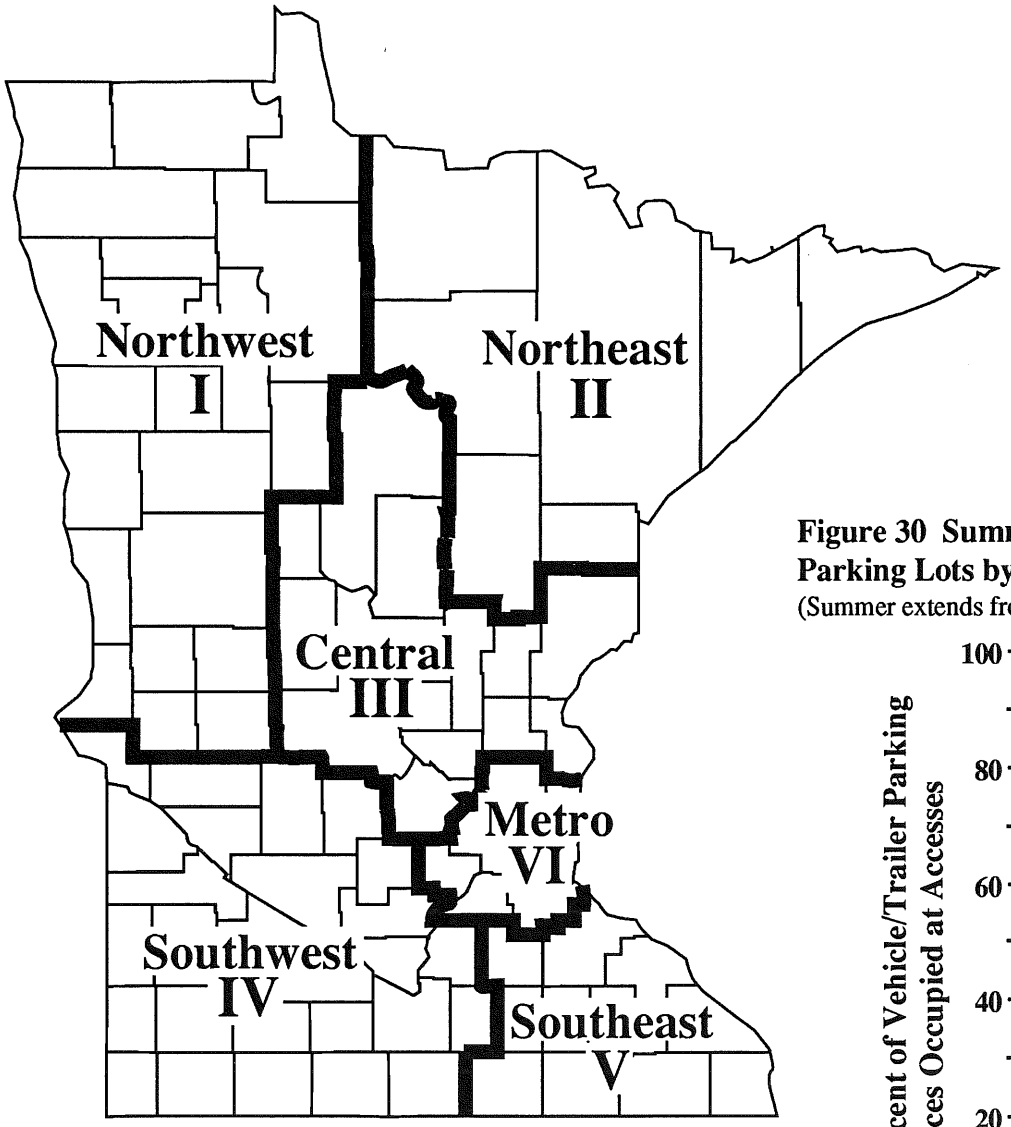
Explanation of Tables

Population: Population in the region.
D-Origin: Demand arising from within the region.
D-Dest.: Demand occuring in the region.
Supply: Supply of the facility in the region.
Pop./Site: Population per unit of supply.
D-O/Site: Demand arising from the region per unit of supply.
D-D/Site: Demand occurring in the region per unit of supply.

Deviation from State

This measures the difference between the specified ratio for a region and the same ratio for the state. If the deviation is positive, the region has a greater demand per unit of supply than the state; a negative deviation indicates the opposite.

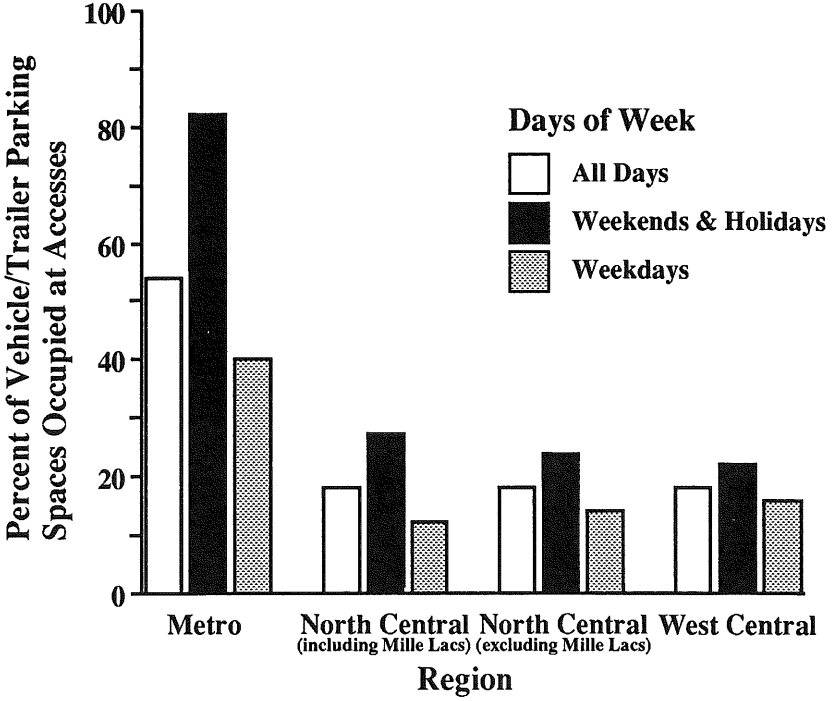
Figure 29 DNR Regions



In some cases, the match between an activity and a facility is quite good. For example, the number of campsites fairly accurately measures the facility supply for camping. Cross-country ski trails and snowmobile trails also provide good measures of the supply for those activities.

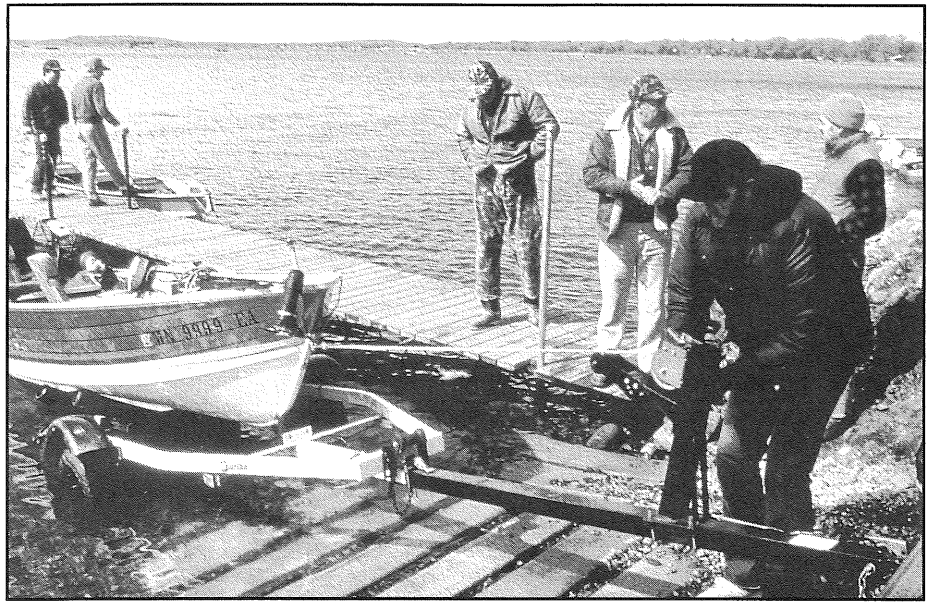
In other cases, activities and/or facilities were combined to find the best match. In order to find a match for public access sites, for example, fishing was combined with boating and canoeing since these cover most uses of public accesses. The results of this

Figure 30 Summer Afternoon Occupancy Rates of Public Water Access Parking Lots by Region and Day of Week
(Summer extends from the Saturday of Memorial Day weekend to Labor Day)



Source: Minnesota Department of Natural Resources, Office of Planning. RECFAC Data Base.

comparison are misleading, however. In terms of the demand at the destination per unit of supply at the destination, the analysis shows that the region in most need of additional supply is the Central Region. From work done on public access use in the North Central, West Central and Metro Regions, however, we know that the occupancy rates at accesses in the Central Region are much lower than those in the Metro Region (Figure 30). Public access is not an appropriate supply measure for fishing, boating and canoeing because it does not cover the other means of access to water, namely private accesses and riparian residences.



Facility Adequacy Poll

In November and December, 1988, a survey was conducted of 2,400 Minnesota households, 400 from each of the six DNR regions. Note: A complete tabulation of results can be found in Appendix A. The purpose of this survey was to gauge the public's perception of the adequacy of outdoor recreation facilities available to their households.

For each of 33 facilities, the first question asked of respondents was: "How important is this facility to the outdoor recreation of people in your household?" If the answer was "very important" or "somewhat important", the respondent was then asked: "In your opinion, does Minnesota need more of these facilities convenient and accessible to your household, or are there enough right now?" If the answer to this question was "need more", the next question was: "Would you want these for one-day outings, for overnight trips away from home, or both?"

Results

The statewide results of the three questions are shown in Table 3, ranked by the Important column. The regional results are not included because they are all very similar to the statewide results. The facilities near the top of the list were viewed as important by a larger percent of Minnesota households than were those near the bottom.

The Need-More column represents the percent of all adults who responded that Minnesota needs more of a specific facility. The ranking of facilities by Need-More is similar to that by Important, but not identical. Some facilities that are important are perceived as being more in short supply than others.

A problem arises when trying to interpret the responses to the Need-More question in the survey. It is not clear if respondents based their answers on known capacity constraints, or if their responses might simply have been a reaction to the popularity of the facility in that household.

As noted above, the Need-More ranking and importance ranking are similar. In addition, the responses to the Need-More question in reference to lake accesses do not fit with other data on accesses. The Need-More responses for lake accesses were very similar across all regions (29 to 44 percent of adults), yet we know from site monitoring that the facilities in the Metro region are often used at or near capacity, while those in the out-state regions are seldom full. This discrepancy leads us to question the usefulness of the Need-More responses for decid-

ing which regions are in greater need of additional lake accesses. It also leads us to question the usefulness of these responses for the other facilities.

The responses for day outings versus overnight trips, however, appear to be very reliable data. Putting aside the question of whether or not more facilities are actually needed, Minnesotans strongly voiced their preference for close-to-home recreation. The ratio of day outings to overnight trips found in the last column of Table 3 shows that some facilities are preferred for overnight use (e.g., park areas, campgrounds and hunting areas), but most are desired for day outings. This is in agreement with the participation data, which shows that 73% of recreation occurs within 1/2 hour of home.

Site Monitoring

The problems that arose with both the participation/facility analysis and the Need-More response to the facility poll indicate that we still do not have a good measure of the need for more recreation facilities in Minnesota. The best way to determine whether a facility is in short supply is through site monitoring. By keeping track of the use of various types of facilities around the state, specific data can be collected on the frequency of use and the need for more facilities based on actual capacity constraints. Site monitoring provides the most accurate indicator of the need for and the location of more recreation facilities in the state.

Table 3 Statewide (percent of adults)

S	FACILITY	VERY IMPORTANT	SOMEWHAT IMPORTANT	IMPORTANT	NEED MORE	HAVE ENOUGH	DAY OUTINGS	OVER-NIGHTS	RATIO*
1	Natural park areas	57.9	33.1	91.0	35.7	52.6	20.4	25.2	0.00
2	Wildlife & nature observation	53.1	35.8	88.9	50.5	34.7	34.9	27.0	0.54
3	Walking paths	51.4	32.3	83.7	49.1	32.2	42.1	16.3	0.81
4	Picnic grounds	30.2	52.1	82.4	26.1	54.7	18.1	12.8	0.90
5	Nature & history interpretation	33.5	48.6	82.1	37.1	41.0	27.5	18.4	0.98
6	Swimming beaches	49.0	32.8	81.8	43.3	37.6	35.3	17.1	1.27
7	Lake accesses	45.3	33.0	78.3	36.5	40.1	27.6	18.3	1.29
8	Bicycle paths & trails	37.9	39.5	77.5	48.6	26.8	40.8	19.9	1.32
9	Paved shoulders for bikes	50.7	25.4	76.1	61.6	13.0	51.9	23.0	1.37
10	Flower gardens	30.0	44.8	74.8	40.2	31.8	35.3	9.1	1.41
11	Campgrounds	41.0	31.3	72.3	32.4	37.9	0.0	32.4	1.41
12	Hiking trails	34.4	37.2	71.6	37.8	29.7	26.9	21.2	1.41
13	Athletic fields	34.9	35.2	70.1	20.7	47.3	18.6	4.6	1.45
14	Skating & hockey rinks	29.6	40.2	69.8	29.4	39.5	27.6	4.2	1.49
15	Shore fishing areas	37.3	32.3	69.7	34.7	34.1	26.2	16.3	1.50
16	River & stream access	30.3	34.5	64.7	32.5	30.3	23.8	17.3	1.51
17	XC ski trails	26.7	36.4	63.1	35.8	24.6	30.4	13.1	1.56
18	Playgrounds	32.5	27.5	60.0	16.5	41.8	12.8	6.4	1.60
19	Swimming pools	27.6	30.5	58.1	35.5	21.2	32.1	7.9	1.98
20	Downhill ski areas	19.6	32.4	52.0	21.0	29.9	15.9	11.0	2.05
21	Tennis courts	17.1	34.5	51.6	17.1	32.8	16.4	2.3	2.06
22	Golf courses	21.6	29.2	50.8	14.6	35.0	13.9	1.6	2.25
23	Waterfowl hunting areas	26.4	21.0	47.4	22.2	23.1	13.8	14.1	2.32
24	Snowmobile trails	16.6	24.1	40.6	20.8	18.6	15.4	10.9	2.58
25	Big game hunting areas	25.2	15.3	40.5	17.4	22.2	7.6	13.9	3.04
26	Basketball courts	12.4	26.3	38.7	17.7	19.4	16.7	2.4	3.87
27	Horseback trails	11.8	26.3	38.1	23.8	11.5	17.6	11.3	4.01
28	Upland game hunting areas	18.1	17.6	35.7	17.7	16.6	10.5	11.7	4.07
29	Shooting ranges	10.2	19.2	29.4	15.4	12.7	14.2	2.8	5.17
30	ATV trails & areas	8.8	15.8	24.6	14.6	9.0	10.4	7.0	6.54
31	Field dog training areas	5.5	14.6	20.1	8.8	8.8	7.5	2.5	6.88
32	Scuba diving areas	5.1	14.8	19.9	12.7	5.6	9.4	6.6	7.05
33	4WD trails & areas	5.7	11.5	17.2	10.2	6.6	7.2	5.4	8.83

S: Statewide rank-order of IMPORTANT

Number of adults 18 years and over STATEWIDE: 3,082,185

*RATIO: DAY OUTINGS / OVERNIGHT TRIPS

STATEWIDE: CORRELATION* BETWEEN IMPORTANCE, NEED, LOCATION

	IMPORTANT	NEED MORE	DAY OUTINGS	OVERNIGHT TRIPS
IMPORTANT	1.0000	0.8463	0.7383	0.6761
NEED MORE	0.8463	1.0000	0.8847	0.7684
DAY OUTINGS	0.7383	0.8847	1.0000	0.4301
OVERNIGHT TRIPS	0.6761	0.7684	0.4301	1.0000

Chapter 2 Outdoor Recreation Issues

Outdoor recreation involves a complex set of problems, issues and opportunities related to many other aspects of public policy. An understanding of the multifaceted nature of recreation can and should stimulate creative new approaches to the provision and management of recreation experiences. Among the many difficult issues facing federal, state and local government, and the private sector are the following.

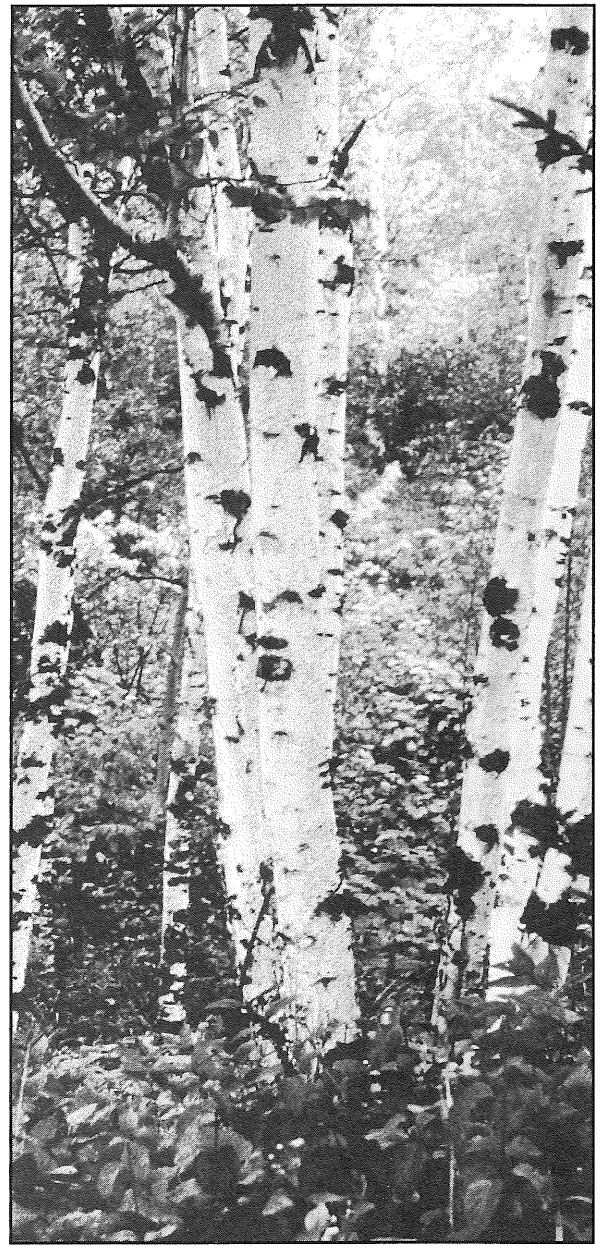
I. Natural Resource Protection and Management

Minnesotans prize their natural resources and have developed a keen interest in the protection, management and wise use of those resources. They object to the gradual, pervasive deterioration of the state's natural environment brought about by unchecked air and water pollution, industrial development or urban sprawl. Moreover, Minnesotans expect their natural resources to be carefully managed and protected on the basis of sound scientific principles, without undue political influence.

Minnesotans place a high priority on environmental issues. Witness the nearly 80% voter approval of the 1988 Constitutional Amendment establishing the Minnesota Environment and Natural Resources Trust Fund. Minnesota has a long record of such successes in its enduring commitment to natural resource protection and maintaining environmental quality.

Minnesota has grown and developed both agriculturally and industrially, largely based on its wealth of natural resources. Abundant timber, minerals, game and fish, and clear, free-flowing lakes and rivers provided early settlers with food, clothing, building materials and the productive soils needed to transform Minnesota into what it is today. Although Minnesota remains a place of great natural beauty, much of its original natural heritage has been lost, altered or destroyed by encroaching civilization.

Twenty-first century Minnesotans must come to grips with a variety of complex and long-standing environmental challenges brought about by centuries of human settlement. The following discussion focuses on three key resource protection and management issues facing Minnesotans in the decade of the 1990's. These are: 1) Water Resource Protection, 2) Protection of Fish, Wildlife and Native Plant Resources, and 3) Land Use Management.



Water Resource Protection and Management

Minnesota's abundance of lakes and streams determines, in large measure, where and how Minnesotans recreate, and why many non-

residents choose Minnesota for outdoor recreation-related travel. The state's outstanding wetlands, shorelands, lakes and rivers, floodplains and abundant groundwater resources also provide diverse environmental, economic and aesthetic benefits. Growing awareness of the importance of Minnesota's water resources has led to increased efforts to protect their unique character and quality.

Managing water for outdoor recreation has economic implications in the same sense that managing water for other commercial or industrial uses has. For example, annual consumer purchases associated with water-related outdoor recreation totaled nearly $1.2 billion in 1985, of which approximately half were non-resident expenditures. These consumer purchases had a total impact of nearly $2 billion on the state's economy when indirect economic effects are included. Stated differently, about 1.5 percent of the Minnesota economy depends directly on water-related outdoor recreation. In addition, over 37,000 jobs (about 2% of state employment) and $128 million in fees and tax revenues are generated annually by water-related recreation expenditures.

Wetlands

Technically, wetlands are defined as lands where the water table is usually at or near the surface, or where the land is covered by shallow water. Wetlands are transitional between terrestrial and aquatic ecosystems, and they provide essential habitat for a variety of fish, wildlife and native plant species. Wetlands are also important for flood and stormwater storage, nutrient entrapment, groundwater recharge, and for the production of agricultural crops. Wetlands are used for a variety of recreational activities and are appreciated by many for their aesthetic and ecological values.

Recreational Value of Wetlands

Wetlands provide a large share of the hunting, fishing, trapping and nature observation opportunities in Minnesota. This is particularly true in agricultural regions of the state. More than 3.3 million recreational days annually are linked to wetland-related activities (not including fishing). Migratory bird hunting alone, accounted for 1.7 million hunter days in 1980, more than half of which occurred on state or federally-owned wetlands. By 1995, estimates show that Minnesotans will spend more than 4.0 million visitor days annually involved in birdwatching or nature study. Wetlands, with their productive flora and fauna, will provide many of these opportunities.

Minnesota's wetlands provide habitat for more than 350 of the state's 580 vertebrate species, over 30 of which are classified as endangered, threatened or of special concern. Without wetlands many species would cease to exist. For example, it is estimated that half of the pheasants in Southern Minnesota and many of the white-tailed deer rely on a variety of wetland types to satisfy their biological requirements. A mallard hen may also use as many as 20 different wetlands during the nesting season.

Wetland Losses

Current estimates indicate that over 70 percent of Minnesota's original 12.5 million acres of wetlands have been drained and destroyed. Of the 3.5 million acres remaining, only 600,000 acres remain in the Prairie Pothole Region of Western and Southern Minnesota where most of the losses have occurred. Agricultural drainage has accounted for most wetland losses in the state.

Minnesota wetlands are still being drained at the rate of 2-3 percent annually. Minnesota loses an estimated 5,300 acres of wetland each year, a rate that is expected to continue through the 1990's. Many wetlands dried up as a result of the 1987-1988 drought, and many others may be further stressed if climatic patterns in Minnesota become warmer and drier.

Recent changes to Minnesota's Drainage Code (MS Chap 106A) clarified existing laws governing public drainage, but did little to address environmental issues or the equitability of this process. Little has been done to improve the poor records associated with public drainageways. An improved

wetland protection program is needed, as are standard approaches for assessing the values of both protected and non-protected wetlands for wildlife, recreation, water quality and flood protection.

State Efforts To Preserve Wetlands

Minnesota has long been a leader in wetland protection. Wetland preservation through fee title acquisition began in the 1950's under the DNR's Save the Wetlands Program. More than 1,000 Wildlife Management Areas (WMA's) with over 530,000 acres have since been acquired. An additional 350,000 acres of state and federal land within WMA boundaries is managed by DNR under cooperative agreements. Approximately half of the 880,000 total acres of state WMA acreage is wetland. The DNR hopes to acquire a total of one million acres by the year 2000.

WMA's are managed primarily for waterfowl, and most are located in the Prairie Pothole Region of Minnesota. Water control structures allow management of water levels to help restore and enhance wetland productivity. WMA's are generally open to public hunting, trapping and other compatible recreation uses. As such, they form an important part of the state's outdoor recreation system.

A major source of funding for wetland acquisition has been the surcharge on small game hunting licenses, which has raised an average of $1.2 million per year since 1978. The State Legislature has appropriated an additional $15 million from the Resource 2000 bonding program since 1975, and the Legislative Commission On Minnesota Resources has provided about $2.5 million for WMA acquisition.

Other state programs that protect wetlands include the Protected Waters Permit Program, which requires a DNR permit to modify any protected water basin, and the State Waterbank Program which compensates private wetland owners for retaining valuable wetlands. The Wetland Tax Credit and Exemption Program exempts wetlands from state taxes and provides a credit for wetland acres enrolled in the program. The tax credit provision was, however, repealed in 1987 leaving only the tax exemption in place.

The Reinvest In Minnesota Reserve Program, a 10-year program begun in 1986 to improve Minnesota's natural resources, pays farmers to place marginal farmland into wildlife habitat. It protects wetlands from the effects of erosion and run-off, as it enhances the productivity of wetlands for wildlife. RIM Reserve also allows landowners to enroll and restore drained wetlands. As of January 1988, there were 100 wetland projects enrolled covering 1,270 acres.

Federal Wetland Programs
Federal Executive Order 11990 issued in 1977 called for all federal agencies to take actions to minimize the destruction or degradation of wetlands. Other federal regulatory authorities include the River and Harbor Act of 1899, the Migratory Bird Conservation Acts of 1929 and 1934, the Fish and Wildlife Coordination Act of 1946, the Land and Water Conservation Fund Act of 1965, the Water Bank Act of 1970 and the Clean Water Act of 1977. More recently, the 1985 Federal Food Security Act contains important provisions for wetland conservation, as does the Emergency Wetlands Resources Act of 1986.

Federal programs affecting wetlands are administered by a number of agencies, but fall generally into the following broad areas:

1. Water Management Programs - Federal water resource development programs include not only navigation-related work, but also projects related to crop irrigation, municipal and industrial water supply, flood control, electric power generation and pollution control. These programs directly and indirectly affect wetlands through the creation of reservoirs, filling and dredging, stream or river channelization, or by altering a region's natural hydrology with flood control or drainage facilities. Agencies responsible for these activities include the US Army Corps of Engineers, Bureau of Reclamation, and the Soil Conservation Service (Small Watershed Program).

