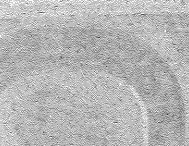
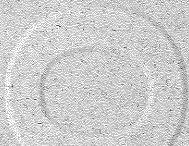
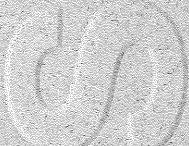


LEGISLATIVE REFERENCE LIBRARY



3 0307 00015 9890



# Directions 2000

## *The Strategic Plan*

September 2000

**Minnesota Department of Natural Resources**

HC107  
.M6  
D572  
2000

Minn. Stat. 84.03

## A Message from the DNR Commissioner

Minnesota's natural resource heritage defines the state's economy and lifestyle. The Minnesota Department of Natural Resources (DNR) is a steward of that heritage. DNR's strategic planning process provides us with a tool to focus our stewardship and management. This report, *Directions 2000*, is DNR's strategic plan. It contains the goals, objectives and strategies that identify organizational priorities.

The goal of sustainability guides our work with citizens to manage the state's natural resources. Sustainability depends on healthy ecosystems, a vibrant economy, and viable communities. Healthy ecosystems support natural resource industries, tourism, outdoor recreation, and lifestyles important to Minnesotans. DNR will continue to emphasize a healthy environment for managing natural resources in a sustainable manner. This implies protecting and restoring habitat, protecting fragile natural areas, and minimizing environmental impacts from development. There is no substitute for clean water, productive habitat, and healthy ecosystems.

We will continue to use good science and sound decisions and focus on long term basic responsibilities that have always been at the heart of resource management and that will continue to be foremost to all Minnesotans. This means a continuing focus on improving the way we manage resources for basic needs like recreation, hunting, fishing, tourism, resource industries, and preservation.

### DNR will emphasize three resource management priorities.

**Conservation Connections:** DNR will partner with local citizen groups and local government to establish and maintain land and water connections throughout Minnesota. DNR will accomplish this through cooperative partnerships with interested people inside and outside of the DNR. DNR will strive to become a welcome partner in Minnesota growth using Conservation Connections as a resource to manage growth impacts on natural resources.

**Smart Growth:** DNR realizes that growth in Minnesota has a highly significant impact on natural resources. DNR will be guided by the Governor's *Smart Growth Initiative* as we strive to become a more active participant in growth issues at the local, county, and statewide levels. DNR will work with other government, non-profit, and for-profit organizations to sustain healthy ecosystems, a vibrant economy, and livable communities.

**Sustainable Forests:** DNR recognizes the critical importance of sustainable forest ecosystems and will continue cooperating with other agencies and organizations to accomplish that end.

### When implementing these priorities, DNR will be guided by an increased focus on three areas.

**Fiscal Responsibility:** DNR will ensure that all its programs are financially responsible. Using a system of quarterly fiscal reviews at the Commissioner level, DNR will ensure that funds are spent wisely and appropriately.

**Clear Communications and Decision-Making:** DNR constantly seeks to improve how we work with stakeholders. Good communications means actively listening to what citizens and partners have to say. Improved communication and delivery of information will ensure accountability for efficient and effective public service. DNR will stand behind its decisions and clearly communicate its position on issues to citizens, legislators, local government, the media, the private sector, stakeholder groups, and other agencies. DNR will consider all relevant information in making decisions. When DNR is not the deciding party, DNR will advocate its interests. Within the limits of its staff, DNR will be receptive and responsive to all inquiries. DNR will accept criticism and respond to that criticism as appropriate.

**Human Resources Management:** DNR will constantly seek improvements in the quality of its work force. Through workforce planning, including employee recruitment and career development, DNR will ensure that its staff continues to effectively meet increased public demands for current and new services.

DNR believes that we cannot protect and sustain our resources alone. We are committed to bringing citizens together to help enhance Minnesota's natural resource base for present and future generations.



Allen Garber, Commissioner  
Minnesota Department of Natural Resources

# Directions 2000

RECEIVED

FEB 12 2003

LEGISLATIVE REFERENCE LIBRARY  
STATE OFFICE BUILDING  
ST PAUL, MN 55155

Introduction .....	3
The Strategic Planning Context .....	7
Management Systems .....	11
➤ Water Resources .....	11
➤ Forest Resources .....	18
➤ Agricultural Areas .....	25
➤ Urban and Developing Areas .....	31
➤ Recreation Systems .....	36
The Task Ahead .....	43



*State flower, 1902*



---

# Introduction

## The DNR Strategic Plan

*Directions 2000* is DNR's strategic plan. It identifies goals, objectives, and strategies for five systems: water resources, forest resources, agricultural areas, urban and developing areas, and recreation systems. The strategic plan provides guidance for developing detailed program and division action plans and for assessing progress in managing ecosystems for their long term sustainability. *Directions 2000* will guide DNR during the next five years. DNR will undertake a midpoint assessment in 2002 to evaluate effectiveness of management strategies and to develop new action priorities.

## DNR Mission

*The mission of the Minnesota Department of Natural Resources is to work with citizens to protect and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.*

*Directions 2000* carries forward the themes of ecosystem-based management and sustainability established in *Directions 1997*. *Directions 1997* defined sustainability as "protecting and restoring the natural environment while enhancing economic opportunity and community well being. Sustainability addresses three related elements: the environment, the economy, and the community. The goal is to maintain all three elements in a healthy state indefinitely."

The DNR mission is broad; the mission includes providing hunting and fishing opportunities for millions of Minnesotans; providing high quality recreation opportunities for park and trail users; providing economic opportunities for resource industries; it includes preserving important features of the state's natural heritage. DNR programs include fish and wildlife habitat improvement, fire management, mineral potential research, management of public lands and waters, and many others—all designed to provide sustainable benefits to Minnesotans for the long term. The DNR mission requires sharing stewardship with citizens and partners and working together to address sometimes conflicting interests.

## Sustainability Goals

The DNR mission is supported by two overarching goals from *Directions 1997*. These two goals are the foundation for the goals and objectives presented in this plan:

- 1) To maintain, enhance, or restore the health of Minnesota ecosystems so that they can continue to serve environmental, social, and economic purposes, and
- 2) To foster an ethic of natural resource stewardship among all Minnesotans.

## Management Principles

Twelve principles define how DNR fulfills its mission and provide an additional framework to shape the management strategies in this plan. These principles guide DNR decision-making at all levels of the organization.

- **Basic Services:** DNR believes that its long-term, basic work to sustain natural resources and serve citizens is the backbone of effective resource management. DNR will emphasize strong basic services that provide recreation opportunities, protect and improve habitat, and manage natural resources for sustainable use. This requires investments in core disciplines and finding new ways to improve interdisciplinary cooperation and partnerships with citizens to promote healthy and sustainable ecosystems.



- 
- **Partnerships:** DNR believes that cooperation with other agencies, local units of government, citizens, and stakeholder groups is the best approach to managing natural resources effectively. DNR will expand its use of partnerships to develop cooperative resource management approaches and will evaluate opportunities to build local capacity for managing and protecting natural resources. DNR will cooperate with county and local officials to mitigate the impacts of DNR land purchases on local tax revenues.
  - **Integrated Approaches:** DNR believes that resources are part of large, interdependent systems and cannot be managed in isolation. DNR will emphasize a systems approach that seeks to coordinate and integrate the broad scope of management efforts.
  - **Science, Information, and Technology:** DNR believes that the complex challenges of the future will require increased emphasis on good science, accurate information and state of the art technology, especially information systems. DNR will accelerate the collection, interpretation, and dissemination of scientific information describing Minnesota's ecosystems and natural resources and will continue investing in the technology necessary to be effective resource managers.
  - **Communication:** DNR believes that good internal and external communication will be essential in managing future natural resource challenges. DNR will seek opportunities to improve communications with stakeholders and citizens, including legislators, local government, the media, stakeholder groups, the private sector, and other agencies.
  - **Technical Assistance:** DNR believes that many resource and land use decisions should be made at the local level and that well-informed local decision makers will make good decisions. DNR will expand efforts to provide information and technical assistance to citizens and local government.
  - **Natural Resource Stewardship Education:** DNR believes that informed citizens will be wise stewards of natural resources. Natural resource stewardship education will be a cornerstone for DNR efforts to develop an environmental stewardship ethic among all Minnesotans. DNR will implement recommendations of its *Cornerstones* report that defines priorities for delivering natural resource stewardship education services more effectively.
  - **Performance Measurement:** DNR believes that accurate assessment of its effectiveness and management must occur on a regular basis. During the year 2000, DNR will establish performance measures for the goals and objectives in *Directions 2000*. The *DNR Performance Report 2001* will provide a more comprehensive assessment of the agency's success in managing natural resources for commercial use, recreation opportunities, and for the long-term sustainability of ecosystems.
  - **Sustainable Organization:** DNR believes that its actions should model sustainable use of natural resources. Following a key recommendation from *DNR Cornerstones*, DNR will look for opportunities to manage its own programs, facilities, and workforce in a way that reflects sustainable use of natural resources. (*Cornerstones 2000 recommended that DNR's commitment to sustainability should be reflected in its day to day practices and policies.*)
  - **Planning & Budgeting:** DNR believes that integrating planning and budgeting across area, regional, and state levels will strengthen the ability to accomplish goals and objectives. DNR will integrate resource management priorities into existing departmental processes, discipline planning, budget development, regional resource plans, and spending plans, and will place more authority with area staff to manage budget and staffing priorities.
  - **Human Resources:** DNR believes that sustaining natural resources requires an effective and skilled work force to meet the changing needs of the human community. DNR will emphasize work force planning that includes recruitment and retention of a diverse work force, as well as employee development, training, and career paths to meet current and future community needs.

- 
- **Quality Services:** DNR believes that the products and services it delivers to the public will be of the highest quality. DNR will look for further opportunities to continually enhance the quality of its products and services and will actively solicit suggestions for improvements.

## Action Priorities

*Directions 2000*, as DNR's strategic plan, focuses on a five-year time frame for the years 2000 through 2004. The goals and objectives of *Directions 2000* are long range and most may not be reached during the plan's five year horizon. Most DNR goals can only be accomplished by working over the long term in broad coalitions with citizens and partners, such as the **Conservation Connections** approaches. DNR is committed to developing better ways of working with citizens and partners to accomplish sustainability goals. DNR is building better performance measures to track progress towards reaching long term goals. Performance measures will link DNR strategies to natural resource results and to public benefits.

DNR will review *Directions 2000* in 2002 to ensure that strategies are still appropriate to challenges posed by longer term goals and objectives. DNR will continue to develop two year work plans to develop priorities for reaching long term goals. The DNR *Commissioner's Work Plan 2000* emphasizes three resource management priorities. These priorities guide and inform the strategies developed in each of the five key resource sections of *Directions 2000*.