2. Agricultural Development & Support Programs - Federal programs that maintain or encourage expansion of the agricultural sector affect the quantity and quality of wetlands through increased fertilizer and pesticide runoff, as well as increased irrigation pumping which reduces aquifer recharge in wetland areas. The devegetation and soil compaction that occurs when lands are brought into production may also accelerate surface erosion and runoff, resulting in increased sediment loadings in wetlands. Federal agricultural programs provide farm income and price supports, low interest loans and farm credit, crop insurance, disaster aid and technical assistance to farmers.

3. Conservation and Technical Assistance Programs - The USDA implements federal soil and water conservation policy through the Soil Conservation Service (SCS) and the Agricultural Stabilization and Conservation Service (ASCS). Like other agricultural programs, technical assistance programs have the potential to lower the costs of wetland drainage and conversion for farmers.

Prior to 1980, SCS technical assistance was provided specifically for wetland drainage, often in conjunction with cost-sharing assistance through the ASCS. Regulatory changes have since prohibited federal cost-sharing for wetland drainage. Both state and

federal permits are now required for virtually any activity that involves wetland alteration. Federal emphasis has shifted to wetland preservation and alleviating erosion and water quality problems resulting from unsound farming practices.

Federal programs designed to protect wetlands include the US Fish & Wildlife Service's Small Wetlands Acquisition Program. Begun in 1962, this innovative program has lead to the designation of over 136,000 acres of Waterfowl Production Areas located in a 28-county area of Western Minnesota. The FWS has also purchased over 45,000 acres of wetland easements from private landowners. Another 175,000 acres in six National Wildlife Refuges , some 72 percent of which is wetland, has also been purchased from Minnesota landowners.

A second important wetland preservation program is the ASCS' Federal Water Bank Program. Under this program, wetland owners enter into an agreement with ASCS promising not to drain, burn, fill, level or use wetlands for a 10-year period. In exchange, the landowner receives an annual payment designed to reflect local real estate values.

Other important federal statutes affecting wetlands include The Fish & Wildlife Coordination Act (16 USC 661), The National Environmental Policy Act (42 USC 4321-61) and, The Wild & Scenic Rivers Act (16 USC 1271-87). Provisions of the Federal Tax Code can also greatly affect wetlands. Tax policies that stimulate agriculture, capital investment, recreation development and timber production have often had the unintentional effect of encouraging wetland drainage and conversion.

Private Wetland Protection

Private efforts to preserve and enhance Minnesota's wetland resource have been instrumental in the fight to protect the state's wetlands, and in lobbying for key pieces of state and federal wetland legislation. Ducks Unlimited, for example, has developed 21 wetland projects affecting over 8,400 acres of wetlands at a cost of over $3 million. The Minnesota Waterfowl Association has similarly developed 62,345 acres of wetlands in 43 counties, in addition to its instrumental role in securing passage of the original Wildlife Lake Designation Program legislation and authorization of the state waterfowl stamp.

Cooperative Protection Efforts

The North American Waterfowl Plan was developed jointly by waterfowl management agencies representing the U.S. and Canada. The plan serves as a guide for waterfowl management on the North American continent through the year 2000. The plan calls for protection and improvement of 4.7 million acres of prairie wetlands and associated habitat, with 1.1 million acres of this total in the Prairie Pothole Region of the U.S. Although the plan focuses on waterfowl, a variety of other waterbirds, shorebirds, songbirds, small game mammals and resident game species will also benefit.

Federal and state governments are looking to the private sector for support in carrying out this unprecedented $1.5 billion program.

Note: The SCORP Wetlands Component entitled: "Preserving Minnesota's Wetlands" contains a more detailed description of state and federal programs affecting wetlands in Minnesota. Copies of the wetlands report are available upon request from the DNR, Office of Planning.

Shoreland Management

With over 12,000 lakes and 90,000 miles of rivers and streams, Minnesota's shorelands are among the most extensive in the nation. However, increased shoreland development could pose serious problems for some of Minnesota's most popular recreational lakes. According to a 1982 DNR study, numbers of lakehomes have increased by more than 80 percent since the first shoreland development census was taken in 1967. By 1982, there were 112,624 shoreland dwellings in non-municipal areas. The largest increase has been in year round lakehomes (100%), while seasonal residences have also increased by nearly two-thirds (63%).

Despite Minnesota's abundance of shoreland resources (over 193,000 miles of shoreland on lakes and rivers), not all of it is conveniently located, desirable or useable as a recreational resource. As a result, most shoreland development tends to be highly concentrated. For example, fifty Minnesota lakes accounted for almost a third of the

total increase in lakehomes between 1967 and 1982. Most of these lakes already had high development densities in 1967. On many of the lakes, average lakeshore frontage is less than 100 feet per dwelling; less than in many urban and suburban areas.

Shoreland Development Trends

Even though Minnesota's prime shoreland resources would appear to be developed to capacity, development densities will likely be even higher in the future. Second and third tier development is now occurring in many areas. In addition, undeveloped prime shorelands in private ownership will likely be subdivided and developed as property values climb. Less popular (and less suitable) sites will account for a steadily growing portion of total shoreland development.

Recreation trends appear to influence and reinforce lakeshore development patterns in Minnesota. The weekend migration towards water-related recreation sites has become a summertime tradition in Minnesota. Affluence, coupled with increased leisure time and mobility, has fueled growth in recreational use of shorelands. With water a key component of recreational choice, it is not surprising that growing use pressures are focused on shoreland areas. This trend is projected to continue.

Shoreland Development Impacts

Minnesota's lakes and rivers, like other ecological systems, do not have unlimited potential to accommodate changes resulting from increased use and development. At some level of development, lake and river resources will become strained to their limit. Beyond that point, resource quality and user satisfaction begin to decline. Evidence of such deterioration is readily apparent in weed-choked lakes with crowded and poorly maintained shoreland development and declining fishing success.

At some level of development, lake and river resources will become strained to their limit.

Water quality problems associated with excessive shoreland development result primarily from sedimentation and nutrient loading. Unsound agricultural practices or the exposure of mineral soil during housing and road construction can lead to accelerated soil erosion and sedimentation. Other nonpoint sources include rainfall, runoff from improperly functioning septic systems or lawns, logging or construction site runoff, and runoff from roads, driveways or other impervious surfaces. These problems increase as shoreland densities increase and more adjacent land and native vegetation is altered.

Excessive shoreland development has been shown to have a negative impact on local economies. Seasonal property values suffer from poor water quality, weedy conditions or perceived overcrowding. Conversely, studies show that improved water quality and well-planned shoreland development can add to private property values benefitting shoreland owners and local economies.

Careful assessment of ecological limits can help prevent water quality problems or habitat loss, and can enhance recreational opportunities. State agencies can assist local communities in determining the relative sensitivity of particular lakes or rivers to increased levels of use and development, and can support local implementation of state shoreland management regulations.

Shoreland Protection and Management

Minnesota's Shoreland Management Program classifies each lake and river according to its size and shape, water quality, existing development, accessibility to service centers, and future development trends. These classifications enable the Department of Natural Resources to develop specific strategies for shoreland protection.

The state's Shoreland Management Regulations govern certain development features such as sanitary and waste treatment facilities, lot frontage and setback requirements, vegetation alteration, and the subdivision of shoreland areas. These regulations are intended to prevent shoreland erosion, sedimentation and water quality degrada-

tion. Recent revisions to the shoreland regulations incorporate new management standards designed to better protect shorelands and water quality by addressing issues such as upgrading sewage systems, forestry and agricultural practices, management of bluffs and steep slope areas, and the need for specific standards for lake and river system management.

Shorelands are among the most valuable and vulnerable recreational resources in Minnesota. The way in which they are used will significantly affect the future quality of surface waters and the availability of water-related recreation opportunities. In order to maintain and protect this valuable resource, shorelands in public ownership must be retained, key shorelands in private ownership should be acquired, and both public and private shorelands must be wisely managed.

Floodplain Protection and Management

Minnesota's many lakes, streams and rivers are confined within their banks during most years. Periodically, though, these waterbodies reclaim the valley bottoms and flood low-lying areas. This flooding is usually caused by heavy thunderstorms or a combination of snowmelt and spring rains.

Recent estimates indicate that about 22,500 lake and river structures in Minnesota are subject to flooding, resulting in an average of $60-$70 million in damages each year. Flooding results in major social and economic losses to local communities, businesses and private individuals, often affecting even those who do not live on or near the floodplain.

Floodplain Management Programs
Various state and federal programs exist to alleviate flooding and flood-related losses. Still, flood damages continue to mount and lives are lost due to flooding and unwise floodplain development. The Flood Damage Reduction Program authorized by the 1987 Minnesota Legislature provided $2.2 million for 30 projects statewide to help reduce flood damages. Unmet needs are evidenced by the $22 million in new project funding requests for the following biennium.

Land use regulations are the cornerstone of all floodplain management programs. Regulatory controls provide a long-term approach to flood damage reduction. These controls require any new construction within the floodplain to incorporate measures to reduce or eliminate potential flood damages, and to protect public health and safety. Additional measures required by the State Floodplain Management Act of 1969 (MS Chap 104) include floodproofing buildings, installing flood control structures, improved flood warning and response capabilities, and the relocation of flood prone structures.

State and Local Programs
At the state level, the DNR has set minimum standards for floodplain area protection and management. Local floodplain regulations are now required to conform with state and federal floodplain management standards. As of 1984, 270 Minnesota communities administered such regulations.

Related DNR programs impacting floodplains include the Shoreland Management Program, the Wild and Scenic Rivers Program, and the Protected Waters Permit Program. Each of these programs functions independently, however, there are important links between the programs which are critical to their success. Floodplain, shoreland and scenic river rules adopted by local governments may co-exist separately or be combined into a single ordinance. Where inconsistencies occur, the most restrictive provisions usually apply.

National Flood Insurance Program
In 1968, Congress created the National Flood Insurance Program to make flood insurance available to property owners, at federally subsidized rates, provided communities would take steps to regulate or restrict future floodplain development. In Minnesota, over 600 flood prone communities have been targeted for participation in this program. By 1984, over 460 of these communities were active in the program.

River and Lake Management

Minnesota gets its name from a Dakota translation meaning "Sky-Blue Water". Indeed, the state is rich in water resources with over 3.4 million lake acres and six million acres of wetlands. The "Land of 10,000 Lakes" actually contains 15,291 lake

basins with areas greater than ten acres, although about 12 percent of these have been drained by natural processes or for agriculture.

Minnesota's drainage network consists of about 38,000 streams, rivers and ditches, of which about 25,000 miles are permanent and large enough to sustain significant fish populations and recreational activity. This aquatic network serves as a basis for much of the state's fish and wildlife-related recreation. Many kinds of plant and animal communities inhabit Minnesota's lakes and rivers, including over 2,000 miles of fishable trout streams located mostly in the northeastern and southeastern parts of the state.

Surface Water Management

The potential recreational and economic use of Minnesota's waterways is vast. Increasingly, however, Minnesota has begun to encounter problems affecting the state's lakes and rivers. Fluctuating lake levels, unwise shoreland development, shoreland erosion and stream channel sedimentation, declining water quality, chemical contamination and surface water use conflicts now seriously threaten the state's water resources. Innovative approaches are needed to resolve these complex and growing problems.

Since water resources are of primary benefit to local users, and since problems affecting those waters most often originate at the local level, solutions to water-related problems are increasingly being sought locally. Recent legislation creating Local Water Planning (MS Chap. 110B), the Minnesota Clean Water Partnership (MS Chap. 115) and the Flood Mitigation Act (MS Chap 104) all focus on the need for local government to address water resource issues at the local level.

Local Water Planning

The Comprehensive Local Water Management Act of 1985 set the framework for state-local cooperative relationships in water resource management. Some 52 Minnesota counties have so far prepared comprehensive water resource plans which identify problems and opportunities related to the protection, management and development of water and related land resources. The plans establish long-term goals and objectives intended to promote sound resource management practices. They contain a wealth of baseline data on local water resources and land use development. Scenic easements, wetland encroachment, proposed zoning changes and water-related recreation impacts are also addressed.

The Local Water Planning process, administered by the Minnesota Board of Soil and Water Resources, offers an opportunity to build an intergovernmental partnership for water resource protection. Counties and local watershed districts take the lead, and state and federal agencies assist in developing and implementing these plans.

State and federal programs assisting in this process include the Reinvest In Minnesota Program, which is designed to retire marginal farmland through conservation easements; the Streambank, Lakeshore and Roadside Erosion Control Program, which provides state financial assistance to local governments for erosion control; and, the federal Conservation Reserve Program which pays farmers to idle erodible farmland and to plant it to grass or trees. Minnesota's Clean Water Partnership offers financial and technical assistance needed to implement measures to protect and enhance surface and ground water quality.

Related Protection and Management Programs

Minnesota's 91 Soil and Water Conservation Districts implement conservation programs, develop resource plans and assist private landowners in implementing conservation practices. State funds distributed to SWCD's through the Minnesota Board of Water and Soil Resources are available for cost-share programs, conservation planning, watershed management, agricultural pollution control and environmental education. The Board is responsible for developing and coordinating state policies governing water and soil management activities at the local level.

The federal Agricultural Conservation Program, administered by the U.S. Department of Agriculture, is a joint effort by federal and state agencies to protect land and water resources. The Soil Conservation Service, the Forest Service, and the Minnesota DNR join in providing technical assis-

tance. Educational support is provided by the Minnesota Extension Service. Through this innovative program, up to 75 percent of the cost of conservation practices may be shared by the federal government.

River Protection Programs
Minnesota's 157 designated Outstanding Recreational Rivers will receive added protection under the state's newly revised Shoreland Management Regulations. The revised rules seek to prevent incompatible types of land uses and require additional performance standards for any proposed new developments. These regulations will be adopted locally throughout Minnesota by 1991.

The state Wild and Scenic Rivers Program is an outgrowth of federal, state and local efforts to protect certain Minnesota rivers which possess outstanding scenic, recreational and natural values. Detailed management plans specify permitted and non-permitted uses according to river designations. River management plans have also evolved through the efforts of local governments along the Minnesota and Mississippi Rivers. These plans share the same basic purpose as the state and federal scenic river protection plans.

A recent effort, the Minnesota Clean Rivers Project, enlists the aid of local volunteer groups, citizen's organizations, service clubs and others who share an interest in cleaning the state's riverways of trash and litter. State agency officials are working to provide assistance and logistical support to various organized river clean-up projects. So far, volunteers have organized successful river clean-up efforts on several major Minnesota rivers.

Water Quality Protection

The waters of Minnesota are an important multi-purpose resource. Water quality is essential for domestic use, water-related recreation, tourism, industry and agriculture. Clean water is also an important health issue. Safeguarding the quality of Minnesota's surface and groundwater is a very high priority for state residents. Although Minnesota's water quality remains among the best in the nation, a water resource strategy remains vital to our quality of life. Continued commitment to preserving surface and groundwater quality is critical to such a strategy.

Surface Water Quality
Pollution in its varied forms contributes to major problems with Minnesota's environment and natural resources, particularly with respect to water. "Point source" pollution problems stemming from industrial discharges and municipal sewage treatment facilities remain a major concern, but modern facilities and regulations have significantly reduced the impacts from these sources.

In contrast, "non-point" sources of water pollution such as run-off from agricultural or silvicultural activities, urban areas, or atmospheric deposition of acids and other toxic chemicals have become the dominant threat to Minnesota's water resources. In a 1988 report, the Minnesota Pollution Control Agency estimated that 4,100 Minnesota lakes and streams (236,845 acres) are seriously threatened or of impaired quality due to non-point pollution effects. Reasons cited in the report included agricultural activities (56%), urban run-off (13%), waste disposal (11%) and modification of waterbodies (10%).

The influx of sediment, nutrients and chemical contaminants into Minnesota lakes and streams drastically alters habitat, affecting the populations of both aquatic and terrestrial species. Rough fish species, for example, are better able to tolerate aquatic degradation and will gradually replace more desirable game fish as water quality deteriorates. In this way, recreational resources are diminished or lost.

Ground Water Quality

Groundwater is used by 70 percent of Minnesotans as a source of drinking water, and it supports major economic activities such as irrigation and industry. Point and non-point source pollution is, however, degrading the state's groundwater resource. Runoff and leaching from farming, logging, urban areas and construction sites seriously threaten Minnesota's groundwater supplies. Many Minnesota cities have already lost their local water supplies due to groundwater contamination. Excessive groundwater pumping has reduced streamflow in other areas, reducing recreational use and damaging fish and wildlife habitat. During the sustained drought of 1987-1988, low groundwater levels dried up many wells around the state and conflicts arose over access to and use of groundwater supplies.

Groundwater is used by 70 percent of Minnesotans as a source of drinking water.

Minnesotans view groundwater depletion and contamination as important issues and have strongly supported measures to control and mitigate these effects. In 1987, the Minnesota Legislature passed the Pesticide Control Law, aimed at protecting groundwater from agricultural chemicals. Comprehensive groundwater legislation was passed by the 1989 State Legislature instructing state agencies to initiate groundwater studies to monitor the quality and quantity of Minnesota's groundwater supplies, as a basis for developing strategies for protecting this valuable resource.

Groundwater contamination has become a serious environmental and public health threat which can go undetected for years and spread over wide areas. It can result in serious, long-term human health effects. Although innovative approaches to cleaning up groundwater contamination are being developed, a better understanding of groundwater location, movement, and the transportation of contaminants is needed. Only then can safe, cost-effective treatment and mitigation techniques be developed to protect and restore groundwater quality.

Research and Information Needs

Scientists are just beginning to understand the complex role that wetlands play in improving groundwater water quality. These valuable ecosystems deserve special consideration due to their importance as habitat for fish and wildlife, sources of water supply, and for their scientific and recreational values. They are particularly sensitive to human encroachment, but serve increasingly as sinks for waste products. Studies should address the availability, movement and quality of water, including surface/groundwater interactions. Emphasis should be placed on the complex physical, chemical and biological processes which are at present poorly understood.

Control of non-point source pollution presents a challenge. Non-point sources are extremely diverse and are closely related to land-use practices. Unique geologic and groundwater situations, such as Karst topography or highly permeable sandy soils,

makes the problem even more difficult to control. Effectively addressing such a problem requires careful analysis of watershed dynamics in order to assess impacts and target contributors.

Increasing diversion, withdrawal and use of water supplies places added stress on the quality and quantity of existing water supplies, and further complicates management efforts. Better information defining present water use and the identification of major aquifers is needed to quantify these stresses over time and space. Various hydrologic hazards (e.g., floods, drought, sedimentation) and the effects of land reclamation, mining and waste disposal should also be examined. Ultimately, effective and reasonable controls must be applied to guide land-use practices which impact water quality. Education is needed to encourage public support for and compliance with regulatory measures.

Because of the complexity and importance of these problems, a coordinated approach is needed. The development of a comprehensive, statewide water quality assessment program would provide valuable information needed to locate and correct water quality problems for both surface and groundwater resources.

Fish, Wildlife and Native Plant Resources

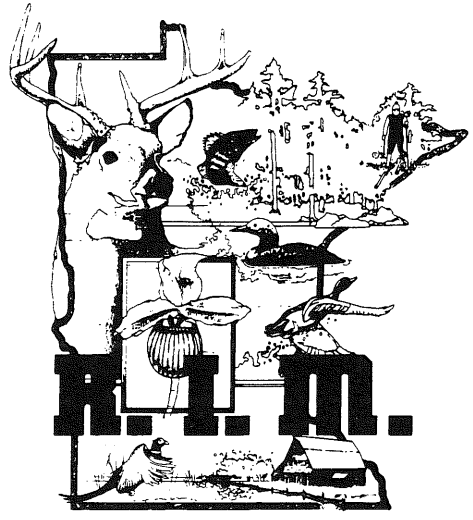
Fish and Wildlife Resources

Minnesota is generously endowed with fish, wildlife and native plant resources, all contributing to the quality of life we enjoy. There are over 500,000 hunters and nearly 2.0 million anglers among the state's 4.2 million residents. The Governor's Task Force On Hunting and Fishing in 1986 placed the annual economic value of these activities at $1 billion annually. The larger value of this resource to Minnesotans, however, is immeasurable.

The land and water base upon which these resources depend is rapidly declining in both quality and quantity. Growing, sometimes conflicting demands for the production of food and fiber, living space and outdoor recreation are gradually eroding the ability of Minnesota's natural resources to support populations of fish, wildlife and native plant species. Increased human population and an expanding natural resource-based economy has begun to significantly change Minnesota's social and economic fabric, as well as its environmental character.

Re-Invest In Minnesota (RIM)
The Minnesota Legislature created Re-Invest In Minnesota, an innovative habitat improvement program, in 1986 at the urging of Governor Perpich and concerned citizens. The legislature provided $38.2 million to fund RIM for 1986 and 1987. Monies from the Minnesota Environment and Natural Resources Trust Fund will also be used to support RIM.

RIM's four primary program components have already improved more than 100,000 acres of wildlife habitat. The RIM Reserve Program was originally designed to take marginal farmland out of production and return it to its natural state for wildlife



habitat. Through 1988, more than 24,000 acres were enrolled in the program, including 970 acres of wetlands. The RIM Wildlife Enhancement Program has improved another 20,000 acres of key habitat.

Under the RIM Fisheries Enhancement Program, more than 55,000 acres of fish habitat have been improved through 1988. Fisheries efforts include installing lake aeration systems and stabilizing trout stream banks. Under RIM's Critical Habitat Matching Program, private donations of land or money are matched with RIM funds. By November 1988, more than 5,300 acres had been donated, with a total value of more than $3.3 million. RIM has quickly become a model for expanding and renewing wildlife and native plant habitat nationwide.

Fisheries Management

Minnesota's 4,400 managed game fish lakes, 15,000 miles of warmwater streams, and 2,600 miles of coldwater (or trout) streams provide a range of recreational opportunities for the state's anglers. These lakes and streams support 153 species of fish, many of which are actively managed for sportfishing.

Sportfishing has a significant impact on the state's economy. Minnesota ranks first nationally in the sale of fishing licenses per capita, with 1.5 million fishing licenses sold annually. Minnesota also leads the nation in the percentage of 6-15 year olds who fish (53%). Overall, about 48 percent of Minnesotans are anglers, as compared with 26 percent nationally. Another 500,000 people travel to Minnesota each year to fish. Minnesota's 2 million anglers spend just over $1 billion annually to pursue their sport.

Growing interest in fishing and other water-related recreation has greatly increased demands placed upon Minnesota's fisheries resource. The quality and quantity of this resource is also threatened by pollution, habitat destruction, misuse, and growing competition between surface water users. Other problems include pesticide contamination, siltation, stream channelization, aquatic vegetation control, unwise shoreland development and illegal overharvest of fish.

Fisheries Management Programs

Most of the responsibility for protecting and improving Minnesota's fisheries rests with the DNR's Section of Fisheries. The DNR actively manages and monitors the many lakes and streams of Minnesota to protect and enhance the state's fisheries resource. Efforts are directed at improving and protecting the state's fisheries through habitat acquisition and improvement projects, lake rehabilitation and aeration, public access development, harvest regulation, public education and fish stocking programs.

With more walleye anglers than any other state, Minnesota tops all other states in the number of walleyes hatched. In 1987, Minnesota's 21 fish hatcheries produced 640 million walleye eggs. They also raised 2 million northern pike, 1,400 pounds of largemouth bass, 30,000 muskellunge fingerlings, and thousands of panfish, catfish and sucker eggs to be used as muskie forage. The DNR's six cold-water hatcheries produce about 6 million trout and over 1 million salmon each year.

DNR fisheries managers conduct over 600 lake surveys and 100 stream surveys each year to collect physical, chemical and biological resource information. From this, over 400 individual lake and stream management plans are developed. The plans set long-range goals and specific management objectives needed to improve the fisheries resource.

Since 1980, an additional 170 surveys have been conducted to gauge fishing quality, total recreational use levels, and to assess the effects of special fishing regulations. These special user surveys focused on over one million acres of Lake Superior, ten of the state's largest walleye lakes, and on thousands of lakes less than 10,000 acres in size.

Still, the 700 fisheries surveys conducted each year represent less than 15 percent of the state's fisheries resource. Continued expansion and development of the state's fisheries program will require close cooperation between public and private sector agencies, as well as a renewed commitment to improving this important recreation resource.

Cooperation between state and federal agencies, local governments, interest groups and private citizens is the basis for successful management of the state's fisheries. These groups play a key role in planning, financing, implementing and monitoring fisheries management strategies.

Wildlife Management

Wildlife management efforts seek to protect and maintain the wildlife and native plants of Minnesota for their aesthetic, economic and recreational values. Habitat acquisition, protection and improvement are key priorities for DNR wildlife managers. Other major aspects of managing wildlife populations include establishing hunting and trapping seasons, determining bag limits, and allocating permits and licenses as required by state and federal law.

In 1989, over 1.1 million licenses were sold to hunters and trappers in Minnesota. Increasingly, wildlife managers must also accommodate non-consumptive wildlife users and ensure protection of rare and endangered plant and animal species.

Wildlife Management Programs
The DNR's Section of Wildlife manages plants and wildlife under seven major programs: Forest, Farmland, Wetlands, Furbearers, Nongame Wildlife, Natural Heritage and, Scientific and Natural Areas Programs. These programs are designed to manage specific wildlife populations and to match program efforts with specific sources of funding.

Forest — This program is funded primarily from deer hunting licenses. Over the past decade, 12 forest wildlife specialists have been hired to work closely with state, federal and county foresters, as well as private landowners to ensure that logging, roadbuilding and prescribed burning are done in ways that improve both timber production and wildlife habitat. With the assistance of a recently developed computer model, wildlife managers can now quickly assess wildlife habitat in forested areas and recommend logging practices that will improve those areas for wildlife.

Mimmesota has 287 endangered plant and animal species — a critical indicator of a continuing trend toward degradation of our natural environment.

Farmland — The Farmland Program provides financial and technical assistance for wildlife habitat improvement projects on private lands. It is funded through revenues generated by the sale of pheasant stamps, deer and small game licenses. The Program assists landowners in developing woody cover plantations, nesting cover, in wetland restoration and in providing winter food plots for game and nongame wildlife. Minnesota's enrollment of nearly 1.5 million acres in the federal Conservation Reserve Program is, in large part, due to the efforts of DNR forestry and wildlife specialists.

Wetlands — Wetlands specialists assist in wetland restoration projects on private lands and in the designation and survey of game lakes. They also bear responsibility for implementing provisions of the 1985 Farm Bill, and for linking DNR long-range plans to the North American Waterfowl Management Plan.

Furbearers — The DNR's Furbearer Management Program monitors the populations and harvest of furbearers, establishes needed regulations, manages habitats, conducts research, and provides information to the 40,000 Minnesotans who annually hunt and trap furbearing mammals. Furs taken by Minnesota hunters and trappers contribute more than $13 million annually to the state's economy.

Endangered Natural Resource Protection

Minnesota has 287 endangered plant and animal species — a critical indicator of a continuing trend toward degradation of our natural environment. Loss of habitat is the principal reason for Minnesota's endangered resources. Habitat deterioration, environmental contamination and illegal harvest also pose a serious threat.

State funding, first made available by the Legislative Commission On Minnesota Resources in the mid-1970's, and by the Nongame Wildlife Tax Checkoff in the 1980's, marked Minnesota's commitment to endangered species protection. A variety of

new and innovative efforts are now underway to reintroduce extirpated species, restore native habitats, monitor species populations, and to protect and manage remaining critical habitats.

Working together, the DNR's Nongame Wildlife, Natural Heritage, and Scientific and Natural Areas Programs are implementing a comprehensive and coordinated strategy to save Minnesota's endangered species and unique natural habitat. Close cooperation with other agencies and the private sector helps accomplish this goal while leveraging limited program resources.

Nongame Wildlife Program

Nongame wildlife is important to Minnesotans in many ways: it's natural beauty, ecological value, intrinsic and research values. It is difficult, however, to place an economic value on nongame wildlife. After all, what is the value of a loon, an eagle or a bluebird?

Although these questions are difficult to answer, a 1985 U.S. Fish and Wildlife Service survey showed that $337 million is spent annually for the nonconsumptive enjoyment of wildlife in Minnesota. "Nonconsumptive use" refers to activities such as feeding or photographing wildlife, in which the animals are not harvested or "consumed".

In 1977, the Minnesota DNR created the Nongame Wildlife Program and initiated a series of nongame management projects.

Funding for the program from the Game and Fish Fund totaled less than $30,000 annually from 1977 to 1980. The Nongame Wildlife Checkoff, established by the Minnesota Legislature in 1980, gave taxpayers the opportunity to contribute to nongame species management on their state income and property tax forms. The contribution rate, averaging between 9-12 percent, is among the nation's highest. The checkoff generates about $800,000 per year from an estimated 140,000 contributors. For the first time ever in 1988, the checkoff generated over $1 million for nongame projects. Beginning in 1989, corporate donors will also be eligible to participate, raising hopes for increased future funding for nongame wildlife.

The Nongame Wildlife Program seeks to conserve and protect nongame populations for their intrinsic and ecological values, as well as to increase opportunities for public use and appreciation. Research, and management activities directed at some 316 species of birds, 35 mammals, 15 reptiles, 16 amphibians, 36 mussels and a still undetermined number of crustaceans are currently planned or underway.

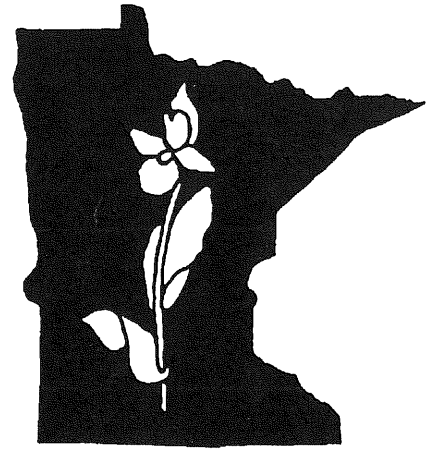
Public education is a high priority for the Nongame Program. Educational activities are designed to enhance public understanding of and appreciation for Minnesota's nongame wildlife. A major effort involves co-sponsorship of Project Wild, an interdisciplinary environmental education program for teachers and naturalists. Project Wild has reached approximately 7.4 million students nationwide, including 90,000 Minnesotans. Since 1985, more than 2,000 Minnesota teachers and naturalists have participated in nearly 100 workshops held around the state. Co-sponsors include the Minnesota Environmental Education Board and the Minnesota Department of Education.

Other Nongame Program activities include efforts to preserve Minnesota's threatened and endangered species through habitat restoration projects, data collection and research. Nongame staff work closely with foresters, wildlife managers, park managers and others to manage public and private lands to benefit all of Minnesota's wildlife.

Natural Heritage Program
Since 1979, the Natural Heritage Program has worked to protect Minnesota's rich biological diversity by inventorying rare species and habitats, monitoring rare plant populations, assembling statewide ecological data, and recommending tracts of native habitat for preservation. At the heart of the program is the Minnesota Natural Heritage Database - the only centralized repository of information on the state's rare species and sensitive natural habitats. This database is available to planners, land managers, scientists and educators for use in planning and designing conservation programs.

The Minnesota County Biological Survey, begun in 1987, is designed to systematically gather data on the distribution and status of Minnesota's rare and endangered plants, animals and native communities. This county-by-county survey has added hundreds of new records of ecologically significant natural features to the Natural Heritage database. The survey is funded by the DNR, the Legislative Commission On Minnesota Resources, and by the Minnesota Chapter of the Nature Conservancy.

Scientific and Natural Areas Program
The Minnesota Legislature in 1969 authorized the establishment of natural areas for the protection of the state's rarest natural features and sensitive resources. The DNR's Scientific and Natural Areas Program has the primary responsibility for acquiring, planning for and managing Minnesota's designated natural areas.



Located throughout the state, 64 dedicated natural areas (16,100 acres) and 29 registry sites protect a variety of special features. Exemplary landforms, plant communities, and habitat for rare and endangered plant and animal species are all potential candidates for protection. Areas must also be large enough to fully protect the special resources they harbor. Preserve size is based primarily on the ecological requirements of the resource and the extent of available undisturbed land. As a result, Minnesota's designated natural areas range in size from a few to thousands of acres.

Minnesota's natural areas are used for a variety of purposes. Most areas are open for nature observation, education and research. They are places where people can view rare plant and animal species or quietly appreciate and study nature in an unspoiled environment. Activities such as hunting, fishing, camping and snowmobiling are generally prohibited.

Because these scattered remnants typically occur as islands of habitat surrounded by highly altered landscapes, there is often a need to replace or supplement natural ecological processes with active management activities. Management plans detail the special management needs of rare species and communities, identify unnatural disturbances, recommend protection measures and suggest acceptable public uses of the area. The plans also recommend management actions needed to restore natural conditions.

Lands designated as State Scientific and Natural Areas are acquired in various ways. Some are acquired with public funds or as gifts, through leases or conservation easements, or through the dedication of existing public lands. Private groups, such as The Nature Conservancy, often provide free long-term leases to the Natural Areas Program for the protection of natural features located on privately-owned lands.

Federal Protection Efforts

All federally-listed animal species in Minnesota fall under the jurisdiction of the U.S. Fish and Wildlife Service. The FWS is authorized to develop and implement recovery plans for listed plant and animal species. So far, recovery plans have been developed for the bald eagle, peregrine falcon, grey wolf, and the Higgin's eye pearly mussel. Plans for the piping plover, dwarf trout lily and prairie bush clover are underway.

Federal dollars have supported forest management and inventory work on federal, state, county and private lands in northern Minnesota, and have been combined with state and private funds in support of various species restoration and recovery projects. Up to 75 percent federal cost-share funding is available to protect and manage listed species. Since 1979, Minnesota has received from $10,000-$150,000 annually in support of such projects.

Private Protection Efforts

Private, non-profit organizations have made major contributions to the protection and management of Minnesota's endangered resources. The acquisition of critical habitat and cooperative program funding demonstrates the deep concern and commitment such groups have to preserving Minnesota's natural heritage. Membership and participation in state conservation organizations has shown strong, steady growth in recent years, illustrative of the growing public support for our natural environment.

Since its inception in 1958, the Minnesota Chapter of the Nature Conservancy has acquired and protected about 41,000 acres of unique natural areas in Minnesota through the purchase of conservation easements and fee acquisitions. The Conservancy retains about 15,000 acres and has passed ownership of the rest to various government agencies. An additional 108 sites have been protected through the Registry Program, a non-legally binding landowner agreement. The Conservancy also retains ownership in 70 nature preserves, many of which are adjacent to public lands with similar habitats or species.

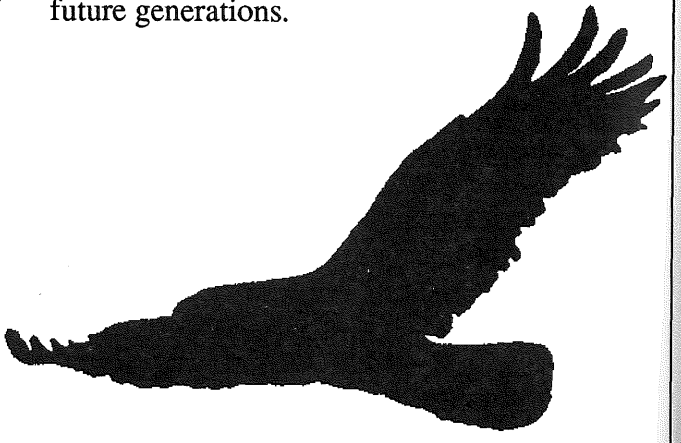
Native Plant Resources

Today, after nearly a century of European settlement, nearly all of Minnesota's native biotic communities have been substantially altered. The vast tallgrass prairie that once covered one-third of the state, has been reduced from 18 million acres to less than 150,000 acres. The largest contiguous area of climax deciduous forest - the Big Woods - is now limited to small, scattered islands of forest surrounded by cropland. The great stands of virgin pine that once defined the North Woods have gradually become forests of aspen and birch. Nearly 75 percent of the state's wetlands have been lost to agriculture and development - more than 99 percent of the prairie wetlands are gone. Only small remnants of many of the state's original ecosystems remain in a relatively natural condition.

Despite continuing losses, these remnant habitats still support the majority of plant and animal species found in Minnesota at the time of European settlement. A number of species, however, are experiencing significant population declines and have been classified as endangered, threatened, or of special concern.

Currently, there are 75 species of plants that are endangered or threatened in Minnesota. There is a need to identify and protect remaining islands of biological diversity and the benefits they provide. To do so, however, will require an increased commitment of funds from a variety of sources.

Minnesota's remaining wildlands and rare plant and animal species face an uncertain future. Unless efforts to preserve remaining natural areas are increased, many of Minnesota's most diverse natural features may be lost forever. Our responsibility to protect and preserve these features is a recognition of the need to perpetuate all species and our obligation to ensure their existence for future generations.



Native Prairie Resources

The prairie zone in Minnesota covers an area of approximately 19 million acres. The zone lies west of a diagonal line running roughly from the Canadian Border in the northwest to the Iowa Border in the southeast. This area, howver, represents less than one percent of the 28,000 square miles of tallgrass prairie that once existed in the state. Over the last 130 years, more than 99 percent of the original prairie has been lost, primarily to cultivation.

The loss of continuous tallgrass prairie has resulted in large reductions in the population size and distribution of many native prairie species. By the mid 1800's, the bison and elk herds had vanished. Many prairie birds were also extirpated and the greater prairie chicken was pushed out of the southern portion of its former range.

Today, some 105 plant and animal species associated with the prairie ecosystem have been designated as endangered, threatened or of special concern primarily due to habitat loss. These species constitute fully 42 percent of all designated rare species in Minnesota.

Most of the remaining prairie now occurs as isolated remnants scattered throughout the state's agricultural zone. The largest areas are in Northwestern Minnesota in the Red River Valley. In other parts of the state considerably less prairie remains. For example, less than 450 acres of the original mesic blacksoil prairie is left in Southeastern Minnesota. Prairies offer a unique opportunity to study and observe the natural and cultural heritage of pre-settlement Minnesota.

Habitat Protection

Compared to other midwestern states, Minnesota has done a reasonably good job of protecting remaining native prairie. More than 45,000 acres now receive some degree of protection under existing programs. Unfortunately, the majority of these "protected" prairie lands are but small fragments of the original prairie landscape and vary in quality from severely degraded to high quality. Only a few areas still support the complex interspersion of prairie wetland and topography large enough to support and maintain their original ecosystem features and functions.

And, the loss of prairie lands continues. Two-thirds of Minnesota's prairie lands are not currently enrolled in any type of protection program. These lands are especially vulnerable to conversion to other land uses or deterioration. In addition, a number of "protected" prairies are only minimally protected.

Minnesota's Prairie Tax Credit Program, for example, only obligates a landowner to protect the prairie for one year. Subsequent legislative action also removed the credit for enrolled acres, leaving only the exemption from local property taxes. Even some publicly-owned prairies are at risk because prairie preservation is not always recognized as the highest and best use for public property.

The 1987 State Legislature, with enactment of the Reinvest In Minnesota Native Prairie Bank (MS 84.96) and Prairie Landscape Reserve Program (MS 84.91), explicitly recognized the importance of native prairie and mandated its restoration, protection and management. The Prairie Landscape Preserve bill requires the DNR to plan for the restoration and management of native prairies on a landscape scale. The Prairie Bank Program authorizes the DNR to protect native prairie by entering into conservation easements with private landowners. Both of these programs are unique among state governments, as is the prairie biologist established in the Scientific & Natural Areas Program to coordinate the programs.

In 1987, the Legislative Commission On Minnesota Resources and the Nature Conservancy jointly funded the Minnesota County Biological Survey to systematically inventory and evaluate, county-by-county, the state's rare natural features. Comprehensive biological data collected within the survey area has already proven valuable in developing native prairie conservation goals and strategies. Of the state's 50,000 remaining acres of prairie the Minnesota Chapter of the Nature Conservancy is protecting and managing nearly 12,000 acres.

The coming decade may be the last opportunity to protect and develop significantly large tracts of native prairie in Minnesota.

Prairie Habitat Management

Management of the state's prairie resources lags behind protection efforts due to inadequate ecological information about prairies generally, and a lack of public recognition of the value of the prairie resource. Other limitations include a lack of trained personnel and equipment needed to conduct an effective prescribed burning program. Ideally, one-third of all prairie acres should be burned yearly creating a three-year cycle.

In Minnesota, prairie re-establishment projects are conducted primarily on public lands for recreation and wildlife habitat purposes, and as a conservation practice through various government programs on private lands. State highway authorities also seek to restore native vegetation types on disturbed lands for landscaping purposes. Unfortunately, inadequate supplies of seed from Minnesota prairie sources result in out-of-state seed sources being used in many restoration efforts.

Prairie Protection Needs

Prairies are dynamic ecosystems that require active management, most notably burning, to maintain their characteristic structure and composition. The current level of management activity on public and private prairie lands is far less than is needed to preserve this valuable resource. As a result, many acres of prairie are becoming degraded or lost. There is a need to identify remaining prairie acres, especially on private lands, and to provide landowner assistance and incentives to protect and manage this resource.

The coming decade may be the last opportunity to protect and develop significantly large tracts of native prairie in Minnesota. A creative, concerted effort is needed to protect, restore and manage Minnesota's remaining native prairie resources. Prairies form an important part of Minnesota's biological and cultural heritage. Protection of the remaining two-thirds of currently unprotected prairie is a fundamental conservation priority.

Protecting Roadside Wildflowers

Recognizing that native plants are a living reminder of Minnesota's natural and cultural history, an inter-agency Wildflower Task

Force was recently established. The task force is intended to 1) Identify and protect existing native vegetation along Minnesota roadsides; 2) Restore native wildflowers and grasses along Minnesota roadsides where appropriate; and 3) Increase public awareness of the value of native plants.

To encourage the spread of native plants, especially wildflowers, the Minnesota Department of Transportation and other road authorities have agreed to limit roadside mowing and spraying. Roadside wildflower management has been very successful over the past 25 years in restoring native plant populations along the state's roadways.

Non-native Species Control

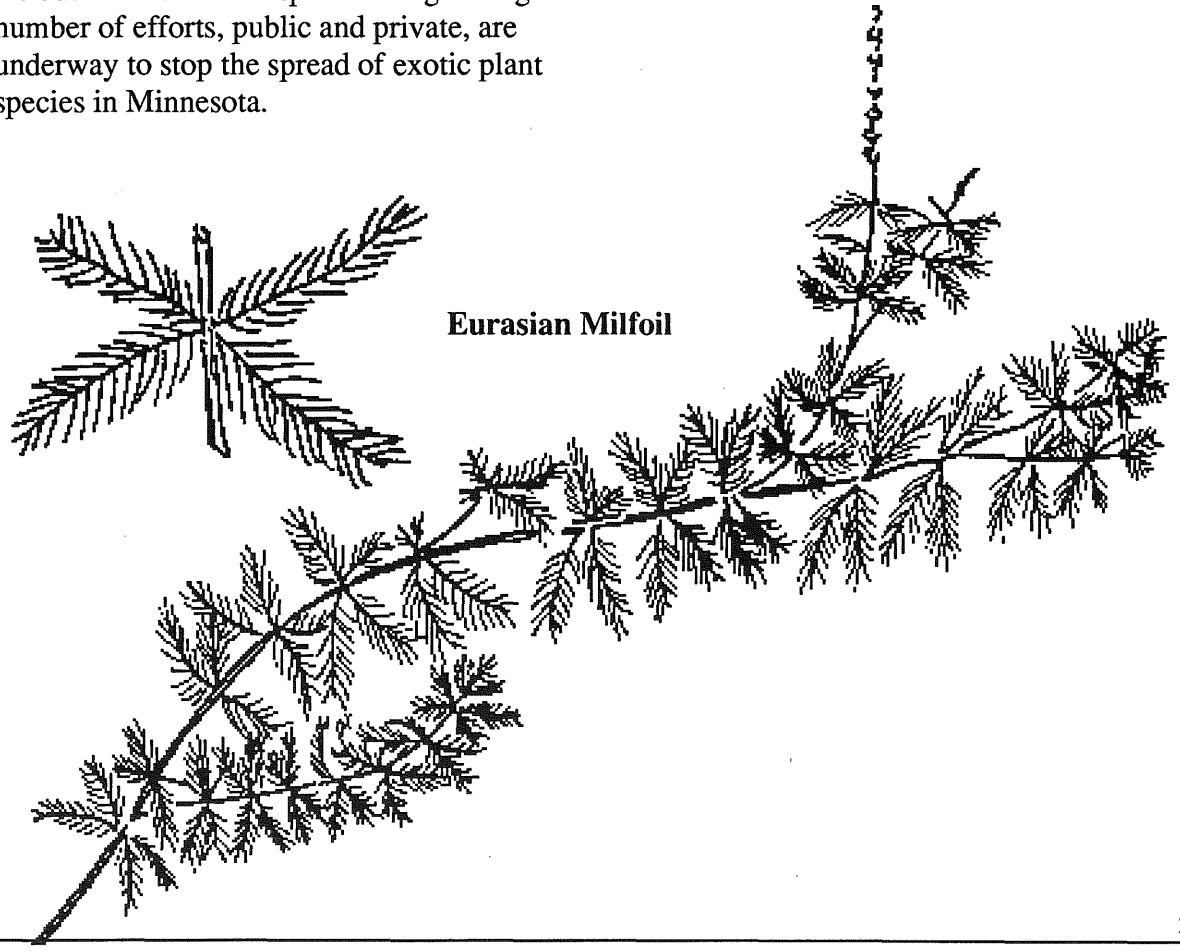
The introduction of exotics (non-native plant and animal species) into the United States has long taken place with little consideration of the long-term effects that these species might have on native biotic communities. Well-known examples of problem exotics include carp, the European starling, gypsy moth, purple loosestrife, Eurasian water milfoil, and leafy spurge. Whether accidental or on purpose, such introductions have resulted in widespread invasion of native habitats and now threaten a variety of native plant and animal species

Some exotic plants smother native species, while others simply invade a community and dominate it by out-growing or out-reproducing native vegetation. Once established, exotics frequently begin to change the native species composition, reduce biodiversity, and alter the original structure and functioning of natural ecological systems. The net result is a degraded natural community which is less able to support native species of flora and fauna.

A recent National Park Service report cited exotic plants as the single largest threat to the National Park System. The 1989 Minnesota Legislature also recognized this pervasive threat and authorized an interagency task force to address issues arising from the introduction of exotic species. A growing number of efforts, public and private, are underway to stop the spread of exotic plant species in Minnesota.

Eurasian Water Milfoil (Myriophyllum spicatum)

Eurasian milfoil, first discovered in the U.S. in 1942 in the Washington D.C. area, has now spread to 36 states including Minnesota. This aggressive weed, which can grow as much as two inches per day, was first discovered in Lake Minnetonka in 1987. It has since taken over 10 percent of that lake and has been found in 17 other southern Minnesota lakes. It is thought to be spread by motorboat propellers, surface currents and aquatic birds which carry leafy segments of the weed.



Eurasian Milfoil

Milfoil forms large, dense floating mats of vegetation that crowd out native plants and make recreational use of the lake difficult. Milfoil roots in the lake bottom usually at depths of 15 feet or less, then sends stems rising up toward the surface. The plant has long, leafy stems with many branches, and feathery leaves in fours on the stem. Each leaf has 14-16 pairs of leaflets. As the plant matures, it sends a flower stalk above the surface with a reddish stem and tiny, yellow flowers.

Near the surface of the water milfoil spreads into a dense mat. Eventually, 80-90 percent of the plant floats at the surface, making fishing, boating or swimming impossible. At season's end, the mat sinks to the lake bottom, using up oxygen in the water as it decays. Left unchecked, milfoil can kill a lake by filling it with decaying material. Eurasian milfoil is spread most easily by fragmentation. Plant fragments can be carried by surface currents, aquatic birds and boats to other parts of a lake or to other waterbodies. Even very small plant fragments can spread the infestation.

Research is underway to determine ways of controlling and eradicating Eurasian water milfoil. Milfoil control can be very expensive. Control efforts on Lake Minnetonka alone are calculated to be $565,000 annually. Meanwhile, boaters can help check its spread by removing all weeds from boats, motors and trailers before leaving a lake, and disposing of any weeds well away from the water. Lakeshore property owners should remove the weed by hand from lake frontage and avoid the use of lawn fertilizers since these can contribute to weed growth.

Purple Loosestrife

Purple Loosestrife (Lythrum salicaria)
Purple loosestrife poses a serious threat to Minnesota's wetlands. It appears to have been accidentally introduced from Europe, and has now spread throughout New England west to the Great Lakes and upper Midwest. This purple-flowered plant overruns marshes and other open, sunny and wet sites where it displaces wildlife food plants such as cattails and bulrushes. Of little value to wildlife, loosestrife competes aggressively with native vegetation. It has become a common sight along roadside ditches and wetlands all across Minnesota. The 1986 State Legislature declared the plant a noxious weed and restricted its sale or planting in an effort to facilitate its control.

The DNR's Purple Loosestrife Control Program, one of the first of its kind in the U.S., was established in 1987 to coordinate efforts to inventory and eradicate purple loosestrife. Loosestrife has been reported in 67 of Minnesota's 87 counties, and over 950 infestations have been identified. Over 600 acres of loosestrife control work has been conducted on public sites since the program began.

Other Exotic Plants

Of Minnesota's approximately 1,800 species of flowering plants, as many as 20 percent are thought to be introduced or non-native. The state's agricultural community spends a great deal each year on the control of a host of non-native plant species.

Examples include Leafy spurge (Euphorbia esula L.) which poses a threat to many native prairies in parts of Minnesota. Black locust (Robinia pseudoacacia) is increasingly being viewed as a threat to native vegetation in some sandy areas, prairies and forests. European buckthorn (Rhamnus cathartica) can now be found throughout southeastern Minnesota's hardwood forest where it invades and dominates native understory vegetation. Russian olive (Eliaeagnus angustifolia) has also begun to dominate native vegetation in some locations.

Of growing concern is the Amur or Ginnala maple (Acer ginnala). It is currently classified as one of the most serious and damaging exotic weeds in the State of Illinois. Although its spectacular fall color provides colorful scenery for southeastern Minnesota travelers, it has become a problem to control in some areas and is currently being removed from Minnesota State Parks. Other problem exotics include Queen Anne's lace, orange hawk weed, and the Shasta daisy.

Management and Control Strategies

Unfortunately, the subtle and pervasive effects of exotic species are not always apparent to the untrained observer. And, while the annual cost of controlling exotics can run into the millions of dollars, the ecological damage cannot be measured. In spite of the mounting evidence of ecological damage associated with some exotics and the enormous control costs, new species continue to be introduced and promoted for various reasons including wildlife habitat, landscaping, soil conservation and fiber production.

Steps needed to control exotics include banning the growing, sale or planting of problem exotics, and classification as noxious weeds to facilitate their control. Funding for research into effective control methods is also needed, as is an extensive public information effort aimed at alerting the public to the problems posed by exotics. Informed citizens can aid in the identification and eradication of problem non-native species.

Land Use Management

Forest Resources

Forest vegetation covers 17 million acres, or roughly one-third of Minnesota's 51.2 million land acres. Located primarily in a 15-county area of North-Central and Northeastern Minnesota, the state's northern forest is actually a mosaic of hardwood and coniferous forests interspersed with lakes, streams, bogs, small towns and farmland. It provides essential habitat for some 155 bird species, 52 mammals, and 18 reptiles and amphibian species. It is the most intact ecosystem type remaining in Minnesota. With over half of the state's forest land in public ownership, forest lands are heavily used for outdoor recreation and tourism activities and have a major impact on the state and local economy.

Nearly all of the state's 10.4 million acres of public forest lands are open to dispersed recreational use. State-administered forest lands total 4.6 million acres, or about 27 percent of the state's forested acres. National Forest lands total three million acres (18%), including over one million acres in the Boundary Waters Canoe Area Wilderness. County forests total 2.8 million acres (17%) located in North-Central and Northeastern Minnesota.

These lands support much of the state's upland game hunting and a variety of other dispersed recreational activities. Public forests also provide thousands of miles of marked recreational trails, hundreds of developed campgrounds and day-use areas, public water accesses, and miles of logging roads and hiking trails.