**1) Smart Growth:** Creating healthy, vital communities is one of four major strategies in the Ventura administration *Big Plan*. A key component of this strategy is the *Smart Growth Initiative*. This state-wide initiative includes six principles:

- **Economic Growth:** Economic expansion is reflected by growth in employment, personal income, and private sector investment.
- **Stewardship:** Use land and natural resources wisely to sustain them in the future. Minnesota will protect the environment that supports outdoor recreation, tourism, and natural resource-based industries.
- **Efficiency:** Minnesota will coordinate and link investments and tax policies with Smart Growth principles.
- **Choice:** Communities will have a range of choices regarding how they grow.
- **Accountability:** Growth, land use, and investment decisions will be consistent with Smart Growth principles.
- **Fiscal Responsibility:** Minnesota will maximize private and public good and minimize public investment.

DNR is a lead state agency in developing the administration's approach to managing growth. The project focus includes growth throughout Minnesota in urban, suburban, and rural areas, including shoreland development.

**2) Conservation Connections:** Minnesota *Conservation Connections* is a way for the DNR to connect with people where they live and where they work. It is a forward-looking way to protect and manage Minnesota's natural resources by working with people and their local governments. It builds on Minnesota's strong tradition of preserving its outdoors heritage for future generations. Relying on partnerships among public and private landowners, all levels of government, non-profits and concerned citizens, *Conservation Connections* respects individual property rights while providing a cost-effective approach to conservation.

---

**Conservation Connections** is a statewide network of natural areas, wildlife habitat, working forests, and other open spaces connected by land and water corridors. Corridors provide many benefits. They help wildlife flourish by connecting fragmented habitat. They provide environmental services such as flood control and water purification at relatively low costs. They offer numerous recreation benefits that enhance the tourism industry.

A statewide system of corridors will provide a framework to coordinate resource preservation and sustainable land use planning. This is critical now as many areas of the state face growing development pressures. **Conservation Connections** will help guide development in a way that balances environmental, economic, and social needs, thereby assuring the high quality of life expected by all Minnesotans.

**3) Sustainable Forests:** DNR is committed to sustaining healthy and productive forest ecosystems. Sustainable forests support a thriving timber industry, protect diverse habitats for plant and animal species, maintain water quality, and provide recreation opportunities. These benefits provide a foundation for Minnesota's economy and quality of life.

Sustaining forest ecosystems requires a mix of strategies. DNR's Sustainable Forest Initiative gives focus to the following operational priorities.

- Improving management to increase forest productivity,
- Managing for older forests through DNR's Old Growth and Extended Rotation guidelines,
- Implementing the Forest Resource Council's site-level guidelines,
- Developing new tools to assess changes in the size, pattern, and connectivity of forest habitats and incorporating this information into operational management, and
- Integrating timber production and biodiversity goals through landscape-level planning and coordination.

**4) Additional Priorities:** The DNR budget process may surface additional priorities that merit funding support. As indicated in the twelve management principles, DNR is seeking to better integrate the budget and **Directions** process.



---

# The Strategic Planning Context

## Directions Background

### DNR Strategic Plan

*Directions 2000* is the latest in a series of DNR strategic plans started in the 1980s and updated about every two years. This planning process provides strategic level organizational guidance by establishing management principles and themes that clarify DNR's mission and how it will be accomplished. *Directions 2000* summarizes the goals, objectives, and strategies for the broad scope of resources managed by the DNR. Goals and objectives are stated as outcomes that can be measured. Identifying outcomes (natural resource and public benefit results) as well as activities (what the DNR does) represents an important change in approach. Outcome-based planning provides a linkage to DNR evaluation efforts which will be reported in *Performance Report 2001*. This improved approach follows Governor Ventura's *Big Plan*. "The state must affirm its commitment to quality service for its citizens, with success measured by actual outcomes rather than process, and cost-conscious state government." (*Big Plan, Part III*).

Resource management goals are not easily expressed as outcome statements. Resource goals often span decades into the future and are affected by conditions that DNR does not control. DNR can only achieve resource management goals through collaboration with citizens and partners. The realities of finite budgets, changing public demand for resources, and broader environmental and economic trends will influence DNR's capacity to reach sustainability goals. DNR will continue to refine goals and objectives based on input from the biennial *Performance Report*. The strategies in *Directions 2000* are strategic actions DNR is taking, or plans to take in the immediate future, to address goals and objectives.

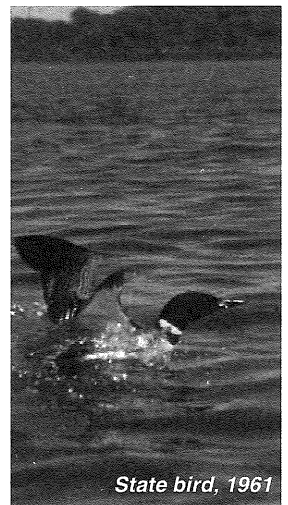
Goals, objectives, and strategies in *Directions 2000* are not listed in rank order. Rather, they are portrayed in a sequence relevant for understanding their content and context. The numbering of goals, objectives, or strategies is done only for convenient reference, without rank or preference.

### Directions 2000 Focus

DNR management has a dual focus; it directly manages the natural resources in an ecosystem; it also manages how society uses those resources. This duality is reflected in the organization of *Directions 2000*. *Directions 2000* has five major sections. Three sections (**Forest Resources, Agricultural Areas, Urban and Developing Areas**) are organized around broad geographic regions that reflect natural resource ecosystems. The **Recreation Systems** section addresses a major aspect of resource use. The **Water Resources** section addresses a resource that occurs statewide. Management of Minnesota's natural resources is addressed within these major systems. Some natural resources, such as minerals and sensitive or rare habitats, occur throughout Minnesota, but mineral extraction is addressed primarily in the forest resources section. Other resources, such as wildlife, are addressed primarily in the forest and agricultural sections.

Since *Directions 2000* is organized along these broad systems approaches, the specific work of DNR divisions and bureaus is not cited. For example, the text does not address such activities as fish stocking, timber stand improvement, or trail maintenance. While these are important components of the DNR mandate, such activities are addressed in the strategic and work plans at the division, region, and area level of the organization. Division and interdisciplinary planning and implementation efforts will connect *Directions 2000* with specific programs and activities.

*Directions 2000* offers guidance, but does not directly provide solutions to the broad range of operational issues that occupy management and staff time. For example, DNR will continue to devote time and energy to the management of such complex issues as negotiation of treaties with American Indians and managing Off Highway Vehicle use on public lands. DNR addresses such operational issues using the strategic management principles cited in the introduction. Specific management strategies are developed in discipline strategic and work plans.



State bird, 1961

---

## DNR Organizational Structure

*Directions 2000* focuses on management of natural resources. The DNR's organization and human resources provide the means to manage natural resources. DNR is organized into nine divisions or disciplines, that have primary responsibility for resource management. Five support bureaus provide services to divisions and the public. DNR bureau functions are not as visible to the public; however, their operation is essential to the organization and adequate resources for these bureaus continues to be a major challenge.

<b>Divisions</b>	<b>Bureaus</b>	<b>Regional Offices</b>
Ecological Services	Engineering & Field Services	I. Bemidji
Enforcement	Human Resources	II. Grand Rapids
Fisheries	Information, Education, & Licensing	III. Brainerd
Forestry	Office of Management & Budget Services	IV. New Ulm
Lands & Minerals	Management Information Systems	V. Rochester
Parks & Recreation		VI. Metro
Trails & Waterways		
Waters		
Wildlife		

The DNR's organizational structure has six regions with regional offices headquartered in communities around the state. These offices provide a supervisory function to area staff working in 123 area offices throughout the state. All divisions and bureaus are represented in each regional office. Regional division and bureau supervisors work together as an interdisciplinary Regional Management Team providing leadership, direction, and support to discipline work activities and DNR's community partnerships. Regional Operations further interdisciplinary efforts involving divisions and bureaus within each region and also provide administrative support. The central office provides program management, policy development, managerial leadership, and a variety of support functions to the field organization. In addition, a large number of field programs are operated and staffed out of the DNR central office.

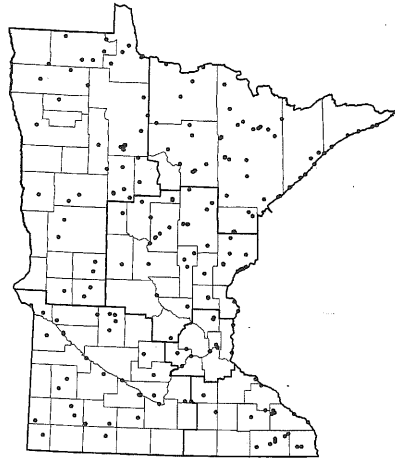
Recently, DNR has undertaken several studies and organizational changes, including:

- Consolidation of the Office of Planning and the Financial Management Bureau to form the Office of Management and Budget,
- Consolidation of the License Bureau and Information and Education Bureau to form the Bureau of Information, Education and Licensing,
- Consolidation of the Division of Minerals and the Bureau of Real Estate Management to form the Division of Lands and Minerals,
- Consolidation of the Bureaus of Engineering and Field Services,
- Restructuring of the Division of Fish & Wildlife into the separate Division of Fisheries, Division of Wildlife, and Division of Ecological Services,
- Creation of the Office of Professional Standards, and
- An in-depth assessment of the efficiency of the DNR's regional organization including the business office and field services functions.

---

DNR will continue to assess its bureaus and divisions and may make additional organizational changes to improve its effectiveness in managing natural resources.

DNR faces a number of challenges with transitions in its human resources which are not addressed in Directions. Rather they are addressed by DNR through its work force planning and the DNR Affirmative Action/Diversity plan. DNR will continue to emphasize employee assistance, training and education of staff, recruitment of protected class candidates, and efforts to bring facilities into compliance with Americans with Disabilities Act (ADA) standards.