Resource Value

One measure of the economic importance of recreation-related forest uses is the estimated $168 million spent annually by wildlife users, both hunters and non-hunters. This figure climbs to well over $600 million when related travel and equipment expenditures are added. In 1983, for example, northern forests provided approximately 1.6 million hunter days for deer hunting alone, or about 77 percent of the statewide total. Substantial

growth in the demand for outdoor recreation, tourism, wildlife habitat and other forest uses is expected over the next decade.

Minnesota has also seen unprecedented growth in its forest-based industries in recent years. Minnesota's forest products sector now generates $4 billion annually and accounts for fully 16 percent of the state's total annual manufacturing value. As a result, timber harvested from the state's forest lands has grown by nearly 50 percent since 1977, to over 4.3 million cords annually.

New and expanding wood-using industries are projected to require an additional 2.3 million cords of wood per year, bringing the state's total timber harvest to about 6 million cords by 1995. This translates into roughly 225,000-275,000 acres of timber harvested annually by 1995 to meet growing raw material needs.

With only five percent of the state's commercial forest land in private industrial ownership, Minnesota forest industries must rely upon federal, state, county and private forest owners to provide a long-term timber supply. Maintaining the integrity and natural diversity of Minnesota's rich forest ecosystem in the face of such mounting use and development pressures is a major challenge facing resource managers in coming years.

Forest Resource Protection and Management

Recent forest management legislation indicates the public desire to maintain a balance between timber production and other forest uses. The Minnesota Forest Management Act of 1982 (MN Stat.89.012) sets forth a strategy for interdisciplinary planning, interagency cooperation, and for "multiple-use" management of state-owned forest lands. State forest managers have since developed a series of policies, plans and management guidelines designed to implement this legislative directive. The Chippewa and Superior National Forests have similar mandates.

Best Management Practices have been developed to assist the state's loggers, landowners and forest managers in selecting specific forest management practices that help to protect water quality. Technological advances, such as the development of Geographic Information Systems, are also being used to identify and map unique and sensitive resources to minimize the impacts of logging and forest road construction.

Most of Minnesota's commercially productive forest land will eventually be brought under more intensive management for timber production. However, with careful planning, close public/private cooperation, and with investments in forest management and research, Minnesota can support a growing forest economy, while maintaining healthy tourism and recreation industries.

Forestry Assistance Programs
Approximately 5.6 million acres (41%) of Minnesota's 13.7 million acres of commercial forest land is privately owned. Nearly 130,000 private individuals with diverse interests and management objectives own these productive lands capable of providing a diversity of resource benefits.

Various federal, state and private programs currently exist to encourage private landowners to actively manage their lands for timber production, wildlife habitat, recreation and other values. The programs typically provide financial and/or tax incentives and technical assistance for participating landowners who agree to protect and enhance their acres according to an agreed upon resource management plan. New and innovative approaches are needed to encourage private forest landowners to more actively engage in natural resource management activities.

Community Forestry Assistance
Minnesota's urban forests provide beauty, temperature moderation, wind and noise reduction, wildlife habitat, and they enhance the urban quality of life. In larger metropolitan areas, forested reserves also play an important role in satisfying outdoor recreational demand as part of the multi-million dollar regional parks system.

Unfortunately, urban trees have problems too. Aging trees are losing vigor and becoming more susceptible to insect and disease attacks. Major outbreaks of oak wilt, dutch elm disease, gypsy moth and pine bark beetles are beginning to take their toll. In urban areas, new construction and development invade forested sites and destroy healthy trees, compact soils and damage remaining vegetation. Although technical assistance is available, most urban forestry programs have been drastically cut in recent years, just as state and federal dollars have dried up.

Maintaining the integrity and natural diversity of Minnesota's rich forest ecosystem in the face of mounting use and development pressure pressures is a major challenge facing resource managers in coming years.

Urban forests are fast disappearing throughout the state. We are losing the very elements that attracted us to the areas in which we live: cool summer shade; greenery; open spaces; wooded trails; healthy lawns; rich topsoil and abundant water. In many cases, we are losing these important natural values simply due to a lack of adequate land-use planning and controls.

Many communities are now considering so-called "tree protection ordinances" aimed at saving urban trees for tomorrow's communities. Such ordinances can contain powerful protections for urban vegetation such as: no net loss of forest cover; shading plans required for parking areas; density credits for tree preservation; on-site supervision of major construction projects; tree replacement requirements for those damaged or destroyed during construction, and others.

Legislation has also been proposed, at the federal level, to expand and redirect resources towards urban forestry programs. The most comprehensive proposals address both energy and environmental concerns, calling for major reforestation efforts and community tree planting grants to stabilize global temperatures, reduce carbon dioxide build-up and reduce energy consumption on a national scale. President Bush has called for Americans to join together in a "...new spirit of activism and volunteerism" to help revitalize the nation's urban forests.

Mineral Resource Management

The Minnesota Department of Natural Resources manages 94 percent of all state-owned lands, including an estimated 12 million acres of mineral rights and 3 million acres of peatland. The DNR administers about 24 percent of the mineral rights in the state, while the federal government owns

about 7 percent, and the remainder of mineral interests are privately-held. The exact amount of mineral ownership is unknown due to title questions surrounding the administration of mineral rights.

The DNR leases state minerals, manages programs to encourage mineral exploration and development, and has statewide regulatory responsibility for public and private lands. The state is charged with managing the mineral rights to trust fund lands, the beds of navigable waters, tax-forfeited lands, consolidated conservation area lands, acquired lands, and severed mineral interests from tax-forfeited lands. Revenues from the leasing of tax-forfeited lands and severed mineral rights are distributed to various funds, with 80 percent returned to the county.

Minnesota's extensive mineral rights ownership stems from a historic recognition of potential mineral value. It is the state's policy to reserve mineral rights upon the sale of land and never to sell state-owned mineral rights. This policy extends to tax-forfeited lands, consolidated conservation area lands, surplus lands, and other state lands.

Mineral Leasing

State mineral rights may, however, be leased in accordance with legislatively established directives and constraints. Mineral lease revenues benefit local school districts, local taxing districts and all citizens of Minnesota. For example, over 80 percent of the principal of the state's Permanent School Fund,

which was valued at over $354 million in 1988, is from mining taxes and revenues generated from state mineral leases.

In some areas, such as the Boundary Waters Canoe Area Wilderness and Voyageurs National Park, the state is prohibited from leasing minerals. Other areas, such as Scientific and Natural Areas or designated recreation areas, are withdrawn from lease activity due to conflict with established surface uses. Some mineral leases also contain various restrictions designed to protect adjacent surface uses or natural values.

It is important that public recreation providers carefully examine the minerals ownership and mineral potential of all lands proposed for acquisition, recreation development, or for designation as outdoor recreation units. In this way, potential conflicts can be avoided and the future integrity of recreation developments can be ensured.

Mineral Resource Development

Mineral industries contribute significantly to Minnesota's economy. The mining sector produced $1.4 billion in sales in 1985, and has seen significant increases in mineral demand and exploration activity since 1985.

Minnesota has consistently ranked among the top ten states in total value of non-fuel mineral production.

Minnesota leads the nation in iron ore and taconite production, and also produces a variety of non-metallic minerals (e.g.,clays, gem stones, peat, perlite, sand and gravel, dimension stone). Prospects look good for improving the state's competitive position through diversification and improved productivity within the mineral industry. Recent increases in mineral exploration activities reflect this promise, as well as favorable tax reform, increased prices for some minerals, and improved mining, exploration and minerals processing technology. Recent major Canadian discoveries in geologic formations similar to those found in Northern Minnesota have also spurred mineral exploration activity.

Today, some 30 companies are exploring over 500,000 acres in Minnesota. This land is equally divided between state and private ownerships. The DNR estimates that approximately $15 million is spent annually as a result of this exploration activity. Most of these dollars directly benefit small rural communities in Northeastern Minnesota.

The benefits resulting from mineral diversification include increased private investment, regional economic growth and stability, and increased levels of income, employment and local tax revenues. Mineral exploration and mining activities also generate income and royalties which accrue to public trust funds and local development accounts. These funds may be used for a variety of purposes, including outdoor recreation development.

Agricultural Resources

Much of Minnesota's land - some 23 million acres is suited to agriculture. Agribusiness contributes greatly to the state's economy, employing nearly 25 percent of the state's labor force and exporting up to 40 percent of the annual harvest. Annually, Minnesota farmers produce $8 billion in gross income.

In addition to their economic benefit, Minnesota farmlands can also provide recreation and wildlife benefits. However, some farm practices can have deleterious effects on both wildlife habitat and environmental quality. Crop specialization, row cropping and improved pastures have gradually reduced the amount of wildlife habitat available over the past 40 years. Increased field size, greater mechanization, and the use of artificial fertilizers and pesticides have also increased soil erosion and chemical contamination of the environment. Meanwhile, new farming technologies and markets have encouraged additional conversion of lands, formerly unsuited to production, into cropland. Fortunately, there is a growing recognition of the need to balance economic, social and environmental objectives within the agricultural community.

Agricultural Trends

The percentage of farmland in Minnesota peaked in 1945 when 65 percent of the state was cultivated by about 200,000 independent farmers. Today, about 50 percent of Minnesota lands are cultivated by roughly one-half as many farmers. The number of farms in Minnesota declined to 85,079 in 1987, from 94,382 just five years earlier.

This is the result of farm abandonment in marginal regions and the consolidation of small, private farms into larger corporate holdings. The average farm is now over 300 acres, up from only 169 acres in 1940. These trends are accompanied by intensified crop production and a greatly decreased farm population.

Resource Management and Set-Aside Programs

Although the total acres of cropland in Minnesota have changed little in the past 40 years, various state and federal programs have been successful in removing large acreages from production. Land retirement or "set-aside" programs have primarily sought to restore a more favorable balance between commodity supply and demand, although some were specifically designed to benefit wildlife populations.

Beginning in 1930, a number of federal set-aside programs were instituted by the U.S. Department of Agriculture. During the years 1934-1958, an annual average of 6.2 million acres were retired. This rate has

since nearly doubled, with a total of over 80 million acres removed from production by 1980.

A major feature of the 1985 Federal Food Security Act are the Conservation Reserve Program provisions. The goal for CRP is to retire 1.6-1.9 million acres of highly erodible farmland in Minnesota by 1990. Nationwide, CRP could potentially remove up to 45 million acres of erodible farmland from cultivation for at least a decade. Other CRP goals include improving both water quality and fish and wildlife habitat. The Minnesota Department of Natural Resources, the Board of Water and Soil Resources, Pheasants Forever and the Minnesota Waterfowl Association provide payments that cover up to 90 percent of the grassland seeding, wetland development, and tree and shrub planting costs on CRP enrolled acres.

The Reinvest In Minnesota Reserve Program is intended to remove an additional 300,000 acres of erodible cropland currently affecting critical habitat areas such as prairies, lakes, trout streams and wetlands. The 1987 RIM amendments provide for wetland restoration and long-term protection through permanent conservation easements through restored areas and adjacent uplands.

The Minnesota Energy and Sustainable Agriculture Program was also created in 1987 by the state legislature to promote environmentally sound farming techniques. Under this innovative program, farmers reduce herbicide use through crop selection and rotation, and reduce pesticide use through the release of predatory insects into their fields. Soil erosion is also reduced and energy conserved through the adoption of efficient tillage techniques.

Together, state and federal efforts are helping to mitigate wildlife habitat losses resulting from agricultural practices and cropland conversions.

Together, state and federal efforts are helping to mitigate wildlife habitat losses resulting from agricultural practices and cropland conversions. With wider application of existing set-asides and agricultural conservation practices, wildlife populations can be substantially increased. Still, efforts are needed to promote agricultural practices that enhance soil, water and wildlife resources, while contributing to a more sustainable agricultural environment for Minnesota.

Urban Land Resources

"Urban Lands" are defined as 40-acre parcels containing either five or more residential dwellings or at least one commercial, industrial or institutional development. By definition, these parcels occur in conjunction with existing land development in core areas. The term "urban lands" also generally connotes high land values, dense road networks, and significant modification of wildlife habitat and native plant species.

Three-fourths of all Minnesotans live in incorporated cities which are located on the 4 percent of the state's land area classified as urban. Urban lands in Minnesota encompass the 7-county metropolitan area, the sur rounding counties of Chisago, Goodhue, Isanti, LeSueur, McLeod, Rice, Sherburne and Wright. Also included are the cities of Duluth, Moorhead, the Mesabi Iron Range cities, St. Cloud, Rochester and its suburbs.

A variety of natural resource-related outdoor recreation opportunities are provided in urban areas by state, federal, county and regional government agencies, as well as by the private and non-profit sectors. An extensive system of public lands and waters make the outdoors readily accessible for most of Minnesota's urban residents.

Urban Parks and Recreation Areas

Municipal parks are a major component of Minnesota's outdoor recreation system. To many state residents, they provide recreation opportunities on a daily basis. Larger cities

operate park systems with hundreds of units and multi-million dollar annual operating budgets. Urban parks are among the most heavily used recreation facilities in Minnesota.

The park system in the Minneapolis/St. Paul Metropolitan Area, for example, covers over 45,000 acres and includes 29 parks, 10 park reserves, and four regional trail corridors. Over 11 million visitors per year use these recreational facilities. Most smaller communities also provide recreation areas and facilities for local residents.

Today, urban parks and recreation areas face a tremendous challenge and an uncertain future. Many of the facilities are aging, and there is increased crime, vandalism and violence to contend with. Meanwhile, reduced Land & Water Conservation Fund appropriations, and tight municipal budgets have heightened these concerns. Some of these problems reflect basic changes in society; others could be remedied by providing additional funds for programs, services, facility maintenance and capital improvements. Efforts to address urban recreation concerns will require a concerted effort by federal, state and local officials.

Urban Natural Resources

Despite the large number of people residing in the 7-county metro area, population densities remain comparatively low. Only about 18 percent of the metro area is currently developed; the remaining lands are 43 percent cultivated, 20 percent open space and pasture, and 11 percent forested. The metro area is, however, expected to grow substantially in coming years placing a far greater demand on urban open space and undeveloped areas.

Urban areas support a rich diversity of highly productive wildlife species and native plant communities. For example, the U.S. Fish and Wildlife Service estimates that there are some 265,000 acres of wetlands in the 7-county metro area. There are also numerous protected watercourses, public parks and wildlife refuges, and nature centers encompassing tens of thousands of acres. Second tier counties, more rural in nature, support an even wider array of these resources.

Wildlife in urban areas is generally compatible with people and is considered highly desirable. In Minnesota, 75-80 percent of the non-consumptive wildlife activity takes place within one-mile of participant's homes. Preferred activities include watching or feeding wildlife, nature photography, and maintaining habitat or plantings for wildlife. Nationwide, urban residents who pursue such activities support a multi-million dollar industry. Still, growing demands for wildlife and recreational lands in close proximity to major population centers has prompted state and local officials to draw up long-range public land acquisition plans to protect and preserve resources for the future.

Growing Urban Influence

In 1980, 44 percent of the 1.7 million Minnesotans who hunt and fish were urban residents. A similar proportion of the 3.1 million Minnesotans who enjoy watching wildlife are urban residents. Nearly two-thirds of the 3.2 million annual bird watching/nature study occasions originate in the metro area. The state's urban residents also provide 40 percent of the state's wildlife revenues generated by the sale of hunting and fishing licenses. In addition, fully 70 percent of the voluntary contributions to the Nongame Wildlife Program come from citizens who reside in the metro area.

Surveys show that suburban residents (cities of under 50,000) have the greatest knowledge of and interest in the outdoors of any group of state residents. Both urban and suburban residents place a high value on environmental quality, and they appear less willing to compromise these values than do other Minnesotans. This trend has greatly influenced natural resource management policies and environmental protection programs in recent years, largely due to the increasingly dominant role of urban legislators at both the state and federal levels.

Findings and Recommendations

Each year more and more Minnesotans are fishing, hunting, viewing nature or just enjoying the outdoors. Meanwhile, the state's lakes, streams, forests and fish and wildlife habitats are being degraded and destroyed in many areas by rapidly growing land use pressures. Urban, suburban and rural development is taking its toll, as is the drainage of wetlands, the clearing of wooded areas, lakeshore and streambank erosion, and the overuse of sensitive natural areas. This dilemma is causing growing concern among avid resource users who recognize the vital links between man and nature.

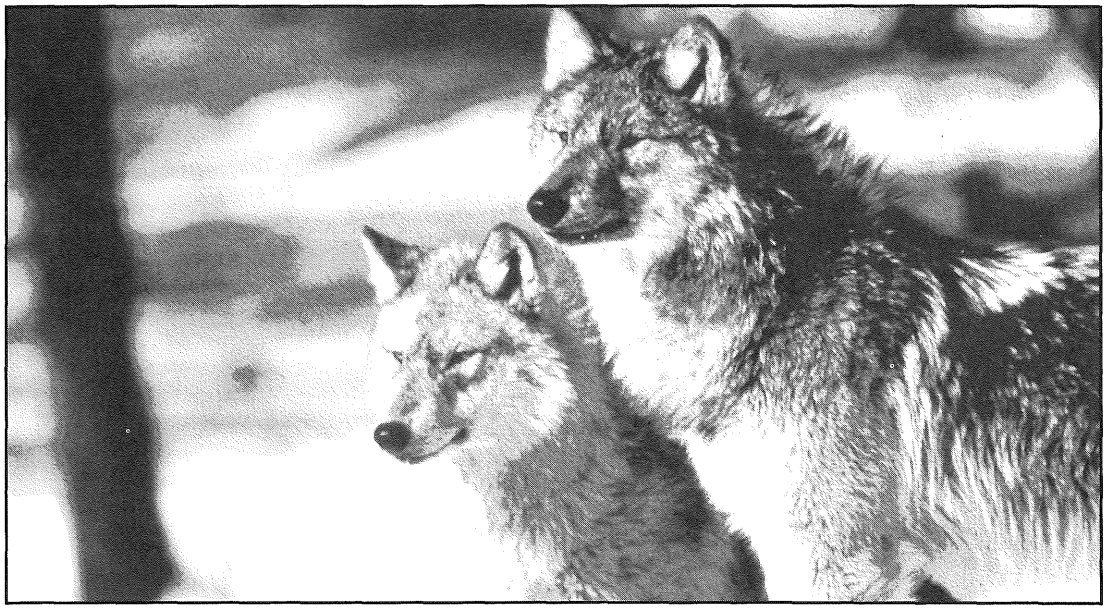
The key to fish and wildlife abundance is habitat. Where essential habitat has been degraded or destroyed, these resources have likewise declined. Wetlands, shorelands, lakes and streams also deserve special attention because of their importance in providing fish and wildlife habitat, clean drinking water supplies, and outdoor recreation opportunities.

An integrated approach to natural resource protection and management is needed to conserve and enhance the state's natural resources, while developing their economic potential to benefit individuals and communities. Profitability must be addressed both in terms of market and non-market benefits that reflect the goals and values of all Minnesotans. Development must be carefully managed to ensure that both human and natural resources contribute to their full potential.

Funding Issues

Minnesotans enjoy the opportunity to hunt, fish and observe the state's diverse wildlife and native flora. While these resources benefit all and are enjoyed by residents and visitors alike, those who purchase licenses and special wildlife stamps contribute most directly to fish and wildlife management programs. Unfortunately, hunters and anglers are no longer able to fully fund essential management activities on a continuing basis. The Governor's Task Force On Hunting and Fishing estimated that an additional $60 million is needed annually to properly manage and protect Minnesota's fish and wildlife resources. Without additional support, the Task Force concluded that these valued resources will likely experience a continued decline in both quantity and quality.

By their very nature, natural resource management programs imply long-term investments. They also require a stable source of financial support free of frequent shifts of emphasis. Only then can a steady and predictable flow of resource benefits be attained. A vision of Minnesota's future must, therefore, include sustained funding at a reasonable level in order to remain a national leader in the protection, management and use of our natural resources. We must strive to balance resource use and preservation, and make a strong, long-range commitment to restoration.



Minnesota's Environment & Natural Resources Trust Fund: A Step In The Right Direction

Pointing to the lack of stable, long-term funding for environmental programs, Governor Perpich in 1988 proposed creating an Environment and Natural Resource Trust Fund to finance long-term resource protection and management initiatives. By an overwhelming majority, Minnesota voters subsequently approved creation of the Trust, one of the first constitutionally protected state environmental trusts in the nation.

The Environmental Trust account, once fully capitalized, will not compete for funding with other environmental programs. Trust Fund dollars will be used to support only long-term activities that require an extended commitment of financial resources. For example, the Trust will invest in basic environmental research, data collection and analysis, and environmental education initiatives. Investments will also be made in efforts to protect unique and endangered natural resources that are in substantial danger of impairment or destruction. Minnesota's Environmental Trust Fund provides a comprehensive framework for environmental stewardship, and creates a lasting legacy for future generations.

Research, Information and Planning Needs

Systematic monitoring of resource conditions is a fundamental first step needed to improve natural resource protection and management efforts. Comprehensive natural resource inventories and the development of detailed, integrated databases would enable resource managers to make more informed decisions. While progress has been made in understanding basic principles of natural systems, additional research is needed to provide decision makers with sufficient information to be able to predict with confidence the outcomes of alternative courses of action.

A comprehensive research agenda and strategy must be developed to fill in information gaps to assist public decisionmakers. A continuing dialogue between decisionmakers and the academic community would foster focused and useful research efforts that would receive wide support and distribution.

State agencies must also develop ways of delivering technical support services to local government units efficiently and effectively. Land use data, soils and geological data, water quality and water quantity information, modeling capabilities and other techniques are needed to assist in addressing local issues. Special studies and research into specific problems should be supported. Close ties between line agencies and research institutions are needed to ensure innovative problem-solving and research.

Planning Partnerships

Long-range, comprehensive planning for natural resources provides an organized approach to meeting stewardship challenges and balancing the complex forces that affect Minnesota's natural resources. Planning can address public issues and concerns before they become intractable problems.

Such planning is now being conducted by federal, state and county land managers for public lands throughout Minnesota. Citizen's conservation and sportsmans groups actively participate in public planning efforts, helping to identify resource issues and define private sector responsibilities. These cooperative efforts enable Minnesota to better anticipate and respond to emerging opportunities, and to evaluate progress in meeting goals and objectives.

Environmental Education

The public is increasingly being exposed to charges and revelations regarding potential environmental consequences that require higher levels of technical knowledge and sophistication. We must accelerate and focus environmental education programs and delivery systems to help Minnesotans become better informed on natural resource management, use and protection issues. Environmental education is the key to building an enduring environmental ethic among resource users.

Recommended Actions

Goal: Protect and manage water-related natural resources.

Strategy: Implement and enforce shoreland management regulations and other local land-use controls.

Strategy: Continue the development and implementation of local water management plans.

Strategy: Acquire and protect wetlands, shorelands and floodplains of special ecological or recreational significance.

Strategy: Develop and implement a comprehensive watershed approach to lake and river system management.

Strategy: Accelerate the clean-up of Minnesota's rivers.

Strategy: Implement a comprehensive program of surface and groundwater quality monitoring.

Goal: Protect and enhance scenic, aesthetic and recreational values.

Strategy: Inventory and protect Minnesota's cultural and historic resources.

Strategy: Actively manage landscapes for user appreciation and for their scenic and aesthetic qualities.

Strategy: Develop additional recreational opportunities along Minnesota roadways, parkways and trails, and in areas of scenic or historic interest.

Strategy: Initiate a major statewide urban reforestation effort.

Goal: Preserve, protect and manage critical habitats, native biotic communities, and endangered and threatened species.

Strategy: Provide incentives to private landowners for forest management, wildlife habitat improvement and for recreation-related development.

Strategy: Expand fish and wildlife population census and survey research.

Strategy: Protect, restore and manage Minnesota's remaining native prairie landscape.

Strategy: Accelerate efforts to control and eradicate problem exotic plants and animals.

Strategy: Continue interdisciplinary ecosystem research and training.

Goal: Encourage environmental stewardship and conservation education at all levels, for all ages.

Strategy: Promote a better understanding of the trade-offs and environmental consequences of various human activities.

Strategy: Encourage private citizens to assume greater responsibility for environmental protection, reclamation and conservation education.

Strategy: Link volunteers and volunteer services to education needs and program opportunities.

Strategy: Provide environmental learning opportunities for all Minnesotans.

Strategy: Encourage non-consumptive resource use.

II. Land Acquisition

The availability of recreational lands and facilities is a critical factor influencing Minnesota's continued ability to meet growing, changing outdoor recreation demands. An adequate land base affords the flexibility to meet these demands, while making possible the mix of development needed to offer a diversity of opportunity.

The following discussion examines critical aspects of recreational land acquisition. These are: 1) Water-Related Land Acquisition, 2) Securing Additional Trail Opportunities, 3) Critical Habitat Preservation, 4) State Forest Land Acquisition, 5) State Park Acquisition, 6) Cultural/Historic Area Preservation, 7) Acquisition of Special Use Areas and, 8) Urban Parks and Open Space.

Water-Related Land Acquisition

Minnesota's lakes and rivers are a primary focus of outdoor recreational activities. The number of registered watercraft demonstrates the popularity of water-related recreation. As of August 1989, there were 690,000 registered watercraft (including 132,000 canoes) in Minnesota. Minnesota ranks third nationally in terms of the number of registered boats, and ranks first in terms of boats per capita with one boat per 6.4 Minnesota residents.

Projected increases in the number of hours Minnesotans will spend fishing, boating and swimming highlight the need to accelerate the acquisition and development of water-related recreation facilities. This need is most acute near the Twin Cities Metropolitan Area, near other large population centers, and on the state's major recreational lakes and rivers.

DNR Acquisition and Development Programs

With the emphasis on water-related recreation, it is essential that acquisition of water access sites continue to focus on large, multi-use recreational lakes and rivers throughout Minnesota. The Metro Area, for example, has an acute need for additional public water access sites. Smaller, locally-significant lakes and rivers should also receive a high priority for developing public water access sites, especially in areas where access is currently limited.

The DNR's Canoe and Boating Route Program guides the acquisition and development of public access sites, campsites, portages and rest areas on 19 designated rivers (totaling 2,865 miles) throughout Minnesota. River hazards are also marked or removed including snags, piers, pilings and low-head dams.