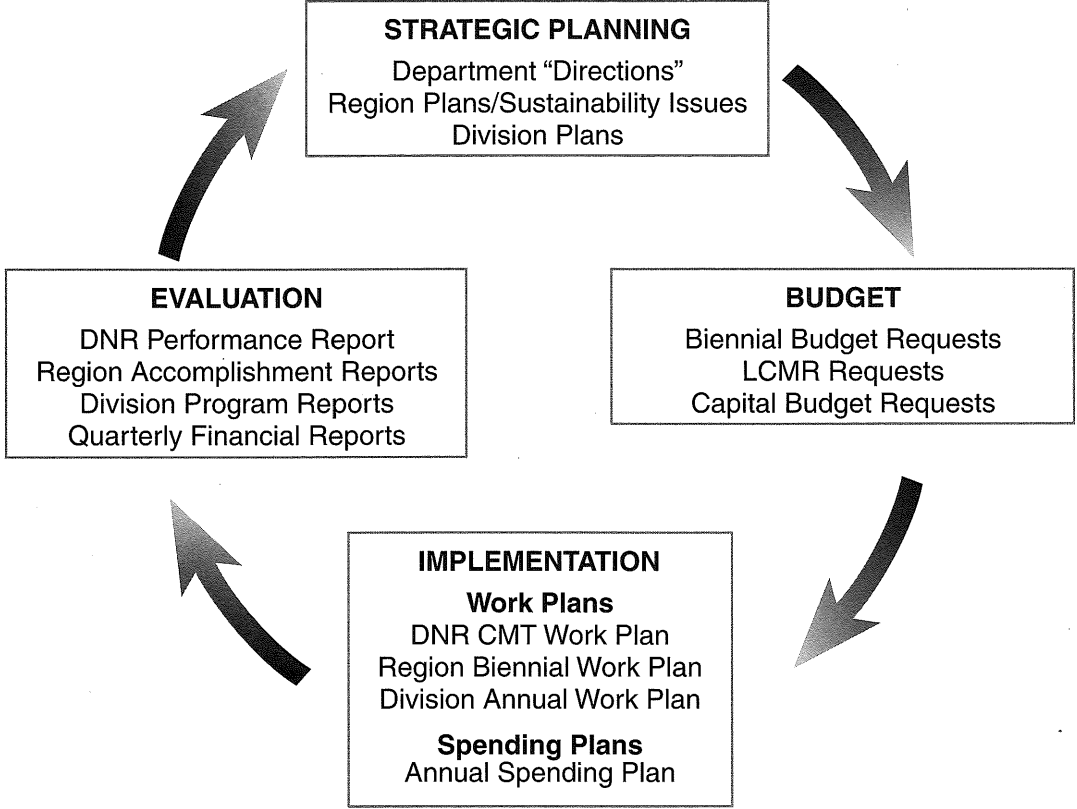


## DNR Planning and Budgeting Framework

The DNR biennial fiscal cycle has four, closely-linked stages: planning, budgeting, implementing, and evaluating. The following diagram illustrates the relationships between these stages. Each stage frames and shapes the next stage.

- **Strategic Planning:** The strategic plan is the blue print that guides how an organization will use its resources to accomplish its mission. DNR does strategic planning at several levels; including organizational (*Directions 2000*), discipline, regional (Regional Strategic Plans), and often at the program or landscape and watershed level.
- **Budgeting:** The strategic plan provides specific guidance for developing organizational budgets. DNR budgeting (biennial, Legislative Commission on Minnesota Resources, capital) also occur at several levels of the organization. Strategic plans determine new organizational priorities that guide how budgets and the organization's infrastructure will be organized.
- **Implementation:** The two legs of implementation are work plans and spending plans. Work and spending plans determine specific strategies and budget allocations that DNR will apply to accomplish its objectives. Spending plans are done primarily at the discipline level and shape the resources that regions, areas, and programs will apply to resource management priorities. Regional Work Plans are basic implementation components that are reflected in the departmental budget and in discipline spending plans.
- **Evaluation:** Evaluation provides feedback on the effectiveness of implementation strategies. Evaluation includes performance reporting, accomplishment reporting, financial reporting, and indicator measurement. Evaluation helps DNR adapt more effective management strategies and helps shape the next planning/budgeting cycle.

By strengthening linkages in this planning/budgeting framework, DNR program activities will better reflect organizational priorities. This will improve resource management and responsiveness to public interests.



---

# Management Systems

## ➤ Water Resources

Minnesota's aquatic resources are a defining component in the state's varied ecosystems and are important to tourism and recreation, economic use, and where people choose to live. Lakes, rivers, streams, and wetlands provide visible and essential connections for all landscapes, and ecosystems are supported by ground water and subsurface flows. In turn, healthy ecosystems support the plants, wildlife, and scenery that provide recreation opportunities and other benefits.

Growing demand on water supplies from development pressures and water quality challenges due to pollution and other causes of degradation continue to stress aquatic ecosystems. Sustainability issues identified in *Directions 1997* for water resources included:

- Reducing non-point source pollutants.
- Achieving no-net-loss of wetlands.
- Managing shoreline development.
- Controlling spread of exotic species.
- Protecting ground water systems.

In the past, the DNR managed “different” waters (e.g., wetlands, surface water, ground water and subsurface flows) as separate resources, and treated water management issues as isolated problems. Today, the DNR views these as interdependent systems that can become burdened from accumulated stresses. Water resources are treated as a system in this plan because all living things depend upon water and because the water present in the atmosphere, in the ground, on the surface, and in living things is all that is available. Water resources can be seriously degraded but there is no such thing as “new” water; it is a nonrenewable, sometimes restorable natural resource.

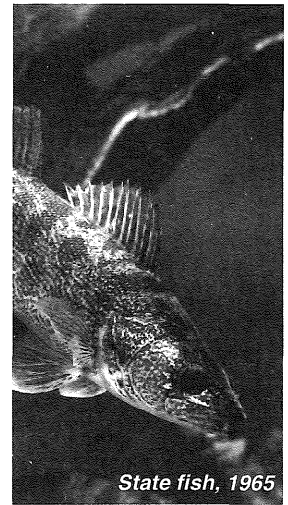
The DNR is one of several state agencies with responsibilities for protecting and managing the state's water resources. The DNR's water resource goals and objectives are tailored to its organization, responsibilities, and management approach and are consistent with those in the State Water Plan, which is currently being updated. DNR regional staff are assisting in creating basin goals and objectives for the State Water Plan and are actively involved in the MPCA's basin planning efforts.