The Wild and Scenic Rivers Program is an outgrowth of federal, state and local efforts to protect certain Minnesota rivers which possess outstanding scenic, recreational, natural, historic and scientific values. Detailed management plans specify permitted and non-permitted uses according to river designations. Current plans call for the acquisition and development of scenic easements and additional recreation sites along the state's system of Wild and Scenic Rivers. Individual river management plans have also been developed and implemented through the efforts of county and local governments along the Minnesota and Mississippi Rivers.

The Water Access Program manages and maintains 1,200 public water accesses to Minnesota lakes and rivers. According to a survey conducted in 1988 by the DNR and the University of Minnesota, 73 percent of the state's boat owners reported using a public water access in 1987. Besides boating, many also indicated that they had used access sites for swimming (32%), shore fishing (29%), ice fishing (29%), wildlife observation (24%), and for hunting, hiking, snowmobiling, cross-country skiing and various other activities. Current plans call for the acquisition and development of an additional 220 public water access sites over the next 10 years.

The DNR's Fishing Pier Program provides fishing opportunities for those who don't own boats or lakeshore. Over 75 fishing piers have already been installed, and a large backlog exists for future pier development.

Minnesota State Parks also provide access to miles of public lakeshore. There are, how-

ever, 9,400 acres of privately-owned lands within State Park boundaries that contain undeveloped shoreland resources. Acquisition of this shoreland is a high priority for State Park managers.

Securing Additional Trail Recreation Opportunities

Trail recreation is becoming increasingly important to Minnesotans. Growing interest in and demand for trail opportunities is being felt at all levels of government. Reasons for this increased interest in trail use are both numerous and diverse. Trail recreation is viewed as a healthy form of exercise for all age groups and for all levels of physical conditioning. Trail recreation also provides opportunity for individual or family outings, often close to home. Long-distance trails for walking, hiking, bicycling, cross-country skiing, snowmobiling and horseback riding trails are currently being developed, publicly and privately, to meet this growing demand.

Documented trail use demonstrates the popularity of public trail systems. For example, in 1987-88 there were nearly 177,000 snowmobiles registered in Minnesota. Survey results show that snowmobilers that year logged an estimated 3.5 million use occasions (one use on one day) statewide. More than 2.2 million of these occasions were on developed and maintained snowmobile trails. That same winter, more than 27,000 annual and three-year cross-country ski passes were sold, in addition to 20,500 daily ski passes. Cross-country skiers accounted for an estimated 450,000 use occasions in 1987-88, of which 366,000 were on developed, signed trails.

It is projected that there will be a 29 percent increase in the number of hours Minnesotans will spend walking and hiking, and a 7 percent increase in bicycling between 1985 and the year 2000.

The need for additional trail facilities is underscored by future population projections and facility adequacy survey results, particularly with regard to the need for walking/hiking and bicycling trails. It is projected that there will be a 29 percent increase in the number of hours Minnesotans will spend walking and hiking, and a 7 percent increase in bicycling between 1985 and the year 2000. Current DNR plans call for acquiring an additional 650 miles of rights-of-way to accommodate future trail users. Local units of government are also striving to provide residents with added trail opportunities.

Abandoned Railroad Grades

In the search for linear trail corridors, increasing attention is being paid to abandoned railroad grades. Railroad rights-of-way are being abandoned and sold at a very rapid rate. Less than half of the original 250,000 miles of railways built in the U.S. during the 1800's and early 1900's remain active today. In Minnesota, trackage peaked at 9,362 miles in 1930. Today, just over 5,000 miles remain The Minnesota Department of Transportation predicts that another 800-1000 miles will be abandoned within the next ten years.

These abandoned rights-of-way can serve as linear parks, greenways and long-distance trail corridors. They present a unique opportunity for hikers, bicyclists, joggers, snowmobilers, and students of nature and history. They provide an alternate transportation route to access hunting and fishing locations, as well as other recreation opportunities. Retaining these historic travel routes can also provide substantial local economic benefits to adjacent communities. Unfortunately, once a corridor is divided into parcels and sold, its potential recreational use is forgone. Timing is of the essence.

To date, the Minnesota DNR has acquired approximately 400 miles of abandoned rights-of-way. More than half of this mileage has now been converted to trails. The DNR estimates over 380,000 annual use occasions on these "rails-to-trails" conversions (217,000 summer; 163,000 winter). Other local units of government are also actively involved in acquiring and developing abandoned railroad grades for recreational trail use.

Unfortunately, the lack of acquisition funding has slowed recreation agencies in their response to railroad abandonments. The Department of Natural Resources is currently inventorying abandoned railroad grades, and other long-distance trail opportunities, in an effort to ensure timely, coordinated action by DNR and other recreation providers in developing trail corridors. Priorities for acquisition will eventually be assigned and recommendations made in order to maximize trail recreation opportunities.

The Trail Right-Of-Way Protection Program allows the DNR to temporarily secure high priority corridors and to eliminate safety hazards on those corridors through various funding mechanisms. DNR may also negotiate with railroad companies to protect trail rights-of-way by various means pending fee acquisition. Additional funding is needed, however, to facilitate timely acquisition of trail corridors.

Critical Habitat and Native Plant Communities

The destruction of natural plant communities results in a fragmented landscape with native remnants either too small or too isolated to provide habitat for many species of wildlife. The loss of animal species may be abrupt or gradual depending on the rate of habitat deterioration and the ability of wildlife species to adapt to changed conditions. Local extinction and the loss of biological diversity is the net result.

Maintaining the structural integrity and functional diversity of ecosystems and the species they contain is a challenge that will require additional research and the application of integrated management techniques. Acquisition of critical habitat in selected areas offers the greatest promise for protecting and preserving biological diversity.

Current DNR plans call for the acquisition of an additional 60 Scientific and Natural Areas, bringing the total to 120 units by the year 2000. This will provide protection for many of Minnesota's 454 targeted plant and animal species in need of protection.

An additional 465,000 acres of Wildlife Management Areas are needed in order to reach the one million acre goal set for state's WMA system, including another 125,000 acres under the State Waterbank Program. Approximately 3,000 acres of stream easements are also planned for spawning areas, rough fish control sites, and to develop fish hatchery and fish rearing facilities needed to maintain the state's high quality fisheries.

The Mn/DOT Wildflower Program, begun in 1989, will add further protection to remnant prairie found in Mn/DOT's 260,000 acres of right-of-way. Some areas may prove eligible for designation as Wildflower Routes. These corridors will be signed for protection and managed through a cooperative DNR-Mn/DOT burn program. Added benefits are expected to include reduced maintenance costs, better erosion and snow control, and improved aesthetics. The first protected route was signed on August 19, 1989 between Rose Creek and LeRoy on Trunk Highway 56. It includes the Shooting Star Scientific and Natural Area.

The Wildflower Program will also focus on restoration of native plant communities where appropriate. A goal of 35,000 acres of restored native wildflowers and grasses within the next 20 years has been set. This effort will help to preserve native biological diversity on sites that have historically been planted to exotic plant species. The program seeks to restore native species and preserve Minnesota's natural ecological heritage.

State Forest Land Acquisition

Minnesota's 13.7 million acres of commercial forestland is about equally divided between public (53%) and private (47%) landowners. The DNR, Division of Forestry, is responsible for administering 4.6 million forest acres located mostly within 56 State Forests scattered throughout the state. State Forest land acquisition efforts are selective and aimed primarily at acquiring lands that will help consolidate existing ownership, improve management efficiency, protect key resources, and help meet growing multiple-use demands.

Division of Forestry acquisition efforts are concentrated in Southeastern Minnesota in the Richard J. Dorer Memorial Hardwood Forest. Current plans call for acquiring an additional 41,000 acres in the Dorer Forest

(to meet an acquisition goal of 93,100 acres) and acquisition of key parcels in State Forests in northern Minnesota to develop new recreation facilities and rehabilitate existing ones. Special emphasis will also be given to acquiring parcels in state forests near the Twin Cities Metropolitan Area such as the Rum River, Sand Dunes and Chengwatana in order to preserve and protect recreation resources from encroaching development and other incompatible uses.

State Park Acquisition

Minnesota State Parks contain many of the state's most unique and valuable natural and cultural resources. The State Parks Land Acquisition Program has identified some 23,000 acres of private inholdings and 10,000 acres of Trust Fund lands to be acquired over the coming decade to help protect these sensitive resources. The total dollar amount needed to acquire private lands located within legislatively established park boundaries is estimated at over $20 million. A stable funding level of $5 million per biennium would allow for timely acquisition of needed properties in future years.

Acquisition of Cultural and Historic Sites

Never before have preservation issues been more pressing in Minnesota. Rural population decline and a changing rural economy threaten historic resources in many parts of the state. Among the priority issues identified by the Minnesota Historical Society's State Historic Preservation Office is the need to develop a better process for the review of state actions that affect (or have the potential to affect) the state's cultural and historic resources. At present, funding for historic preservation is inadequate to ensure the protection of historic resources. Funding for professional staff is also inadequate, despite federal matching funds intended to allow Minnesota to participate in the federal/state preservation program.

State archaeologists have not yet inventoried all state lands, and numerous undiscovered archaeological sites could be inadvertently disturbed by resource management or development projects, or by artifact hunters and hobbyists. The preservation of archaeological resources in state parks is of particular concern, since parks were established to protect and interpret Minnesota's heritage.

Federal tax incentives designed to encourage historic preservation have not been completely effective. Needed are state and local tax incentives to complement federal tax breaks for historic preservation. Various mechanisms for protecting identified archaeological sites should also be considered, including the need for an expanded program of fee title acquisition and tougher statutory protections for state historic and cultural sites.

Acquisition of Special Use Areas

Public outdoor recreation providers are today being called upon to accommodate a variety of new and non-traditional outdoor recreation activities. Examples include requests to provide land and facilities for all-terrain vehicle use, motorcycles, 4-wheel drive vehicles, hang-gliding, off-road bicycles, personal water craft, and even skateboards. Special user group requests can prove difficult for public sector providers who must manage special recreational uses and their impacts, while avoiding conflict with established uses or purposes of public lands.

In some cases, technological changes bring about new recreational demands. In other cases, a lack of private facilities simply shifts these demands to public areas. Public agencies bear a responsibility to acquire and develop special use areas, particularly those that fit with their mission and mandates. Likewise, user groups are generally entitled to use public lands, and are often willing to support their activity through user fees or licensing.

Public response to changing demands has lead to a number of successful outdoor recreation programs. The growth of snowmobiling is a good example. Twenty years ago, snowmobile use was rapidly growing in Minnesota, but there were virtually no available public trails. Today, some 12,500 miles of snowmobile trails have been developed. Of this, 10,000 miles have been developed through the DNR's Grants-In-Aid Snowmobile Trail Program, which provides funding to counties and other local units of government.

The acquisition and development of special use areas can, however, create new and difficult problems for public recreation providers. Public agencies frequently lack the staff time, dollars and expertise to effectively plan for, manage and monitor special use areas. User safety, liability and environmental effects are often poorly understood. Accommodating special uses on existing public lands can also conflict with established uses of these lands. The highly specialized requirements of some special use activities can render designated lands and facilities unsuitable for other uses.

Urban Parks and Open Space

The issue of local park and recreation area acquisition is complicated by the tremendous variation in local needs, as well as the ever-changing popularity of various recreational activities. Local priorities can often differ from those expressed statewide, resulting in reduced state and federal support for local acquisition and facility development plans. Such local variation must be carefully considered in public planning and funding decisions.

In addition, local park and recreation plans are often not integrated into city-wide or regional planning and are rarely linked to other community services. As a result, recreation development is not often accorded as high a priority as other municipal services in day-to-day planning and budgeting decisions. It is, however, at the local and municipal level that the majority of outdoor recreation use occurs.

A large percentage of Minnesota's Land & Water Conservation Fund applications in recent years have come from the rapidly developing "outer ring" suburbs which surround Minneapolis and St. Paul. These applications often express an urgent need to acquire park and recreation areas as rapidly as possible in order to meet fast growing demands for such areas, while preserving and protecting dwindling open spaces. Local communities cite their desire to avoid the problems now facing the older, "inner ring" suburbs including the lack of available (or affordable) open space for park expansion or new facility development. They strive to protect open space and natural values in order to preserve community character and livability.

For many communities, acquisition of land for the development of athletic fields remains a high priority. Inadequate facilities are seen as a detriment to continued population growth and economic development. Other local priorities include the acquisition of shoreland areas, trail corridors, and areas of scenic, natural, historical or recreational

value that are currently threatened by development. County park systems, particularly those that are relatively new, have focused on the acquisition of large, contiguous areas as a first step in a long-term recreation development strategy.

Unfortunately, potential park and open space areas are also highly desirable for urban, suburban or rural residential development. The resulting rapid increase in property values in such areas makes public purchase more difficult and, in many cases, less likely. Likewise, private inholdings within the boundaries of existing public parks may limit or conflict with park use, and may even constitute a threat to the future of the unit.

Findings and Recommendations

The changing face of recreation calls for renewed emphasis on public land acquisition and the development of new and different outdoor recreation facilities. Future acquisition and development efforts should address traditional recreation needs, but also accommodate emerging recreational activities and user groups.

Selective and carefully targeted acquisition of recreation resources is critical, especially where the population is rapidly growing and where existing facilities are inadequate. Emphasis should be on those facilities in shortest supply, and those lands in imminent danger of destruction due to development. Private inholdings in public recreation areas are another priority for acquisition. Private ownerhip denies full use of adjacent public lands, and sometimes severs access to nearby public lands or facilities. Because most parks are too small to manage as self-contained ecological units, an expanded acquisition program is needed to provide buffers for sensitive areas and to maintain biotic diversity in the landscape.

A lack of dependable acquisition funding has, however, slowed public efforts to acquire private lands from willing sellers. It is important to acquire inholdings before they are subjected to development or subdivision pressures, which can result in prohibitively high land values and/or unacceptable development.

Acquisition Funding

Since its inception in 1963, the Legislative Commission On Minnesota Resources (LCMR) has actively supported state and local government recreation programs. The Commission has provided the major source of public funding for the development of parks, forests, trails, river recreation sites, water accesses, scientific and natural areas, and wildlife management areas. From 1963 to 1975, LCMR allocated over $30 million for these purposes.

In 1975, a $100 million bonding program known as "Resource 2000" was created to provide opportunities for high quality public outdoor recreation. Resource 2000 focused on improving units of the Minnesota Outdoor Recreation System (as defined in MS Chap 86A) and preserving critical fish and wildlife habitat. Much has been accomplished with LCMR funding and Resource 2000 bonding authority with LCMR oversight.

Since 1975, the DNR has acquired nearly 160,000 acres. This represents just over 60 percent of the 300,000 acre goal originally set for the Resource 2000 program. Acquisition has fallen short due to inflation, rising land values, and the need to fund development projects out of bonding monies. Since 1985, traditional sources of acquisition funding have also drastically declined, essentially placing land acquisition plans on hold.

Clearly, there is a need to provide a stable, continuing source of funding for the acquisition and of public lands and the development of facilities needed to meet growing, changing demands for outdoor recreation. The focus should be on specific recreation-related projects where a demonstrated need exists for accelerated acquisition. Projects should be selected based upon their statewide significance and their potential to satisfy unmet state and local needs for outdoor recreation.

II. Land Acquisition

Recommended Actions

Goal: Provide a stable, reliable source of funding for public land acquisition.

Strategy: Explore alternative sources of funding for public land acquisition and recreation facility development.

Strategy: Encourage land acquisition through new and existing grants-in-aid programs.

Strategy: Urge continued federal funding to challenge and leverage state, local and private investment in outdoor recreation.

Goal: Acquire lands in areas of heavy recreational use and demand.

Strategy: Identify appropriate areas for off-road recreational vehicles and other special uses.

Strategy: Acquire open space, especially in urban or rural areas experiencing rapid population growth and development.

Strategy: Acquire land and scenic easements along recreational rivers, trails, lakes and streams, and in other high amenity areas.

Strategy: Expand opportunities for hunting, fishing, nature study and wildlife observation.

Strategy: Expand long-distance trail recreation opportunities.

Goal: Protect outstanding recreational resources threatened by encroachment, development or other incompatible land uses.

Strategy: Accelerate the acquisition of critical habitat, rare biotic communities, and endangered species habitat before these sites are lost.

Strategy: Encourage greater private participation in the protection of open spaces from unsuitable development.

Strategy: Establish uniform standards for setting aside recreational lands in developing urban areas.

Strategy: Implement and enforce local land-use controls.

Goal: Complete the acquisition of parcels needed to complement existing outdoor recreation sites and facilities.

Strategy: Coordinate land acquisition and facility development plans with those of other recreation providers to ensure a balanced approach to meeting recreational needs.

Strategy: Acquire abandoned railroad rights-of-way to create or expand trail recreation opportunities, and to link existing trail segments.

Strategy: Acquire private inholdings within public recreation areas.

III. Recreation Facility Development, Redevelopment and Rehabilitation

Use of Minnesota's outdoor recreation system has grown substantially in recent years - by as much as 30% at some facilities. Along with increased numbers of visits, people are now seeking more diverse settings in which to pursue both traditional and non-traditional recreational activities. New types of facilities are needed to accommodate activities such as recreational vehicle camping, off-road vehicle use, and long-distance hiking, biking, snowmobiling and cross-country skiing.

Trends creating demands for innovative recreation programs and facilities include greater interest in health and fitness, improved transportation, the rise in dual-income households, and a rapidly growing number of special interest user groups who seek a wider range of recreation services and facilities. On the other hand, there are also more single-parent families and others who may lack the time, money, mobility or the outdoor experience to make use of traditional recreation facilities.

Minnesota recreation providers must modify and adapt existing facilties, and develop new, multi-use recreation facilities to keep

pace with growing demands. Innovation in recreation programming and the delivery of services is also needed to respond to changing demands and to provide the range of opportunities recreators are seeking. Extensive redevelopment and rehabilitation of some older facilities is needed to comply with state and federal accessibility guidelines, and to ensure public health, safety and visitor security.

This section examines seven critical areas of recreational facility development, redevelopment and facility rehabilitation: 1) Development of Water-Related Facilities, 2) Trail Development, 3) Developing Scenic Byways 4) Wildlife Management Areas, 5) Fishing Areas, 6) Park and Recreation Area Development, and 7) Special Use Area Development.

Water-Related Facility Development

DNR Acquisition and Development Programs

The DNR's Canoe and Boating Route Program manages and maintains 2,865 miles of canoe routes throughout Minnesota. The program guides the acquisition and development of public access points, campsites, portages and rest areas. The Water Access Program manages and maintains 1,200 public water accesses to Minnesota lakes and rivers. Current plans call for the acquisition and development of an additional 220 public water access sites over the next 10 years.

The DNR's Fishing Pier Program provides fishing opportunities for those who don't own boats or lakeshore. With 75 fishing piers already installed, a large backlog exists for future pier development. This growing need is most acute near the Twin Cities Metropolitan Area, near other large population centers, and on the state's major recreational lakes and rivers.

The DNR is also cooperating with the North Shore Management Board in a study of potential harbor sites along the North Shore of Lake Superior. Safe harbors are needed to protect Lake Superior boaters from potentially dangerous lake conditions that arise, often without warning. This innovative study was funded by the Legislative Commission On Minnesota Resources.

Providing Additional Trail Opportunities

In order to respond to the projected need for additional trail recreation opportunities, public agencies must accelerate the acquisition and development of high priority trail corridors. Coordination among government agencies and cooperation between public and private interests is critical, particularly in view of the many administrative and geographic boundaries trails cross.

There is a special need to acquire and develop missing trail segments that connect existing trail systems and adjacent communities. Funding should subsequently be provided to allow trail development following acquisition. Unfortunately, there is currently a considerable backlog of trail development and rehabilitation projects on existing state trails. These projects include the installation of bridges, parking lots and picnic sites; grading and leveling of trail surfaces; surfacing and resurfacing bicycle trails, and various other construction projects needed to complete planned trail segments.

Development of Bikeways

Approximately half of all bicycling in Minnesota is for recreation or fitness purposes, and most occurs less than two miles from home. For these bicyclists, the state's roadways are significant components of the state's outdoor recreation system. The Statewide Facility Adequacy Survey shows that nearly 62 percent of those surveyed expressed a need for more paved roadside shoulders. (Appendix A)

At present, only about a third of the urban arterial and collector systems are considered satisfactory for bicycling. State and local road authorities should jointly consider improvements to these roadways to more safely accommodate bicyclists and motorists. In some cases, this may require developing adjacent, off-road bikeways or additional right-of-way acquisition by local road authorities. Accelerated development of county and municipal bicycle system plans is also needed to identify local development needs and priorities.

In 1977, the State Legislature directed the Minnesota Department of Transportation

(Mn/DOT) to establish a program for the development of bikeways, primarily along existing road rights-of-way. So far, Mn/DOT has developed 835 miles of bikeway improvements along state highways in cooperation with local agencies. Right-of-way improvements have included paved shoulders, off-road bikeways, special signing and the installation of traffic signals.

The Minnesota Department of Transportation's Bikeways Program has contributed to the safe use of the state's roads and highways by bicyclists through safety education, coupled with road modifications (i.e., striping, paved shoulders, signing) and better information on where to ride. The state's Bicycle Transportation System Plan lists major bicycle corridors along trunk highways that link population centers and outstanding scenic and historic features throughout Minnesota.

Development of Scenic Byways

Driving for pleasure has long been one of the most popular forms of outdoor recreation in Minnesota. Recognizing this, the State Legislature in 1965 granted the Minnesota Department of Transportation the authority to establish scenic areas adjacent to interstate or primary highways. Under this highway beautification program, 105 miles of Minnesota's Interstate and 3,774 miles of primary trunk highways were designated as scenic routes.

In 1971, the Minnesota Legislature authorized a program of screening, acquiring, and relocating salvage yards to improve the visual quality of public highways. Another 18 roadways were also designated as memorials to specific people or groups, or as trails with special scenic or historic features. Designated roadways have been landscaped, waysides and travel information centers have been developed, and designated roads are marked with special roadside plaques or signs. A number of county and local roads throughout Minnesota have been similarly designated and signed to identify areas of special scenic or historic interest.

In 1986 and 1987, the Legislature directed Mn/DOT to promote recreational enhancements along state highways in areas of unusual scenic interest. The legislation encourages cooperative (public and agency) planning and development of recreational opportunities along trunk highway rights-of-way and adjacent public lands. Mn/DOT has now developed standards that identify scenic and potential recreation sites, and has prescribed draft road and access standards for expanding recreational use. A final Highways In Recreational Areas Plan is now being developed and will soon be implemented statewide.

Federal Scenic Byways

Federal efforts to designate scenic roadways through the Superior and Chippewa National Forests in northern Minnesota have been underway for some time. Several Minnesota routes have already been tentatively identified and presently await formal designation as scenic byways. Proposed federal legislation directs the US Secretary of Transportation to study scenic byways on a national scale and fund scenic byway development through the Federal Highway Trust Fund.

Minnesota has outstanding potential for the designation of scenic byways. Many acres of federal, state and local parks and forest lands abut state trunk highways. Byways can provide access to a variety of scenic and recreational opportunities for the traveler, as they showcase the state's natural beauty.

Wildlife Management Areas

Based on demographic and license sales trends, interest in hunting and trapping in Minnesota continues to grow. The hunting and trapping of furbearing animals provides income and recreation to over 40,000 Minnesotans. From 1970 to 1983, the state had the highest harvest of beaver, red fox, mink and weasel in the U.S., and the second highest harvest of badger, fisher and skunk. Furs taken by hunters and trappers contribute more than $13 million per year to the state's economy.

In addition, interest in "non-consumptive" fish and wildlife-related activities continues to grow at a rapid rate. According to the National Survey of Fishing, Hunting and Wildlife-Associated Recreation (USF&WS, 1985), about 750,000 Minnesotans took trips of one mile or more for the purpose of observing, photographing or feeding wildlife in

1985. Many more visit public parks and natural areas nearer home for the same purposes.

Major acquisitions to the state's 1,030 existing Wildlife Management Areas (about 1,000,000 acres) are planned to meet growing demands. Each year managers purchase about 3,500 acres. This acquisition is important because each year there is less public access to private property.

Many existing WMA's are also in need of substantial repair and rehabilitation. Redevelopment of some facilities is needed to comply with state and federal accessibility guidelines, and to ensure public health and safety. Necessary capital improvements include building repairs, equipment purchases, road and bridge repairs, construction of dams and dikes, and the installation of signs and fences.

Fishing Areas

A new and innovative approach will be needed in order to keep pace with the growing demand for public fishing opportunities. This is a formidable challenge, especially to accommodate disabled persons, the economically disadvantaged, and others with special needs.

In the past ten years, 75 fishing piers have been provided through a variety of public/private partnerships with local sportsman's groups, cities, towns, municipalities and local lake associations. These piers provide nearly one million hours of recreation annually, largely for special needs groups. Additional shore fishing access is still needed to accommodate those anglers who do not own lakeshore or boats.

Long-neglected facility repair and rehabilitation projects have now become prohibitively large and expensive to undertake..

In addition to the 1200 miles of trout streams in public ownership, public easements have been acquired from private land owners on 185 miles of Minnesota trout streams. Public access is still needed and planned on another 600 miles of trout stream. Development, rehabilitation and maintenance of these access points helps provide public fishing opportunities while protecting sensitive resources.

Park and Recreation Facilities

During the period 1965-1980, public park and recreation facilities in Minnesota expanded substantially in terms of acreage, numbers of facilities and visitation. Since that time, however, federal and state funding for recreation programs has been drastically reduced.

Recreational use has markedly increased in the past decade, resulting in a gradual, visible deterioration of Minnesota's outdoor recreation infrastructure. Maintenance funding has been insufficient to reverse this disturbing trend. Long-neglected facility repair and rehabilitation projects have now become prohibitively large and expensive to undertake. The State Park System alone has identified 450 high priority projects which will require $55 million to complete.

Local Park and Recreation Facilities

At the local level, many of the parks and recreation facilities constructed with state and/or federal funding are now 15-25 years old and in need of substantial rehabilitation Unfortunately, few local government units are in a position to fund extensive rehabilitation of park and recreation facilities.

Local park and recreation financing is complex and varies from community to community. Recreation dollars come from a variety of sources including general revenues, bond issues, user fees, grants, donations and special tax assessments. Generally speaking, cities that are fiscally healthy and growing tend to spend more on land acquisition and developing new facilities. Financially troubled cities place more emphasis on operations and maintenance of existing facilities. Many local budgets can no longer sustain both.

In addition, the present process for evaluating and selecting local park projects for state or federal funding decidedly favors new development over rehabilitation projects. Consequently, there is a large and growing unmet need for a stable source of redevelopment and rehabilitation funding. The Federal Land & Water Conservation Fund project evaluation and ranking process must recognize the need to rehabilitate elements of Minnesota's deteriorating outdoor recreation system.

State Park Development

Minnesota's 64 State Parks need to be continually maintained and improved in order to meet growing visitor use (over 7 million visitors annually) and to protect the nearly $150 million invested in State Park buildings and support facilities.

The State Parks Capital Bonding Program is responsible for the construction and major rehabilitation of state park buildings and facilities, and for funding natural resource management projects. These projects are funded through the sale of state revenue bonds. Consequently, available bonding funds vary widely from year to year, making planning and funding of ongoing development and rehabilitation projects difficult.

Capital funds have decreased dramatically over the past ten years. The Park Development Program budget has decreased from approximately $10 million per biennium ten years ago to $5 million currently. As of 1988, the capital budget project list had grown to include 450 development projects at a total cost of $55 million. Clearly, with 1,650 buildings and 2,800 major facilities there is a need for a more stable and reliable source of capital improvement funding.

Recreational opportunities in public parks, forests and recreation areas could be significantly expanded and improved with selected road, trail and facility improvements. Past investments in outdoor recreation facilities can also be protected through timely maintenance and rehabilitation of aging facilities.

Athletic Facilities

Based upon recent applications for LWCF funding, there appears to be substantial need for the continued development of athletic facilities throughout Minnesota. Particularly in large, rapidly growing suburban communities, quality athletic facilities are viewed as necessary for continued growth and economic development. Such facilities are constantly being developed in these areas just to keep pace with the growing demand for youth activities and adult recreation leagues. Smaller, rural communities depend upon local athletic facilities to accommodate many local recreational and cultural events. In these areas, athletic facilities are viewed as a means of retaining existing population and attracting new families and businesses.

Softball fields are one of the most commonly requested facilities by large and small communities alike. Other popular facilities include soccer fields, ice skating and hockey rinks, and basketball hardcourts. Earlier demands for tennis courts appear to have leveled off since the late 1970's and early 1980's, when they were frequently requested. Although the development of athletic facilities is usually considered to be a local responsibility, the demand for such facilities should also be considered in a statewide context.

Special Use Areas

In view of growing public interest in the development of special use recreation areas, a statewide task force should be convened to assess and recommend methods of responding to this demand. Public and private landowners, land managers, and interested stakeholder groups should join in developing a plan and strategy for accommodating special recreational uses on public and private lands throughout Minnesota. Special emphasis should be placed on the need to accommodate the growth of off-road vehicle use, and on methods of separating competing and/or conflicting recreational activities. The plan should also identify roles and responsibilities among recreation providers, and present alternative methods of financing

Findings and Recommendations

Funding Needs

Since the Federal Land & Water Conservation Fund (LWCF) Program began in 1965, Minnesota has received over $56.5 million. State and local governments have matched federal dollars by contributing about $50 million each. Of this, about half of the monies have been used for land acquisition and the remainder for recreation facility development. Over 87,665 acres have been directly acquired. This total includes 14,185 acres that were donated (usually by large corporate landowners) to the state and used for the state's 50 percent cost-share match.

Competition for LWCF funding in Minnesota is intense. From 1966-1988, 717 local projects received LWCF funding totaling $27.1 million, with an additional $15 million in state and local government matching funds. Over the period 1985-1989, less than $4 million in LWCF funding was available to fund over $67 million in grant requests - an average of less than $.06 for each dollar requested. Despite steadily decreasing annual apportionments, however, interest in and competition for federal LWCF grants has not diminished.

In 1988, for example, a total of 185 grant applications requesting over $19 million were submitted for funding. Five LWCF grants were awarded for a total of $390,448. Of those projects funded, one was a state-sponsored request for $152,773 and four grants were awarded to local governments for a total of $237,675. In this era of tight budgets, the LWCF program has provided an essential source of funding for local parks and recreation programs. Federal LWCF funds have been instrumental in the development of Minnesota's outdoor recreation system.

There is an urgent need to restore federal funding for land acquisition and facility development. The American Heritage Trust legislation currently before Congress would remedy problems with the operation of the LWCF Program, and would assure higher annual levels of funding in perpetuity. It is important that the thrust of this legislation be supported.

Coordination Needs

It is increasingly important that the public and private sectors work together to provide outdoor recreation. At the simplest level, government must provide those facilities and services that meet public needs, especially when segments of the public would otherwise be unable to access them, or where the private sector cannot operate profitably.

Closer coordination among outdoor recreation providers is needed to foster a common perspective on the development of Minnesota's outdoor recreation system. Coordination can further efforts to provide an appropriate mix of recreation resources. Public and private sector providers also benefit from increased sharing of information and expertise, as well as the combined financial resources each has to offer. Needless duplication can also be avoided and public/private competition reduced, ensuring maximum efficiency and balance within Minnesota's outdoor recreation system.

Although the state's basic recreation framework will continue to be publicly administered, flexibility should be maintained to facilitate private sector participation whenever possible. With improved communications, many current problems can be overcome and public and private recreation providers can work together efficiently and effectively in meeting future recreation demands.

Marketing Opportunities

Marketing is an increasingly important function of both public and private sector recreation providers. Effective marketing enables recreation providers to develop programs and facilities in response to expressed public needs, to furnish better information on available opportunities, and to distribute visitors according to their interests in order to make better use of recreation resources.

Coordinated public/private marketing depends upon continuing recreation research and site monitoring to determine visitor attitudes and expectations. Aggressive promotion of new and existing recreation programs and facilities is also needed to make Minnesotans more aware of the range of available recreation opportunities.

Recommended Actions

Goal: Develop/redevelop those facilities needed to meet growing, changing public demands for outdoor recreation.

Strategy: Address recreation facility shortages in identified areas.

Strategy: Encourage recreation facility development through new and existing grants-in-aid programs.

Strategy: Disperse new and existing recreational use.

Strategy: Conduct recreation research and site monitoring to determine the need for new or expanded recreational facilities.

Strategy: Develop year round, multi-purpose facilities that are both durable and flexible in their use.

Strategy: Develop and restore recently acquired lands and facilities in priority areas.

Strategy: Address the needs of urban residents for nearby recreation facilities.

Goal: Ensure a balanced approach to recreational use and development.

Strategy: Redirect intensive recreational uses to less sensitive areas where feasible.

Strategy: Develop plans to link compatible recreation uses and to separate conflicting uses.

Strategy: Balance resource use and preservation considerations in land-use and development decisions.

Strategy: Extensively market lesser known and used outdoor recreation facilities.

Strategy: Monitor, measure and control visitor use of sensitive areas.

Strategy: Conduct research into the social, economic and environmental effects of outdoor recreation.

Goal: Enlist greater private sector support for the development of public recreation opportunities.

Strategy: Consider private entrepreneurial investments in some public recreation areas.

Strategy: Identify and assess barriers, constraints and possible limitations to creating public/private recreation partnerships.

Strategy: Provide incentives and remove impediments to providing public recreation opportunities on private lands.

Goal: Ensure public health and safety, visitor security, and physical access to outdoor recreation facilities.

Strategy: Ensure access to outdoor recreation facilities by removing physical barriers and by providing appropriate visitor information.

Strategy: Implement risk management practices to reduce the possibility of injury.

Strategy: Seek legislation to limit and control the legal liability of public and private recreation providers.

Strategy: Consider the need for visitor management and control in recreation facility planning and design.

IV. Outdoor Recreation Programming and Visitor Services

Traditionally, public sector recreation providers have provided basic sites and facilities, such as parks and campgrounds, relying on the private sector to provide more developed facilities and amenities. Today's recreation visitors, however, often expect more than basic facilities. In addition, they are more selective and discriminating, and they are generally better informed than their predecessors. Today's typical visitor has a variety of interests, expectations and recreational alternatives from which to choose.

More and more Minnesotans wish to better understand the natural, cultural and historic significance of the recreation areas they visit. The DNR's Outdoor Recreation Facility Adequacy Survey (1989) found that 82 percent of Minnesota households surveyed felt that natural and historical resource interpretation was important to their outdoor recreation experiences. Such services not only make recreation experiences more interesting and enjoyable, but can also build support for natural resource conservation.

The following section discusses three important aspects of outdoor recreation programming and visitor services. These are: 1) Outdoor Recreation Education Programs, 2) Visitor Assistance and Information, and 3) Outdoor Recreation Programming.

Outdoor Recreation Education

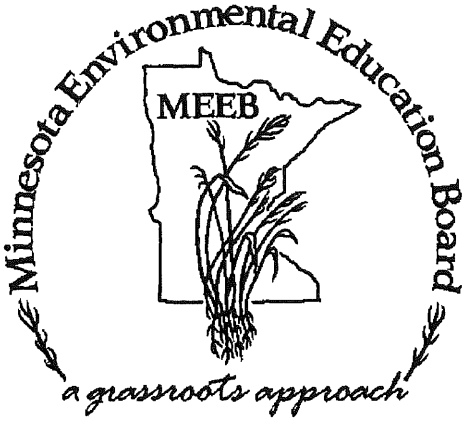
Environmental Education

Environmental education is a life-long learning process that fosters an awareness of other life and inter-relationships. It enables us to recognize and understand the effects we have on our physical and biological surroundings, and teaches us to accept responsibility for our actions. It provides alternate ways of thinking and acting and encourages the development of life values which minimize environmental destruction. Cultural changes resulting from environmental learning can foster an enduring environmental ethic. Teaching people about the outdoors is, in effect, a long-term investment in our outdoor estate. And, it can be fun.

Minnesota Environmental Education Plan

Recognizing the need to help all Minnesotans become environmentally literate, the Minnesota Legislature in 1969 directed the Departments of Natural Resources and Education to jointly develop and implement a comprehensive program of environmental education in the state's public schools. Later in 1971, the Minnesota Environmental Education Commission was formed to guide and monitor this effort, and to assist in implementing environmental education recommendations.

On the national level, the Environmental Education Act of 1971 (PL 91-516) offered states a source of funding for use in planning environmental learning programs. With a $40,000 federal grant, Minnesota's State Plan for Environmental Education was completed in 1972. Among its recommendations was the establishment of eight Regional Environmental Education Councils to coordinate regional plan implementation. The Plan also contained recommendations for teacher training and curriculum development for both K-12 and post-high school education. It placed strong emphasis on the need to actively involve public and private sector leaders, including business, industry and labor leaders, state and local government officials, non-profit organizations and community volunteers in the education process. The 1972 Environmental Educa-



tion Plan is currently being updated and revised.

The Minnesota Environmental Education Board (MEEB) was created in 1973 as a grassroots volunteer organization intended to further environmental education initiatives. Over 100,000 individuals have participated annually in programs sponsored by MEEB and by the eight Regional Councils. The programs include conferences, educator workshops, field days and curriculum planning sessions aimed at teachers, students and community leaders. MEEB also assists with environmental learning programs such as Project Wild, Project Learning Tree, Project Aquatic and Ag-Stravaganza.

Environmental Education Needs

The need for a renewed commitment to environmental education has been voiced by many Minnesota groups, in many reports, and by the over 300 attendees at the 1986 Environmental Congress sponsored by Minnesota's Environmental Quality Board (EQB). In response, the EQB formed an Environmental Education Task Force and designated environmental education an EQB Priority Issue in both 1987 and 1989.

In August 1988, the EE Task Force submitted its final report which identified a number of issues and recommended actions. Recommendations focus on the state's environmental agencies and on the EQB's role in coordinating program efforts. Recommended actions are based on existing authorities, structure and strengths of each of the agencies. In December 1988, the EQB adopted the recommendations contained in the Task Force report and reaffirmed its support for a strong and effective program of environmental education for Minnesotans of all ages..

Unfortunately, many still feel that environmental education efforts in Minnesota are unfocused, poorly funded and lacking in coordination and strong leadership. Critics charge that responsibilities for developing and delivering environmental education programs remain unclear, and that state funding is inadequate to implement such programs. This situation must be addressed if Minnesota is to retain its reputation as an innovator in the areas of education and environment.

Natural and Cultural Resource Interpretation

It is difficult to provide for visitor enjoyment without also helping the public understand the meaning of what they see. It is equally difficult to protect and conserve natural resources without enlisting public support for conservation efforts.

Interpretive programs use the outdoors as a learning environment for teaching such life skills as leadership, problem-solving and decision-making, communication, ethics and responsibility. These programs are extremely beneficial, especially to those who have limited access to or knowledge of the outdoors, such as single-parents and their children.

Interpretive programs can provide first-hand experience with natural and cultural resources, leading to deeper awareness and concern for stewardship of those resources. Interpretive learning provides a framework for understanding the topics and concepts taught in our schools. However, because interpretation program results are difficult to measure in the short-term, support for these programs has been inconsistent.

Interpretive Programs and Partnerships

Interpretive programs conducted by the Department of Natural Resources help visitors to Minnesota's State Parks, Scientific and Natural Areas, State Forests, State Trails and Wildlife Management Areas better understand and appreciate the significance of what they see. On-site interpretation can also stimulate public interest and generate support for management activities and agency goals.

Similarly, federal interpretation efforts, and those of local, regional and municipal agencies enhance recreation experiences by directly involving visitors in Minnesota's natural and cultural heritage. Private nature centers and environmental learning centers play a key role in making interpretive services widely available to Minnesotans of all ages.

Resort Naturalist Program

Innovative partnerships, such as the Resort Naturalist Program, greatly enhance public recreation and learning opportunities. Under this very successful program, area resorts

provide room and board (sometimes a stipend) to volunteer naturalists and in return receive interpretive services for their guests. The naturalists, frequently students, contribute their time and talents in exchange for experience, training and sometimes college credit through an internship program. Begun several years ago on a trial basis on the Superior National Forest, this program now provides services to 24 Northeastern Minnesota resorts. Some of the resorts have hired participating naturalists on a full-time basis.

Cultural Resource Interpretation: A Passport In Time

The newly created Passport In Time program is being piloted on the Superior and Chippewa National Forests in Northern Minnesota. The intent of this innovative volunteer program is to invite the public to participate in various heritage-related activities, such as archaeological excavation, interpretation and oral history projects. Each participant is issued a "Passport In Time" which is used to document the volunteer's contribution to heritage projects. In its first year, over 150 passports were issued to volunteers.

The public has also been invited to observe archaeological work being conducted on the Superior National Forest. This program offers Forest Service interpreters an opportunity to interpret archaeological "digs" on the forest, and it helps sensitize visitors to these fragile resources. In 1988, over 2,500 visitors participated over a period of 47 days when sites were opened to the public.

The Landscape Region System: A Framework for Interpretation

The Landscape Region System is a comprehensive ecological framework that subdivides the State of Minnesota into 21 Landscape Regions, based on ecological and geological characteristics. The system was originally developed in response to planning requirements of Minnesota's Outdoor Recreation Act of 1975. It evolved primarily from early maps of Minnesota's pre-European settlement vegetation, and from the original U.S. General Land Office survey notes.

Landscape Regions are presently used in several DNR planning efforts. Examples include the Scientific and Natural Areas Program, which uses an 18 region frame work to prioritize land acquisition and management activities, and the Trails & Waterways Unit which uses a modified system of "Recreation Landscapes" to market unique trail recreation experiences.

Minnesota State Park's Interpretive Services Program uses Landscape Regions in two ways: ecologically and bioculturally. Ecologically, Landscape Regions can be used to assess whether individual State

Parks are representative of the state's original landscape, and to ensure that unique natural features are properly identified and interpreted.

Cultural relationships to these unique landscapes, both past and present, are also of interest to State Park visitors. These relationships are said to be "biocultural", and they are used to interpret Minnesota's early history. Each State Park's unique "identity" is derived from an assessment of Landscape Region characteristics, especially those judged to be rare or unique and representative of original conditions in Minnesota.

Safety Training and Conservation Education Programs

In our increasingly urban society, many Minnesotans are becoming further and further removed from their natural, ecological surroundings. Consequently, many lack even a basic understanding of environmental concepts, outdoor and life skills, or the ethical behavior and values associated with natural resource conservation. The state's formal education institutions cannot possibly reach all audiences, nor is environmental education required in Minnesota's schools beyond the elementary level. Increasingly, public and private agencies are being called upon to assist in efforts to promote and encourage non-formal environmental learning for all Minnesotans.

Public participation in outdoor sports and recreation offers an outstanding opportunity to reach wide audiences. For example, approximately 14 percent of Minnesotans are hunters and 47 percent enjoy fishing. With steadily increasing numbers of participants in these and other activities, it is clear that additional training is needed in the areas of safety, responsibility and ethics.

Young and experienced sportsmen alike, can benefit from practical training, safety tips and new information on topics of common interest. The future of outdoor recreation depends on a heightened awareness of environmental issues and the development of an enduring environmental ethic.

Examples of successful programs already underway include the DNR's Firearm Safety Program, Snowmobile Safety Program, Boat & Water Safety Program, Advanced Hunter Education, Bow-hunter Education Program, and the recently developed All-Terrain Vehicle Safety Program. The Firearm Safety Training Program, begun in 1956, has now certified over 700,000 young people in the safe use of firearms. Over 3,000 volunteer instructors have played a key role in the program's success. These programs stress safety and responsibility, and have fostered the development of attitudes that can help promote positive outdoor experiences.

Agencies, including the DNR, are now being asked to provide information, training and educational materials to build public appreciation and understanding of the state's aquatic resources and ecology. Practical aspects of fisheries biology and management could be combined with angling skills clinics to encourage aquatic resource conservation and sound recreational use. Needed is a coordinated approach to planning and funding statewide aquatic education efforts.

Visitor Assistance and Information

Information Services

New methods are evolving to meet the changing needs and expectations of recreators, while protecting the state's rich heritage of natural and cultural resources. Information and interpretive services are key ingredients in developing public awareness and concern for these resources.

Recreation managers are becoming increasingly interested in the use of information and interpretation services as tools for assisting visitors in making better choices and informing them of which activities and behaviors are appropriate. Visitor information can markedly improve the quality of recreation experiences, reduce social conflicts and resource impacts, build public support for management practices, and help reduce management costs in the face of tight budgets and personnel shortages.

Information and interpretive efforts can be effective in controlling such behaviors as littering and vandalism, particularly if these behaviors result from ignorance or lack of skill. The result is a more positive and informed user attitude towards the resource, the agency and its policies. Because information permits better decisions while retain-

ing individual freedoms (as opposed to rules and regulations), this approach is preferred by recreation managers and users alike. Freedom and security are two primary qualities of the recreational experience that users expect. Consequently, the challenge facing recreation managers is to carefully balance user freedoms with the need for control.

Although direct enforcement actions and control measures are sometimes necessary, information can help recreationists develop more realistic expectations and better match available opportunities with desired outcomes from their visit. This can reduce the likelihood of dissatisfaction or conflicts among users who seek incompatible recreation experiences.

Recreation Opportunity Spectrum

Minnesota offers a wide array of social and natural resource settings for outdoor recreation. These settings range from remote, undeveloped areas to heavily used urban parks and recreation areas. The Recreation Opportunity Spectrum (ROS) framework links these diverse settings to activities compatible with the settings, and to the range of personal experiences characteristic of each. Developed by the U.S. Forest Service, ROS was adapted by the DNR for use in Minnesota. ROS classifications ranging from primitive to intensive use help to plan and distribute recreational use throughout the state.

Recreation settings are characterized primarily by road access and existing land use, and by the nature of the landscape. As the landscape becomes more developed, and as road access improves, the ROS classification changes from primitive to semi-primitive, natural, rural and, ultimately, to intensive use. The distribution of ROS settings shows which areas are more likely to provide a given range of recreation experiences.

For example, Minnesota's more primitive settings are found primarily in the North Central and Northeastern parts of the state, especially in areas of concentrated public land ownership. Natural settings occur within the more primitive areas near the periphery of cities and along road corridors; these include extensive areas along the periphery of the forested zone. Most of the rest of the state is classified as rural, due to the large areas devoted to agriculture in the prairie-forest transition zone. Intensive use areas occur primarily in conjunction with urban areas, and with extractive land uses, such as on Minnesota's Iron Range.

Managing Outdoor Recreation

With any recreational use of an area, natural resource factors, social factors, and managerial factors will inevitably change. Because some level of impact will occur, a major management responsibility is to establish appropriate limits to this change. Limits of acceptable change may be developed and expressed as management objectives. Management objectives identify and describe, explicitly and quantitatively, the natural resource, as well as the social and manage-

rial conditions to be maintained or restored. Management objectives should be based on research findings, public input, and professional judgement. These objectives play a key role in defining and establishing recreation carrying capacities or user limits.

Resource Capacity and Recreational Use
Outdoor recreation resources have both an ecological and a social "carrying capacity". Ecological carrying capacity can be defined as the ability of natural systems to adapt to particular types of uses and a given number of users within defined levels of ecological disturbance. Social carrying capacity, on the other hand, is a relative measure of the amount of recreational use that people will tolerate before user safety and satisfaction begin to decline. At some level of recreational use and development, recreational resources may become strained to their limit and unable to support additional human pressures. However, because each recreational setting has its own unique social, physical and biological carrying capacity, recreational use or development standards and limits are difficult to establish and of questionable value in setting use limits.

Outdoor Recreation Programming

Special Events

Special events programs can be a valuable marketing tool for outdoor recreation providers. By drawing media coverage, special events can help spread your message and inform audiences of contemporary recreation issues and opportunities. Special events might include tours or parades, arts and craft shows, contests or races, music, exhibits, food and games, sporting events, or a variety of natural, cultural or educational programs.

The success of special events is often measured, in part, by the extent of media coverage and public participation. Media attention is drawn to those events of public interest which are well-planned and coordinated in advance. Special events planning requires special attention and considerable time in order to achieve success.

Fundraising With Special Events
Special events fundraising, although not always as successful as other direct fundraising efforts, can prove valuable in attracting new contributors and in encouraging current supporters to provide additional assistance. Fundraising can occur before, during or after special events designed to encourage support for specific recreational programs, services or facilities. Such events must be carefully planned and directed to ensure their success and acceptance by target groups. It is also important to carefully coordinate special events programming with traditional support groups and key cooperators to enlist their advise and assistance in planning and conducting special events.

Fundraising techniques most often include selling tickets or "premiums" (i.e., hats, buttons, T-shirts, posters, stickers, souvenirs), conducting raffles or auctions, collecting special registration or entry fees, and/or soliciting general contributions. With a little creative thought, such events can be entertaining and very effective in soliciting public support for specific purposes. They can also range in complexity from a small, community-based fundraising effort to a massive statewide campaign headed up by a honorary committee composed of business, community and political leaders.

Grants and Sponsorship

In response to the budget cuts of the 1980's, public sector recreation providers have begun to solicit, recruit and hire people skilled in publicity, planning, marketing, grantsmanship and fundraising techniques. They have recognized the growing need to compete more effectively in securing "outside" support for worthwhile programs and projects that may otherwise fall victim to the budget axe. The realization that public funds are not necessarily forthcoming nor adequate to meet growing needs has prompted many public sector providers to routinely solicit private gifts, grants, sponsorships and volunteer contributions. Private donations serve to extend and leverage limited public resources. This trend appears to be rapidly growing.

Why Seek Outside Support?
In addition to providing needed funding, the advantages of securing outside support include the following:

1. Quick Source of Capital - While the financial capability of philanthropic organizations varies widely, most maintain a source of funds available for small, short-term grant requests.

2. Source of Volunteers - Philanthropic organizations typically attract civic-minded individuals with a strong sense of community. Often prominent and highly skilled, these individuals make good prospects for honorary positions on steering committees or boards of directors. They may also be persuaded to adopt your cause.

3. Source of Contacts - Valuable personal contacts can grow and flourish as a result of your association with sponsors, giving your cause added visibility and exposure.

4. Partner in Advocacy - Philanthropic groups can be powerful allies, since most are well versed in the legal and political processes, and can help to galvanize popular support through coalition-building or community outreach efforts.

5. Evidence of Community Support - Finally, there is no better way to demonstrate popular support for your organization or your agenda than by aligning with a respected philanthropic organization.

Sources of Available Support
Institutions that offer assistance to non-profits include local, state and federal governments, private foundations, corporations, private businesses, and religious institutions. Additionally, thousands of local and national associations and private individuals also engage in charitable giving. Professional fundraising has become increasingly complex and competitive. Success requires careful advance planning and diligent follow-up.

Planning for Success
During the planning stages, there is a need to clarify specifically what type of financial support is needed. These may include **capital support** for construction or renovation projects; **endowment funds** which can be invested for future dividends; **general operating support** to cover daily expenses; **seed money** for a new project or venture; **special project funds** to finance special programs, projects or services; **matching or challenge grants** to stimulate fundraising; **emergency funds** to cover short-term or immediate needs; and **loans or program-related investments** to support a project rejected by or judged not suitable for traditional sources of financial support.

Once the appropriate sources and types of funding have been identified, it is important to design a fundraising program that conforms to the potential funding agencies. Some charitable organizations limit their support either by choice or due to explicit funding restrictions. It is important for grant applicants to familiarize themselves with the goals and mission of potential grantors prior to making application.

In matching specific requests with potential sponsors, pay particular attention to compatibility with their mission and acknowledged areas of interest and expertise. The topicality and achievability of your project is also important, as is its sense of timing and likelihood of success.

Typically, successful grant applications contain a clear and well-documented problem statement and needs assessment. The centerpiece of the proposal is a carefully crafted problem-solving strategy, complete with programmatic goals and objectives, an action program, and a detailed implementation and evaluation scheme.

Task descriptions form the basis for budgeting decisions and the blueprint for establishing project timelines. The evaluation feature should compare intended results with actual accomplishments at each major stage of the project. The proposal's appendix might include miscellaneous historical or background information, letters of support or reference, a current financial statement, and other information best left out of the main text.

Findings and Recommendations

Outdoor recreation areas are neither perfect nor static places. They have internally and externally caused problems, and they are constantly changing. Environmental education and interpretive programs should focus

on the dynamism of Minnesota's natural environment, and on efforts to protect, manage and restore this natural system.