State policy is “to conserve and use water resources of the state in the best interests of its people, and to promote the public health, safety, and welfare” [Minnesota Statutes Sec. 103A. 201]. This means that the DNR must allocate water resources to meet increasing and varied usage demands and also protect water resources from activities that would impair them. The best way to handle the complex relationships underlying water resource sustainability issues is to combine a holistic approach to water resource management (avoiding or minimizing disruptions to the hydrologic cycle) with a collaborative approach to working with communities, water users, and interested citizens.

## Water Resources Goals and Objectives

**GOAL 1. Aquatic ecosystems will have a high degree of ecological health and integrity.**

**Objective 1.1. Populations of fish, wildlife, and natural communities will be self-sustaining wherever possible.** Self-sustaining populations are valued as integral parts of healthy aquatic ecosystems, and because they cost less to manage in the long run. Where intensive management practices are used, such as artificial rearing and stocking of fish, it should be done within the carrying capacity of the resource. Self-sustaining populations of fish, wildlife, and natural communities can indicate that overall conditions in an aquatic ecosystem are healthy.



---

**Objective 1.2. The natural characteristics of surface water basins, ground water, and sub-surface flows will be retained or improved.** The total water system must be managed comprehensively because water quantity and water quality are closely linked. Improvements may occur when damaged water features such as wetlands are restored. Where natural characteristics are in good shape:

- In-lake water quality is typical for the lake type and ecoregion.
- Shoreland management, land use patterns, and near-shore vegetation enhance lake quality.
- The distribution, abundance, and diversity of wetlands in a watershed help maintain the quantity and quality of water in the hydrologic system.
- Ground water is not overused through excessive drawdowns or polluted by improper land use activities.

**Objective 1.3. Rivers and streams will have flow conditions consistent with natural variability.** Water control structures are used for a variety of public purposes such as lake level stabilization, wildlife habitat impoundments, and hydroelectric power generation. However, drainage systems and artificial manipulation of streams often increase the frequency and magnitude of flows beyond the normal range of variation. This changes how a stream behaves and generates ecological, economic, and social problems. Water moves more quickly off the land and through channels, resulting in fluctuating hydrographs (water level patterns), flooding, stream bank erosion, channel scouring, sedimentation, and transfer of non-point source pollutants to surface waters at accelerated rates. When possible, the DNR favors rivers and streams without obstructions to the flow of water or organisms, where natural processes are allowed to maintain fish and wildlife habitat. Restoring and maintaining natural stream flows takes intensive and ongoing collaboration with landowners, local units of government, and other organizations.

**Objective 1.4. Populations of the most harmful aquatic exotic or invasive species will be reduced and no new introductions occur.** Aquatic exotic or invasive species can severely degrade the integrity of water resources and diminish recreational use. Many detrimental species were introduced or expanded their distribution in the state's lakes, rivers, and streams during the 1980s and 1990s. The DNR has several programs to reduce the spread, minimize the impact, and limit the introduction of harmful aquatic exotic or invasive species. The DNR works with other government agencies, businesses, and private citizens to accomplish these goals.

**Objective 1.5. Pollution in aquatic ecosystems will be reduced.** Many river systems and watersheds have been severely degraded by agricultural drainage, intensive production practices, municipal sewage, and other sources of pollution. While the DNR does not regulate storm water management or most chemical use, those activities can have severe impacts on water quality. The DNR will play an advocacy role in promoting best management practices in land use and research on the effects of chemicals on aquatic ecosystems; providing information and advocacy to ensure that the loading of waste discharges and pollution from point and nonpoint sources meet targets for ecological integrity; and influencing federal farm program policy to benefit aquatic resources.

***GOAL 2. Water resources will be conserved and allocated among competing uses in the best interests of the public and long-term sustainability.***

**Objective 2.1. Water will be used in a manner that can be maintained for an indefinite period without causing unacceptable environmental, economic, or social consequences.** Sustainable use of water means that water is available for future generations and that parts of the hydrologic system are not overused to the detriment of other parts. For example, ground water withdrawals should not cause an unacceptable reduction in available surface water, nor should activities or alterations in surface water basins impair ground water. The DNR will link surface and ground water management to ensure that adequate, high quality water is available for viable existing uses and future needs.

---

**Objective 2.2. Water will be conserved and allocated equitably among reasonable leisure, residential, and commercial/industrial uses.** Allocation of water supplies among competing uses must be accomplished within the natural variability of climate and land use changes over time. Surface or ground water withdrawals may have adverse impacts on other users and on surface water bodies, native plant and animal communities, and water-dependent economic and recreation activities. The DNR will guide water users to appropriate and sufficient water supplies when competing demands exceed available water supplies. The DNR will promote sound conservation practices that will reduce water demand for the future.

**Objective 2.3. Protected stream flows will be sufficient to maintain or enhance riverine functions and processes.** Stream ecosystems are a product of water flows (i. e., the amount of water flowing through a stream corridor). Satisfactory water flows contribute to the protection of aquatic and riparian communities and the aesthetic and recreational opportunities they provide. The DNR will manage water withdrawals to maintain or restore native biological diversity, riparian communities, and water quality in streams that depend on the same water source sought for off-stream uses.

**Objective 2.4. Sensitive or rare aquatic resources will be protected.** Sensitive or rare species and native plant and animal communities, such as trout streams and calcareous fens, require sufficient and high quality water supplies and protection from impacts. The DNR is responsible for such resources on state-managed public lands and for the protection of endangered and threatened species anywhere in the state. The DNR will provide inventory and monitoring data and resource management expertise to help protect the integrity of sensitive or rare aquatic resources.

**Objective 2.5. Aquatic ecosystems will provide a variety of outdoor recreation opportunities over the long term.** Providing recreation opportunities like swimming, fishing, hunting, boating, and other enjoyment of lakes and rivers influences many water resource management decisions. Healthy aquatic ecosystems provide swimmable and fishable lakes and rivers, and habitats for the animals and plant communities that contribute to a recreation experience. Because some recreational activities negatively impact shoreland and surface basins, the DNR will work with local communities on managing water-based recreation activities to ensure the long-term health of the state's water resources. (See Recreation Systems section for more comprehensive objectives and strategies.)

## Water Resources Management Strategies

*The DNR will employ the following management strategies to achieve the above goals and objectives for water resources:*

**Strategy 1. Gather and interpret information to aid problem solving and decision-making about conservation and use of water resources.** Data collection efforts will be improved whenever possible, documenting information about the condition, stressors, and availability of the state's water resources. The DNR will assess that information to understand the consequences of various and competing desired uses on water resources.

Some examples:

- Develop ways to measure and understand cumulative effects of land use and development decisions on surface water basins, rivers, ground water, and watersheds; keep land use information up-to-date.
- Hydrologic conditions must be monitored consistently over time to make long-term trend analysis possible, and the effects of water conveyance alterations on the landscape (such as drainage, irrigation, and channelization) should be examined in such analyses.

- 
- The amount, type, and frequency of data collected in the DNR's lake and stream survey and monitoring programs should be continually improved so they can be used to define trends and help evaluate management.
  - Better physical, chemical, and biological indicators are needed for assessing the ecological integrity of lakes, wetlands, and rivers; DNR will develop improved measures in cooperation with the MPCA and other agencies.
  - Rare aquatic species and natural communities, such as nongame fish, mussels, and plants, must be identified and inventoried, and research carried out to better understand what actions are necessary to protect them.

The DNR will work with the MPCA, other agencies, and local government units to improve coordination of data collection and database integration efforts. An up-to-date information base and data management system could produce annual reports on the status of shoreland use and ownership, including publicly owned shoreland.

**Strategy 2. Use scientific methods and a comprehensive management approach at the appropriate scale (e.g., lake, watershed, drainage basin, aquatic ecosystem, etc.) to manage water resources.** Because of its multi-disciplinary expertise on natural resources, the DNR will protect and manage water resources directly and through relationships with other agencies, local government units, non-governmental organizations, and the general public. Non-regulatory approaches often hold more promise for long-term resource protection than regulatory actions.

Some examples:

- Comprehensive management efforts for individual lakes and rivers will be coordinated among the DNR's divisions.
- The DNR will support locally-based leadership for comprehensive management of water resources.
- The best available scientific principles and findings about watershed and in-lake management will be used to establish and maintain aquatic plants in littoral and riparian zones for fish and wildlife habitat and for their intrinsic value in conserving biodiversity.
- Information, technical assistance, and financial assistance (where available) will be provided to landowners, lake associations, and watershed groups about maintaining and restoring native vegetation of shorelines and aquatic areas, and about protecting sensitive or rare species and native plant and animal communities.
- A systematic departmental approach will be employed for protecting and managing calcareous fens.

**Strategy 3. Apply cumulative effect analysis in water resource regulatory programs.** The DNR's regulatory authority can limit water uses if needed to forestall adverse impacts on other users and on water resources. For example, protecting flows on streams and rivers (with protection levels informed by biology, hydrology, and geomorphology) can reserve the water needed for aquatic and riparian communities and the aesthetic and recreational opportunities they provide.

**Strategy 4. Pursue more opportunities to restore river and floodplain connectivity and reduce future flood damages.** For example, the DNR can remove a dam when the costs of rehabilitation and maintenance exceed the public benefits from the dam, when public safety issues are a concern, and when an opportunity arises to improve a river's ecological health and integrity. Opportunities to reduce future flood damages to flood-prone communities occur after major flood events and through financial and technical assistance.



---

**Strategy 5. Provide information and advice to local communities, water users, and residents to help them plan for sound water conservation and use and associated land use practices.**

Some examples:

- Provide multi-disciplinary technical support about the value communities get from lakes and how to preserve those values; how to access and use lake information in local planning; and how to avoid land use decisions that are inconsistent with lake protection.
- Work with local communities to emphasize water use conservation practices and to reduce the impacts of proposed land use and development activities on water resources.
- Provide communities with an atlas and regional assessment of important hydrogeologic features and risks (in cooperation with the Minnesota Geological Survey) and complete the delineation of watersheds for individual lakes.
- Advise water users and government officials about the consequences of ignoring the variability in the hydrologic system (e.g., flooding, drought, and ground water limitations) and assist them in anticipating and planning for such adverse events.
- Use the Floodplain Management Program to increase public awareness of flood risks and to reduce flood damage.

**Strategy 6. Include education about water use and conservation in all regulatory and non-regulatory programs and activities.** These are important opportunities for furnishing information and interpretation that can improve understanding of ways to protect water and shoreland, including prevention of nonpoint source pollution. The DNR will create more ways for its regulatory and non-regulatory programs to educate landowners and the general public about water resource conservation.