Building public awareness of contemporary environmental and natural resource issues is critical to Minnesota's future. Managing controversial issues and securing public cooperation hinge upon the ability to provide honest, factual and balanced views to visitors on current topics. Awareness of critical resource issues can lead to strong, active, visible and vocal support for natural resource protection and conservation programs.

Environmental Education Needs

Education is increasingly recognized as the key to protecting and preserving Minnesota's environment and natural resources over the long term. By incorporating environmental education concepts into elementary and secondary curriculum materials, and by emphasizing the inter-relationships between contemporary environmental issues, students can better understand how their actions affect environmental quality. These materials should be developed for use, both outdoors and in classroom settings, by social studies, economics, science and biology instructors in order to reach a broad audience.

Investments in the environmental education of our young people will make a lasting, positive contribution to Minnesota's environmental quality. Increased coordination of K-12 environmental education programs and activities is needed at the state, local and regional levels. Non-formal, non-personal and adult learning opportunities should also be provided. Additional state support is needed to fund local and regional delivery of environmental education services based on coordinated statewide development of learning materials and curriculum.

Natural Resource Interpretation Needs

The Minnesota Outdoor Recreation Act of 1975 mandated that outdoor recreation education opportunities be made available to all Minnesotans. It defined these as "any demonstration, structure, exhibit, or activity intended to preserve demonstrate or explain a significant aspect of the natural and cultural history, and archeology of Minnesota". Still, we are not taking full advantage of the outstanding environmental education opportunities offered by our state and local parks, historic sites and natural areas.

Minnesota State Parks Interpretive Services Plan, for example, calls for an additional 19 full-time naturalist positions and several seasonal naturalists to meet growing demands for interpretive services in state parks. These positions are critical to provide quality interpretive programming for park visitors, especially school groups.

There is a serious lack of funding for interpretive staff, facilities, equipment, exhibits, displays and educational materials. Unlike statutorily authorized responsibilities, there is no comprehensive state or federal mandate requiring public recreation providers to offer interpretive services. More must be done to build this important link between the resources and the people who use them.

Managing Outdoor Recreation

For years, recreation providers have participated in a variety of mostly short-term planning exercises conducted in response to some perceived internal need or external requirement. Many agencies, however, still do not have written goals and objectives, or a formal means of tracking their accomplishments. With better planning recreation agencies could more readily anticipate and respond to emerging trends and events that shape future recreation use.

Increasingly, methods of directly "managing" recreation visitors and controlling their behavior will also prove necessary. Additional training of recreation staff and enforcement officers is needed in the areas of enforcement techniques, human behavior, communications, emergency response and interagency operations.

Recommended Actions

Goal: Provide information on outdoor recreation programs, facilities and available services to current and potential customers.

Strategy: Develop visitor service plans that integrate visitor services information, activity programs, visitor access and safety considerations, and which include visitor feedback to ensure quality.

Strategy: Cultivate a "customer orientation" within public recreation agencies and among recreation professionals.

Strategy: Establish a cooperative visitor information network between the private sector and all levels of government.

Strategy: Actively involve citizens and citizens groups in park and recreation planning and policy development.

Strategy: Monitor visitor satisfaction in order to be more responsive to changing public needs and expectations.

Strategy: Explore the social and economic links between outdoor recreation, travel and tourism.

Goal: Build knowledge, awareness and understanding of natural resource management and protection issues through environmental education programs.

Strategy: Form a Minnesota Environmental Education Coordinating Committee with broad stakeholder representation to focus, advise and coordinate environmental education planning and program development.

Strategy: Assess the need for environmental education and interpretation programs through regular surveys of state residents and educators.

Strategy: Monitor and assess the social and economic benefits of environmental learning programs.

Goal: Expand the availability of interpretive services.

Strategy: Develop interpretive opportunities at public outdoor recreation sites.

Strategy: Expand experiential, non-personal and non-formal learning opportunities.

Strategy: Expand the use of partnerships and volunteers in providing public recreation programs and services.

Strategy: Foster an environmental ethic and promote responsible resource use through environmental education and interpretation programs.

Goal: Ensure access of disabled persons and other special needs groups to outdoor recreation programs and services.

Strategy: Tailor environmental learning programs to meet the needs of Minnesotans of diverse racial, ethnic, cultural and educational backgrounds.

Strategy: Adapt environmental education programs, equipment and learning materials to accommodate disabled persons and others with special needs.

V. Maintenance & Operations of Existing Outdoor Recreation Facilities

Minnesotans have made substantial investments over the past 25 years in developing one of the finest outdoor recreation systems in the nation. Adequate maintenance and operations funding is essential in order to protect this investment, and to safeguard the health and safety of users. Unfortunately, many state and local outdoor recreation facilities are rapidly deteriorating due to their age, increased use and vandalism. In recent years, funding for facility repair and preventative maintenance has been insufficient to reverse this disturbing trend.

In this era of tight budgets, fewer resources are being allocated to those programs and services which have indirect or long-term impacts that may not be immediately apparent to recreators. These typically include natural resource management activities, facility maintenance and preventative maintenance, public relations and marketing efforts, and the training of staff and volunteers.

As a result, much of Minnesota's outdoor recreation system is currently operating at or below generally accepted minimum standards. Long neglected maintenance and operations needs have reached a critical point, especially at the local level. Deterioration of some assets, including roads, trails, public buildings, equipment and utility systems is so advanced that, unless addressed, they may be lost permanently.

The following discussion examines four critical aspects of the maintenance and operations of existing outdoor recreation facilities. These are:

1) Operations and Staffing of Existing Facilities,
2) Maintenance Management Planning,
3) Ensuring Uniform Visitor Access, and,
4) LWCF Compliance Monitoring.

Operations and Staffing of Existing Outdoor Recreation Facilities

Protecting Public Health and Safety

The most basic public service involves protecting the health and safety of visitors. Protection of public health and safety includes preventing personal injury, controlling litter and vandalism, and providing basic information services such as providing maps and warning signs. Protective services also frequently include providing sanitary facilities, clean drinking water and emergency response capability.

Although recent statistics show a downward trend in public use accident deaths, recreation managers must carefully monitor and protect public health and safety. Additional resource management and law enforcement field personnel should also be provided to respond to growing public use of outdoor recreation resources and facilities. Education and training for both recreation providers and visitors is recommended in order to limit liability exposure, and to ensure visitor safety. Safety considerations must be integrated into all aspects of facility design, maintenance and operations, as well as ongoing training programs.

The Liability Crisis

Because providers of recreation and leisure services are generally considered to be at high risk for accidents, personal injury and lawsuits, both public and private sector recreation providers have been hard hit by the recent explosion of liability insurance premiums. In recent years, Minnesota insurers have cancelled policies midterm, or have increased rates by as much as 200-400 percent. In other cases, liability insurance is simply unavailable at any cost, forcing recreation providers to either limit, discontinue or substantially raise the price of services they provide.

Cities and counties are being forced to either pay extremely inflated rates for substantially reduced coverage, self-insure, find an insurance pool or go without any insurance at all. According to a 1985 na-

tional survey conducted by the Public Risk and Insurance Management Association, some 75 percent of government agencies surveyed nationwide experienced average insurance increases of 150 percent for general liability coverage, and an average of 395 percent for umbrella coverage. The highest reported increase was 1500 percent.

This worsening situation highlights the need for recreation providers to develop, implement and upgrade their risk management programs. If recreation can be made safer, fewer lawsuits and lower insurance premiums may result. State and federal laws which would change the level of negligence needed for recovery in a lawsuit against recreation providers from ordinary negligence to gross negligence should also be examined. In addition, the State Legislature should consider legislation that would enable both public and private sector recreation providers to establish insurance pools, cooperatives, joint authorities and self-insurance pools. Only through legislation or reform of the civil justice system can this serious and pervasive issue be resolved.

Staff, Training and Equipment Needs

The art and science of recreation resource management changes constantly. It is important that today's outdoor recreation professional have the necessary training, equipment and skills needed to adapt to rapidly changing conditions. A strong, cooperative program of in-service training and continuing education is needed for all Minnesota recreation providers, their professional staff and volunteers.

The development of minimum staffing and service standards for units of the state's outdoor recreation system would help to address existing inadequacies and improve public service. Such standards would enable public officials to objectively assess the need for additional staff and/or budget resources in order to meet recognized standards.

Minnesota State Parks, for example, have developed and implemented "Minimum Operating Standards" based on a system used successfully by the Province of Ontario, Canada, Ministry of Parks. In applying these maintenance and service standards, it was determined that Minnesota's State Park operations and maintenance funding is currently 30 percent below that required to meet minimum standards. Although a variety of stop-gap cost-saving measures have been taken to reduce the impact of this budgetary shortfall, additional funds are needed to halt further erosion of State Park facilities or services.

Too often, outdated or inadequate equipment also limits the quality or character of recreation experiences offered by public recreation providers. Historically, equipment purchases have been very limited and poorly funded. The result has been equipment which is inefficient or unsuited for the intended uses. Out-dated and poorly maintained equipment frequently results in unacceptable "down time" and reduced operating efficiency. Recreation facilities can be operated at a higher level with improved equipment, thereby providing better public service, often at a reduced cost.

Maintenance Management Planning

Comprehensive Cost-Accounting

In view of increased public concern over the level of tax support for various government programs and services, and increased demands for more self-sustaining or user-supported activities, it has become necessary for recreation providers to employ more sophisticated accounting techniques. Revenue-producing programs and activities, in particular, require increased accountability and financial reporting capability. Public sector providers should explore methods of meeting this growing need for expanded financial and accounting capabilitie.

Maintenance Planning, Programming and Scheduling

Maintenance management planning, programming and scheduling have emerged as areas of major concern for recreation managers. Standard maintenance management

methods can assist administrators and site managers in determining appropriate funding levels for these activities, and can alert planners to impending needs. Scheduling is based on a comprehensive facility needs inventory and standard repair and replacement schedules for buildings and equipment. Examples of preventative maintenance include routinely painting buildings every five years and replacing roofing shingles on a 20 year interval. If completed on a scheduled basis, standard maintenance management practices can extend the useful life of recreation facilities and ensure user safety and satisfaction.

Managing Natural and Cultural Resources

The Minnesota State Park Resource Management Program was begun in 1978 with funding from the Legislative Commission On Minnesota Resources. Its aim is to ensure that natural and cultural resource features located within the boundaries of Minnesota's 64 State Parks are managed and protected. State archaeologists assist park managers and resource specialists in this task, and park naturalists interpret these resources and management activities for visitors.

Three primary objectives guide resource management activities in Minnesota's State Parks: 1) Protect Existing Resources - by acting to preserve and protect natural biological communities, archaeological and historic sites, rare and endangered plants and animals; 2) Restore Lost Resources - by re-creating examples of original Minnesota landscape prior to settlement; and, 3) Strike A Balance - between use and protection by minimizing the impact of public use and facility development on sensitive resources.

Since 1978, however, management activities have been conducted on only a small percentage of the 200,000 acres of State Park lands. Many major resource management problems are not being addressed in a timely manner due to budget shortfalls and inconsistent funding for long-term projects.

A focused effort is needed to expand this program throughout the State Park system, and to provide sustained multi-year funding for resource management activities. A complete inventory of sensitive and degraded resources is needed, as is a comprehensive plan for restoring and managing these resources. Maps of critical natural and cultural sites must also be prepared to assist in planning and conducting resource management activities.

Meeting the Needs of Special Populations

Identifying Persons With Special Needs

A 1989 study conducted on behalf of the Amherst Wilder Foundation revealed that the major concentration of persons living in the 7-county Metro Area with one or more expressed special need lives in the central cities of Minneapolis and St.Paul (46%). Three in ten Metro Area adults (persons 18 years or older) have one or more special need, as compared to 9 percent of the statewide population. Ramsey (33.8%) and Hennepin Counties (37.4%) have the highest proportion of adult residents with special needs; while Carver County (16.1%) and Anoka County (19.8%) have the lowest. Trend information suggests that special need groups will become an increasingly larger portion of the total population.

For purposes of the Wilder Foundation study, "Special Need" groups were defined as follows:

1. **Disabled Persons** (subgroups: physically disabled, hearing or visually impaired, mentally disabled)

2. **Racial and Ethnic Minority Persons** (subgroups: Black, American Indian, Hispanic, Asian-Pacific)

3. **Elderly Persons** (subgroups: 65-74 years of age, and 75+ years)

4. **Single-Parent Families**

5. **Low Income Persons** (below federal poverty levels)

According to the Wilder Foundation Study, the elderly make up the largest proportion of the Metro Area's special needs population (40%). Other large groups include physically disabled adults (26%), persons below poverty (22%), and single-parent families (22%). Racial and ethnic minorities comprise 20 percent of adults with special needs, and persons with other types of disabilities make up smaller portions of the Metro Area's special needs population. Overall, three in ten adults with special needs have one or more physical disability. Statewide, about 25 percent of those with developmental disabilities are children.

The Wilder study also showed that in the Metro Area, over two-thirds of persons with special needs are female, largely due to the fact that single-parents and persons living below the poverty level are also more likely to be female. More than eight of ten persons with special needs are white. In contrast, about one of six single-parents and persons in poverty are racial or ethnic minorities.

Identifying and Assessing Barriers To Recreation Participation

Under-representation of special need groups in most outdoor recreation activities has been repeatedly documented (PCAO,1987). This is not surprising in view of the many barriers which must be overcome by disabled persons, the elderly, racial and ethnic minorities, single-parents and the economically disadvantaged. Although outdoor recreation appears to be, in general, a lower priority for those adults with special needs, about 20 percent consistently rank outdoor recreation as a high priority as compared with other leisure pursuits.

Overall, the recreational needs and interests of special needs groups are very similar to those of the population at large. Major differences do exist, however, in the participation rates of special needs groups, especially among physically disabled and elderly persons. Among the barriers most often cited to greater participation are insufficient free-time, fears about personal safety, inadequate public transportation or inaccessible facilities, a lack of information on available recreation opportunities and, the high cost of facilities. Perceived barriers vary widely by type of special need group.

Persons with special needs, as a group, tend to rate their physical and/or mental health lower than those without expressed special needs. In the Wilder Study, about 20 percent of respondents rated their general physical well-being as fair or poor, and 10 percent ranked their mental health as below average. One-third of respondents reported that physical problems interfere with their daily activities. This response is especially prevalent among elderly or physically disabled individuals. Such disabilities, real or imagined, can pose a significant barrier to participation in outdoor recreation activities.

Economic and transportation barriers also affect recreation participation rates by those with special needs. This is primarily related to the high incidence of poverty within each group. The Wilder Study showed that about 22 percent of Metro Area persons with special needs had 1987 total household incomes below federal poverty levels. These individuals are much less likely to rely on their own vehicles for transportation than are persons without special needs (72% vs 86%).

Remote areas can be virtually inaccessible for low-mobility, inner-city residents who are car-less, and where public transportation is extremely limited. Consequently, the geographic location of those with special needs (in the central cities) can become a major barrier if public transportation alternatives are unavailable.

Educational levels may also affect recreational interests and awareness, as well as participation rates and methods used to communicate recreation information. In general, persons with special needs were found to have lower educational levels than does the population at-large. The Wilder

study showed that about 20 percent of persons with special needs has less than a high school education, compared with 2 percent of persons without special needs in the Metro Area.

Accessibility Needs and Issues

Clearly, barriers to participating in outdoor recreation by those with special needs are many and can vary widely. Approaches to providing improved recreational services to special need groups are equally varied and have included modified user fee policies, physical access programs, general and specialized training and programming, and low-cost public transportation programs. Efforts to integrate these and other measures into the mainstream of recreation planning and programming are continuing in order to remove social and physical barriers, and to increase participation by persons with special needs. Still, much remains to be done.

Physical Barriers

Despite long-standing federal and state accessibility standards, architectural barriers remain an impediment to broader participation by those with physical disabilities. Existing statutes require that new facility construction be accessible to all disabled persons. To the extent possible, existing architectural barriers must also be removed. Where natural features allow, accessible facilities are to be provided in parks and recreation areas. In some cases, this requires modification of natural surroundings to accommodate those with special needs. Accessibility advocates are needed to assist in facility planning, design and construction to ensure a more proactive approach to facility development.

Awareness and Attitudinal Barriers

Attitudinal barriers, on the part of recreation providers and the public, can tend to stigmatize or stereotype persons with special needs. Unfortunately, these social barriers often result in recreation providers separating or shielding persons with special needs from the mainstream of recreation programs and facilities. For example, disabled persons may be offered more indoor or solitary activities than outdoor participation events.

Public attitudes towards racial and ethnic groups can also be complex and difficult to deal with. Integrating all recreation users can help overcome community and organizational biases. Hiring specially trained staff and/or training existing staff to deal effectively with special needs groups can help recreation providers deal more effectively with the needs and concerns of special groups.

Public awareness barriers also reduce participation by many groups, including those with special needs. Physically disabled persons, for example, may not know which parks or campgrounds have accessible facilities or offer adapted programs. Communication barriers, especially for the hearing or visually impaired, can pose a formidable challenge. For some disabled persons, a lack of adapted recreational equipment or companionship (e.g., sighted guide) can also present difficulties. Developmentally disabled persons face unique challenges that call for close linkages between state and local social service agencies and recreation providers.

Needed is a public awareness strategy targeted to each special needs groups. This strategy might include informational mailings, easy-to-read maps and guides, providing accessibility and public transportation information, advertising the availability of facilities and special "free-days" and, the availability of special programming or services (e.g., Telecommunications Device for the Deaf). Improved public awareness of the needs and concerns of special groups can help eliminate barriers and bias in developing and allocating recreational resources. It also calls attention to the need to involve special needs advocates in recreation facility planning, design and development.

Planning, Designing and Developing Accessible Facilities

Providing physical access in all new construction and renovation is required by both state and federal law. Providing access provides disabled persons with the opportunity to recreate and gives many elderly persons and others with marginal impairments better access. Legislation requiring physical access is most effective with regard to the construction of new facilities or support features, and is less directed at providing design alternatives in environmentally sensitive areas.

Although newer facilities, for the most part, comply with the state building code, there are many older facilities in Minnesota's outdoor recreation system that are still not accessible.

Many natural resource areas also need adaptations to provide physical access, such as trails in steep areas, fishing piers, picnic areas and boat ramps. In some areas, providing complete accessibility could seriously impact the natural resource or the experiences of other users. In other areas, such as steep slopes, providing access could present safety or liability problems. Where possible, however, recreation providers must attempt to balance these concerns with the need for uniform public access.

Although newer facilities, for the most part, comply with the state building code, there are many older facilities in Minnesota's outdoor recreation system that are still not accessible. Even some newer facilities have restrictions related to certain types of disabilities. Agencies have sought to remedy this situation as funds allow. Despite the progress that has been made in making the state's outdoor recreation system more accessible, the lack of physical access remains a major concern for many Minnesotans.

Section 504 Legislation

Section 504 of the Federal Rehabilitation Act of 1973 (as amended) guarantees specific rights in all federally funded programs and activities to persons who qualify as "handicapped". This law requires all recipients of federal funds to review and if necessary, modify their programs and activities so that discrimination based on disability is eliminated. The Minnesota State Council on Disability acts as an advocate in ensuring that state agencies provide physical and program access.

In its efforts to comply with Section 504, the Minnesota Department of Natural Resources in 1989 embarked on an extensive assessment of recreation program and facility accessibility. This comprehensive self-exami-

nation, funded by the State Legislature, will result in a series of recommendations designed to improve program and facility access. A transition plan will then be prepared to accelerate and target accessibility improvements.

Visitor Services, Programming and Adaptability

A major objective of Section 504 is to ensure that programs be accessible to disabled persons in the "most integrated setting appropriate". The intent is to minimize the segregation of disabled persons, except as necessary to ensure program participation.

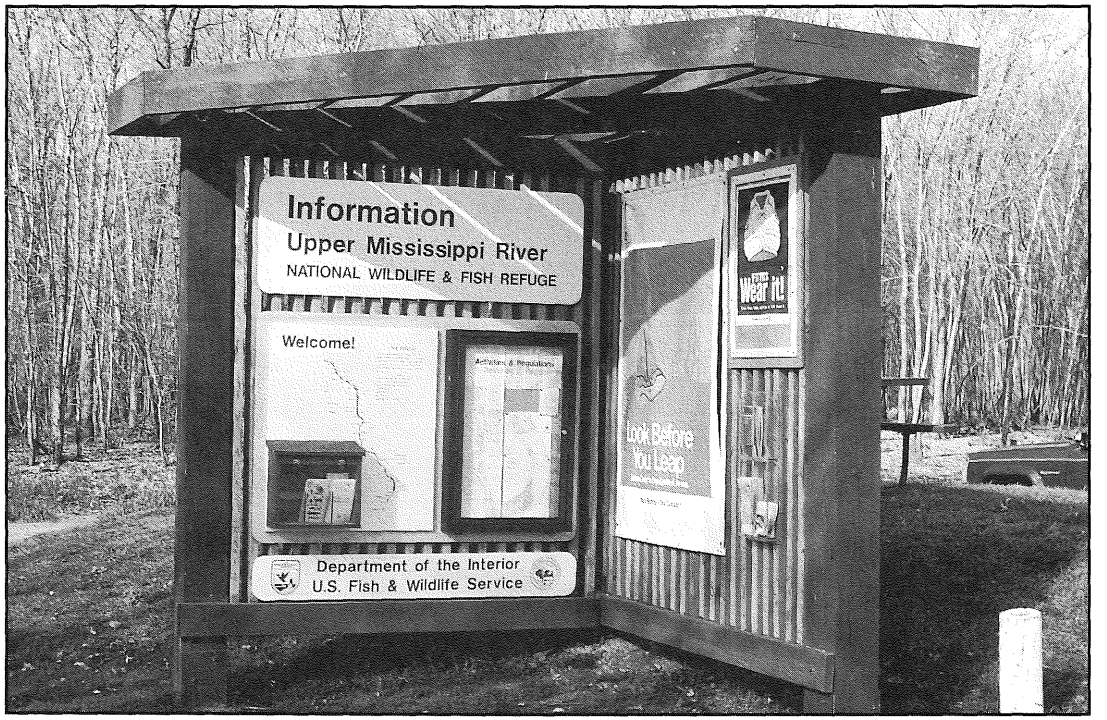
Most public agencies in Minnesota that engage in outdoor recreation programming provide special programs and/or services for disabled and elderly persons. Many agencies offer "adaptive" programs, encouraging the integration of persons with special needs into existing programs. For the most part, however, implementing agencies do not offer programs specifically designed for racial and ethnic minorities, single-parent families or low income persons. It is important to provide programs and services to accommodate these groups, whether within the context of existing programs or by creating special programs, in order to ensure access to recreational opportunities and resources without discrimination.

The Metropolitan Area regional parks system, for example, has developed a four-part integrated approach to outdoor recreation programming designed to meet the needs of disadvantaged groups. First, programs are provided at low or no cost, especially in close proximity to concentrations of low income areas. Second, adaptive recreation programs have been developed by several agencies. Third, an effort to integrate disadvantaged persons into mainstream programming, and to develop special programs for disadvantaged persons is being made. Finally, programming agencies have developed linkages with specialized social service and non-profit organizations to cooperatively develop and fund special programs for disadvantaged groups. Despite its success, the regional parks system is continually refining its approach to programming to make it more inclusive and adaptable.

LWCF Compliance Monitoring

The Federal Land & Water Conservation Fund (LWCF)

The federal LWCF program was developed in response to findings of the Outdoor Recreation Resource Review Commission, which in the 1960's, studied outdoor recreation nationwide. The LWCF Act of 1965 made funds available to federal agencies for land acquisition. It also called for matching grants to states and localities for recreation planning, public land acquisition, and for the development of outdoor recreation facilities. The Act requires that sites receiving LWCF assistance be used for recreation in perpetuity.



In the 25 years of its existence, the LWCF program has earned a reputation for being among the "cleanest" and most successful federal grant-in-aid programs in history. Nationally, the "state-side" (state/local government) of the program has spent $6.2 billion in federal, state and local funds on recreation-related land acquisition, planning and development projects. Over 35,000 projects have been approved and more than 2.3 million acres have been acquired by states and local governments nationwide.

LWCF Compliance Monitoring

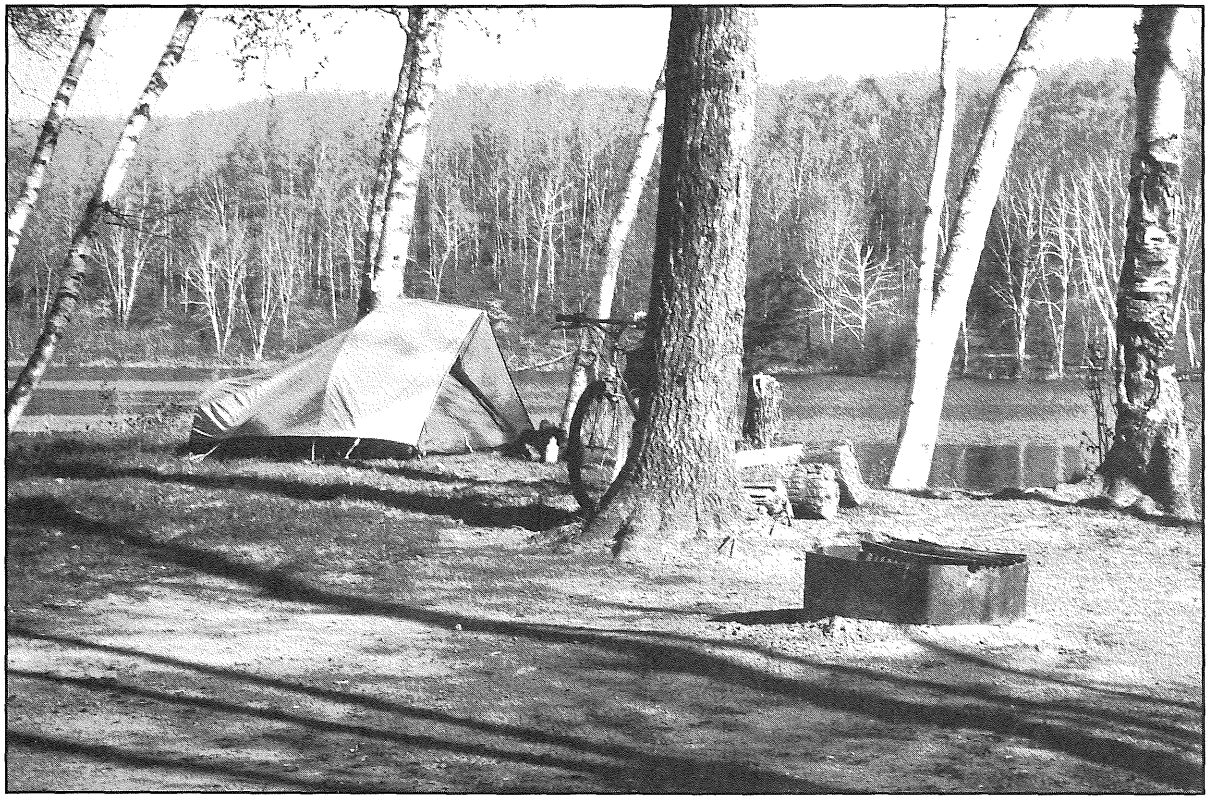
State inspections of projects developed with LWCF assistance are conducted at least once every five years to ensure that these sites are being retained and used in accordance with the initial project agreement. Problems are reported to the National Park Service and efforts are begun to work with the local unit of government directly in order to resolve them.

In the past, most problems with LWCF facilities have focused on maintenance and site conversion issues, and on the need to ensure physical access to recreation facilities. Many local parks still do not provide programs and facilities accessible to disabled persons. There is a need to promote closer compliance with state and federal mandates regarding physical and program access for the disabled, and to accelerate efforts to make Minnesota's outdoor recreation resources accessible to all who wish to use them.

LWCF Program Administration

Redevelopment of Minnesota's existing recreation infrastructure has become a major issue confronting state and local officials. Federal LWCF cost-share funds are, however, specifically intended for public land acquisition and recreation facility development. They cannot be spent for the maintenance or rehabilitation of existing facilities. In view of the large and growing backlog of such projects, added flexibility should be provided in state and local use of federal dollars earmarked for outdoor recreation.

The federal LWCF program and its provisions can also prove tedious and difficult to effectively administer in some cases due to a lack of local management authority and program control. LWCF regulations, for example, require that lands taken from a federally-funded project be replaced and appropriately developed. This process, called a "conversion", requires the approval of local, state and federal program administrators. Greater state and local discretion in the administration of aspects of the LWCF program would help to streamline and expedite the conversion process, and simplify administration of the LWCF program for local officials.



Findings and Recommendations

Maintenance and operations funding for public outdoor recreation facilities has remained relatively constant during the 1980's, despite the eroding effects of inflation, salary increases, cuts in base-level funding, increased operating expenses, and costs resulting from growing visitor use and new facility development. As a result, visitor safety and satisfaction are jeopardized, and public services are drastically reduced.

Maintenance and Rehabilitation Funding

Accelerated funding is needed for the repair and rehabilitation of seriously deteriorated outdoor recreation facilities, especially where visitor health and safety are in danger. An ongoing program of facility rehabilitation and repair is essential to protect past investments in recreation facilities, and to minimize new facility development costs to taxpayers.

Dollars spent for rehabilitation can save major redevelopment costs later on, and can ensure full and extended use of existing facilities. In the future, projected maintenance and rehabilitation costs should be identified up-front in the planning and design stages of facility development and incorporated into initial capital budget requests and cost estimates.

Increasingly, local government applications for state and federal funding consist, in large part, of proposed rehabilitation or replacement projects. The current funding process, however, decidedly favors new facility development over repair or replacement of existing facilities. Recreation reinvestment needs should be given equal consideration in project planning and funding decisions.

Funding For Natural and Cultural Resource Management

Active management is necessary to perpetuate the natural and cultural features of Minnesota's outdoor recreation system. Efforts to mitigate the impact of public use and development on sensitive ecosystems or identified cultural sites are essential to maintain their unique character and quality. Often, however, major management problems are not being addressed due to a lack of operations funding. Management activities are frequently delayed or postponed and funds are shifted to meet more immediate (or visible) needs.

Neglect of natural resources has led to problems with erosion, soil compaction, water quality, and outbreaks of insect and disease infestations. In some areas, vegetation management is needed simply to maintain native vegetation and to control invasion by exotic species. Again, public funding has not kept pace with existing needs.

This neglect has reached crisis proportions, especially where facilities are aging and in need of major repair or rehabilitation. Examples include buildings, roads, utilities or related structures built by the Civilian Conservation Corps and Works Progress Administration labor during the 1930's. The State Park System has over 380 such buildings still in use.

Removing Barriers To Outdoor Recreation

Solutions must be found to improve access to public parks and recreation facilities, and to remove long-standing barriers to recreation participation. Issues requiring immediate attention include the removal of physical and architectural barriers, programmatic barriers, public awareness and attitudinal barriers, and the need to address the lack of public transportation to distant recreation sites. Despite progress in each of these areas, much more must be done to ensure uniform access for all segments of Minnesota's increasingly diverse population.

Partnerships

Most recreation providers are familiar with public/private partnerships where recreation programs or services are jointly provided or contracted. Cooperation involving joint capital development or facility management is much less common, but should be explored. This is particularly true for small, municipal park and recreation departments. Although there are legitimate barriers to some types of partnership agreements, there is also great untapped potential. With the

removal of additional barriers, there lies great opportunity.

If public/private partnerships are to be further developed, more formal arrangements may be desirable, especially with larger, more complex organizations. Formalized cooperative agreements can specify agreed upon roles and responsibilities of the agency and the cooperator.

For the agency, working with organized volunteer groups offers distinct advantages over working with individual volunteers. The organization's commitment generally transcends the coming and going of individuals, and expenditures of staff time are considerably reduced when dealing with volunteer coordinators, rather than numerous individual volunteers.

Research/Information Needs

There is a need to study more closely the effects of user fees and price increases on outdoor recreation consumers. Currently, recreation managers have little understanding of the impact of pricing decisions on recreation participation, or the extent to which consumers are willing to pay higher prices for recreation-related goods and services. Public pricing decisions, for the most part, are based upon cost recovery and equity considerations and not on "willingness-to-pay". Public providers also typically subsidize the cost of providing recreation facilities to provide greater opportunity for broad participation and equal access.

Recommended Actions

Goal: Renew the focus on needed maintenance, rehabilitation and on the redevelopment of existing recreational facilities.

Strategy: Explore alternative methods of financing the maintenance and redevelopment of outdoor recreation facilities.

Strategy: Include projected facility maintenance and operations costs in all new facility development proposals.

Strategy: Develop/update comprehensive facility maintenance management plans and schedules based on a current inventory of facility needs.

Strategy: Minimize facility maintenance costs by designing and constructing low-maintenance facilities.

Strategy: Increase natural resource management activities in designated outdoor recreation areas.

Goal: Provide the necessary staff, budget, training and equipment needed to operate outdoor recreation facilities at generally accepted levels of public service.

Strategy: Encourage public/private partnerships and the use of cooperative management agreements for recreation facility maintenance, management and operations.

Strategy: Provide federal LWCF support for outdoor recreation facility maintenance and rehabilitation.

Strategy: Explore the impact of pricing decisions on recreation participation, and the extent to which consumers are willing to pay higher prices for recreation-related goods and services.

Strategy: Provide additional resource management and law enforcement field personnel based on the results of workload analysis.

Strategy: Expand in-service training and continuing education opportunities for professional recreation and natural resource managers.

Goal: Ensure compliance with public health, safety, access and other standards.

Strategy: Focus increased attention on recreation facility inspections and monitoring.

Strategy: Focus law enforcement efforts on the need to assist and protect recreation visitors, facilities and resources.

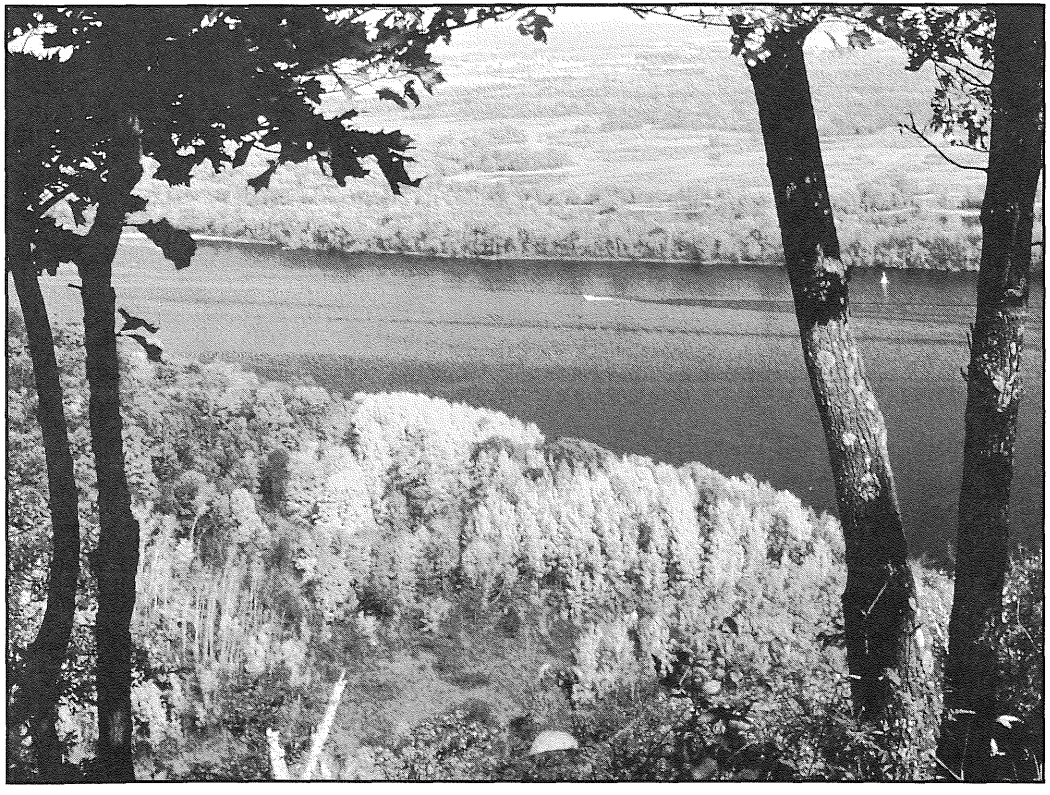
Chapter 3 Implementation Strategy

Coordination and Plan Implementation

Since a variety of programs carried out at every level of government have the potential for directly or indirectly affecting outdoor recreation, coordination becomes a critical factor in successfully implementing Minnesota's statewide outdoor recreation plan. Close coordination with private sector recreation providers is also needed to foster support for joint public/private initiatives, and to ensure a balanced approach to future recreation development.

State-Level Coordination

Planning for outdoor recreation in Minnesota is coordinated through the SCORP planning process, which is conducted jointly by the Minnesota Departments of Natural Resources (DNR) and Trade and Economic Development (DTED). The DNR serves as state liaison for the federal LWCF cost-share program and takes the lead in developing the SCORP Assessment & Policy Plan.



DTED assists in developing the SCORP action planning documents and administers LWCF grants to local units of government. The Legislative Commission On Minnesota Resources, a sixteen-member bipartisan legislative body, ultimately funds LWCF matching grant projects through state legislative appropriations.

Minnesota cities, counties, townships, state agencies and recognized Indian tribal governments are eligible to apply for LWCF cost-share grants. The maximum amount available is equivalent to 50 percent of the total eligible project costs. Included are the costs of designing, engineering, constructing or renovating trails, water accesses, fishing piers, swimming beaches, campgrounds, picnic grounds, athletic facilities and other outdoor recreation facilities. Land acquired or facilities developed must be retained and used solely for public outdoor recreation in perpetuity.

State-Federal Coordination

Recreation planning liaison with the U.S. Department of Interior is maintained through the National Park Service, primarily through the NPS Regional Office in Omaha, Nebraska. Other federal agencies, including the U.S. Forest Service, the U.S. Fish and Wildlife Service and the U.S. Army Corps of

Engineers are consulted frequently, and are represented on the Outdoor Recreation Planning Advisory Committee.

State-Local Coordination

County, local and municipal governments participate in a variety of state-sponsored financial and technical assistance programs involving outdoor recreation. State-local coordination is furthered through the LWCF Outdoor Recreation Grants Program. County and local government representatives serve as members of the Outdoor Recreation Planning Advisory Committee.

State-Private Coordination

Private recreation programs and facilities provide a major share of the outdoor recreation opportunities in Minnesota. They are also very important to state and local economies. Coordination with the private sector is necessary to update and improve the statewide inventory of recreation sites and facilities, and to provide a balanced approach to public land acquisition and recreation facility development.

The state-private liaison takes place both formally and informally through contacts with various clubs, groups and private landowners who are concerned with conservation and natural resource issues in Minnesota. State recreation officials, often members of such groups themselves, present and discuss recreation issues at statewide meetings. Such groups also receive general information mailings, news releases and other notification of current events.

On a more formal level, the DNR works closely with groups and individuals wishing to volunteer or otherwise assist in efforts to improve wildlife habitat and/or recreational opportunities on public or private lands in Minnesota. The DNR has acquired and improved thousands of acres throughout Minnesota with the assistance of private groups and individuals. Many more acres have been accepted as gifts from private individuals and corporations.

Minnesota
DEPARTMENT OF
NATURAL RESOURCES

Action Program

The 1990-1991 SCORP Action Program will be developed in early 1990 and published in a separate companion document, as was done for previous SCORP'S. The Action Program details specific recommended actions to be undertaken by major Minnesota recreation providers. Publication of separate action planning documents extends the useful lifespan of the five-year SCORP Assessment and Policy Plan to include two biennial action-planning cycles.

Plan Update and Revision

This five-year statewide plan for outdoor recreation will be updated in 1995, as part of Minnesota's continuing commitment to planning for outdoor recreation. During the interim, biennial action-planning documents will be prepared to maintain a sharp focus on recreation issues and actions. Public input will be sought at each stage of the action-planning process. Efforts will also be make to more closely coordinate SCORP planning with other ongoing natural resource planning initiative, such as those conducted by state and federal agencies, local and regional authorities, citizen's groups, and the State Legislature.

Minnesota Department of Natural Resources Recreation Research Compendium, 1984-1989

Carlos Avery Wildlife Management Area Study — 1984: A study of the hunting season visitors to the Carlos Avery Wildlife Management Area designed expressly for area management to assist in the measurement of hunting activity, the satisfaction with use of the area and ways to improve area programs.

Cannon River Recreation Study — 1985: An addendum to a traditional creel census to gauge satisfaction with river recreation, river recreation support facilities and river management programs.

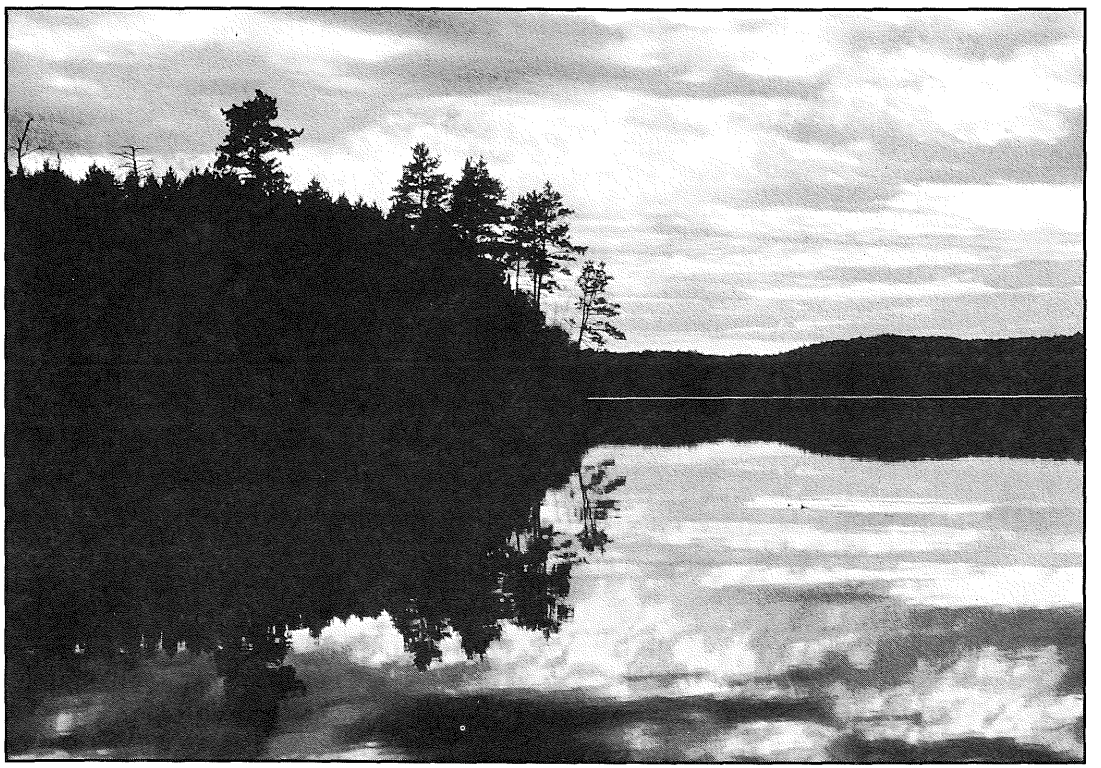
Lac Qui Parle Wildlife Management Area Study — 1985: A survey of controlled goose hunt participants and hunters on surrounding private land to estimate the economic impact of the Lac Qui Parle goose management program.

Attitudes and Knowledge of Minnesota Anglers — 1987: (with Jay A. Leitch and James F. Baltezore) A survey of Minnesota Anglers designed to assist in the implementation of fish management programs that meet the desires of anglers in Minnesota, improve DNR'S communication with anglers and increase angler knowledge of feasible fish management practices.

The Economic Impact and Value of Water Related Outdoor Recreation in Minnesota — 1987: A study of water related recreation participation and associated expenditures designed to provide estimates of the economic impact of water related recreation and the economic value of water for recreation for use in water allocation and development policy making.

Lake Use in the Seven County Metropolitan Region — 1984
Lake Use in North Central Minnesota — 1985
Lake Use in West Central Minnesota — 1986
Lake Use in South Central Minnesota — 1987:
Lake Development: How Much Is Too Much? — 1987

A series of studies replicated in the major lake use regions of Minnesota to provide information to guide the development of water accesses and water surface use regulations and to improve the boat and water



safety program. The results are used to identify the impact of lake development on boater safety and satisfaction.

Attitudes of the St. Croix River Boating Market Toward Alternative Water Surface Management Approaches — 1987: A study of the boaters' attitudes towards policy and management options to control overuse of the Lower St. Croix River. The findings were used to develop MNDNR's position in a contested case hearing regarding the management of the Lower St. Croix.

Attitudes of Visitors to Minnesota State Parks — 1987: A study of visitors to 64 state parks measuring their satisfaction with development, programs and services, their development, program and service needs, and their sources of information. The results are the basis for repositioning of the state parks.

The Image and Opinions of Minnesotans Regarding the Programs and Policies of the Minnesota Department of Natural Resources — 1988: A study of the general population of Minnesota to learn about public awareness of the missions of DNR'S divisions and opinions on current and potential program directions. The findings are for use in the DNR'S strategic planning and improved communication of DNR'S program missions.

Attitudes of Minnesotans Regarding Natural Resource Issues in Minnesota — 1988: A survey of the attitudes of Minnesotans regarding issues department managers see facing state natural resources, and an investigation of the issues Minnesotans see facing those resources. The results are for use in the DNR'S strategic planning process and for DNR'S program redesign.

Minnesota Registered Boaters and their Attitudes Toward Present and Potential Lake and River Management and Development — 1988: (with Drs. Dave Lime, Leo McAvoy, and David Pitt) A survey of Minnesota boat owners to ascertain attitudes about boater oriented program satisfaction and improvement. The findings are directed toward use in management planning for water access, enforcement, boat and water safety programs, fisheries management and water surface use management.

Image and Attitude of Minnesotans Toward Minnesota State Parks — 1988: A survey of the adult population of Minnesota investigating their knowledge of the state parks product their opinion of the product, the attributes of their preferred park product, and their method of getting information regarding park opportunities. This companion to the above referenced 1987 visitor study provides additional information for repositioning the state park product.

Significance of Outdoor Recreation Expenditures to the State and Regional Economies of Minnesota — 1988: This report examines the share of state and regional economies attributable to direct and indirect consumer spending for outdoor recreation travel and equipment.

Outdoor Recreation Facility Adequacy Survey — 1989: This poll of 2,400 Minnesotans was designed to gauge public perception of the adequacy of outdoor recreation facilities available to their households.

Outdoor Recreation Participation and Facility Study — 1989: Summary of outdoor recreation participation by Minnesota residents and non-residents by type of activity, season, socioeconomic factors, region of residence and distance traveled.

Outdoor Recreation Survey of the Whitewater Wildlife Management Area — 1989: A year-long survey of visitors to the Whitewater Wildlife Management Area was conducted between June 1988 and June 1989 to determine the amount and type of recreational use the area receives, the location of activities, the demographics of recreators and how they learned about the WMA. The quality of recreators' visits was also examined.

Survey of Registered State Forest Campers — 1989: This survey of State Forest campers will be completed in January 1990. It is intended to provide insights and information on visitor attitudes and expectations to facilitate recreation planning and development in State Forest Recreation Areas.

Listing of Survey Reports Available From the Trails and Waterways Unit, Minnesota Department of Natural Resources, 1982-1988.

Snowmobile Reports

Minnesota Snowmobile Market Segments and Resource Management Directions: A Qualitative Approach — 1982.

Minnesota Snowmobiling: Telephone Survey of Registered Snowmobile Owners (Winter of 1983-84) — 1984.

Minnesota Snowmobiling: Results of 1984-85 Snowmobile Surveys — 1986. Results of telephone and mail surveys administered to registered snowmobile owners during and after the winter of 1984-85.

Minnesota Snowmobiling: Mail Survey of Registered Snowmobile Owners — 1987. Results of survey administered following the winter of 1985-86.

Minnesota Snowmobiling: Results of 1986-87 Snowmobile Mail Survey — 1988.

Present Attitudes and Long-Term Behavior of Minnesota Snowmobilers — 1988. Overview of snowmobile surveys conducted between 1983-84 and 1987-88.

Cross-Country Ski Reports

Minnesota Cross-Country Skiing: Mail Survey of Licensed Cross-Country Skiers — 1984. Results of survey administered following the winter of 1983-84.

Mail Survey of DNR-Assisted Cross-Country Ski Trail Managers — 1984. Mail survey of all Grants-In-Aid trail administrators and state park and state forest managers who had groomed ski trails during the winter of 1983-84.

Minnesota Cross-Country Skiing: Mail Survey of Licensed Cross-Country Skiers — 1986. Results of survey administered following the winter of 1984-85.

Minnesota Cross-Country Skiing: Mail Survey of Licensed Cross-Country Skiers — 1987. Results of survey administered following the winter of 1985-86.

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Minnesota Off-Road Bicycle Trail Use: 1980-88 — 1989. Results of a comprehensive review of survey data collected on six off-road bicycle trails during the summers of 1980 and 1988.

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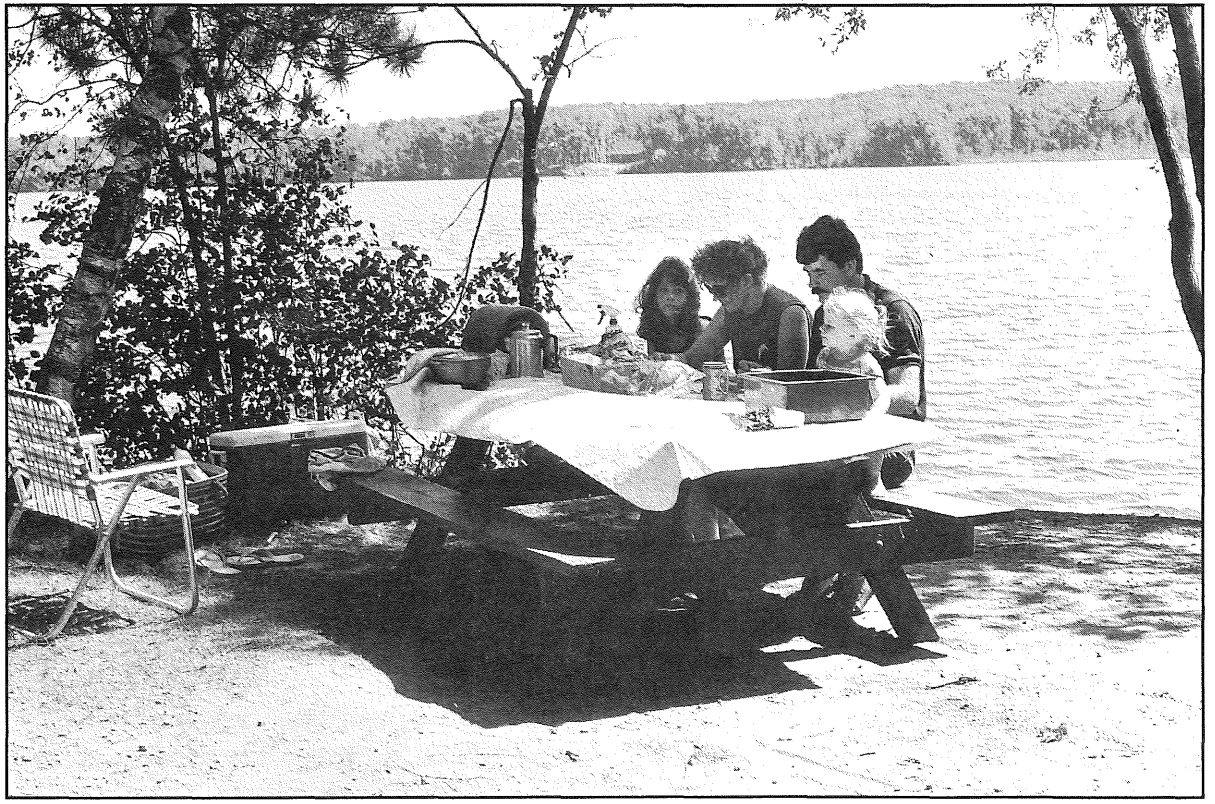

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