**Strategy 7. Build partnerships and trust with other water resource stakeholders.** Because the authority to manage water resources is shared among many jurisdictions, partnerships will be sought with communities, lake and watershed associations, landowners, educators, other state agencies, and federal agencies. The DNR has information and technical assistance that local government units, watershed projects, and others can use in developing comprehensive management plans, local land use and water plans, and water-related zoning and subdivision ordinances. DNR staff will support and assist local government units in development and integration of land use and water management plans, participate in the MPCA's basin planning and other large comprehensive watershed management planning efforts, and participate in the development and implementation of the State Water Plan 2000. The DNR will listen to stakeholders and learn from their concerns, questions, and ideas. The DNR will work with other agencies and local government units to clarify water management roles and responsibilities and to search for ways to integrate services.

**Strategy 8. Address impacts to water resources from such activities as agricultural drainage, irrigation, and other production activities, recreational use of surface waters, residential and commercial development, and harmful exotic species.** The DNR will encourage landowners to participate in federal farm subsidy programs, such as WRP (wetlands), CRP/CREP (watersheds), Continuous CRP (riparian areas), and in the state RIM program (Reinvest in Minnesota), and will promote full funding of those programs. DNR staff will work with landowners and local government units by offering advice and assistance about surface water use and associated impacts, promoting sound shoreland management practices, and providing advice and assistance to limit the spread and reduce the impacts caused by harmful exotic species. The DNR will work with the MDA, BWSR, and MPCA to address impacts to water resources from such activities.

---

**Strategy 9. Participate in coordinating data acquisition and policy development for addressing impacts of nonpoint source pollution and wastewater upon receiving waters and watersheds.**

State policy on nonpoint source pollution and wastewater management must be informed by up-to-date information and must address future as well as present needs. For example, the DNR will support implementation of strong Phase 2 EPA storm water update requirements. This will be done working with the MPCA, BWSR, and local water planners.

**Strategy 10. Carry out the 1998 interagency Action Plan for implementing the Minnesota Wetlands Conservation Plan (MWCP) and achieve no-net-loss of wetlands affected by DNR management activities and regulation.** Joint actions with other agencies and local government units include: standardizing the multiple programmatic databases currently used to track information; improving cooperation among state and federal regulatory staff to improve consistency and reduce duplication; and using the MWCP in regulatory and non-regulatory programs. The DNR's regulation of public waters wetlands is focused on increasing any wetland functional values lost through alteration or impact; therefore, the DNR will ensure a minimum 1:1 replacement of wetland acreage and functional values affected by drainage or filling activities. A net gain in wetlands will be achieved through DNR's land management activities.

**Strategy 11. Develop and implement a comprehensive management approach for lakes in Minnesota, working jointly with other state agencies, local government units, local and state-wide organizations, and the general public.**

Some examples:

- Coordinate with others on research to develop needed data on the ecological status and economic value of lakes; on the effects of land use changes on lakes; and on the cumulative effects of vegetation removal, fill, excavation, and structure placement.
- Participate in cooperative efforts on lake and stream restoration, community and business education (including developers, builders, and realtors), modification of tax structures, and other factors affecting the sustainability of lakes.
- Promote watershed-based approaches for lake management.
- Establish shared objectives for lake management through collaborative processes.

## Measuring Progress

*Measuring progress toward DNR goals and objectives for water resources is a challenging task. First, water resources do not exist in isolation, but are part of a complex hydrologic system that includes ground water, lakes, wetlands, rivers and streams. Second, water resources are nested within terrestrial systems, and frequently bear the consequences of activities in urban areas, agricultural areas, and forest systems. Third, in addition to the DNR, water resources are also managed by state and federal agencies and local communities. Measures of progress are meaningful only within the context of these interrelationships. Examples of performance measures linked to DNR goals and objectives are described below.*

**GOAL 1. Aquatic ecosystems will have a high degree of ecological health and integrity.** Performance measures must reflect the environmental outcomes that are the focus of this first goal. Minnesotans care deeply about water quality and fish and wildlife. Other components of the environment are important as well, such as hydrology and shoreland vegetation. Some possible measures are:

- Abundance of important aquatic species (e.g., populations of fish and waterfowl).
- Water quality (e.g., phosphorus content, toxic substances, sediment content, clarity).
- Rates of flow in rivers and streams.
- % Miles of riverbanks and shoreland with permanent vegetative cover.
- Indices of biological integrity.

---

Relating indicators of upland activities to changes in aquatic systems helps identify potential problems (e.g., changes in vegetative cover and stream water quality). Thus indicators for urban, agricultural areas, forests, and recreation may help explain changes in the health of Minnesota's water resources.

***GOAL 2. Water supplies will be conserved and allocated among competing uses in the best interests of the public.*** This goal focuses on water use and conservation. Measures of progress should focus on both water quantity and activities that may affect it (e.g., water extraction, recreation). Example measures are:

- Water levels in wells in principal aquifers.
- Water use (absolute and per capita) by category.

---

## ➤ Forest Resources

*Directions 1997* identified four forest management priorities. Those priorities are:

- Protecting riparian areas.
- Ensuring forest soils productivity.
- Maintaining wildlife diversity.
- Managing for healthy and resilient forest ecosystems across landscape scales.

Working with partners, DNR has made considerable progress developing new approaches to address these priorities. The Sustainable Forest Resources Management Act established sustainable forest ecosystems as a priority goal for Minnesota. The act was based on recommendations of the Generic Environmental Impact Statement on Timber Harvesting and Forest Management in Minnesota (GEIS). The GEIS studied the potential impacts from current and increased levels of timber harvesting and recommended strategies for the sustainable management of the state's forest resources.

DNR has become increasingly concerned about problems posed by land use conversion throughout rural areas of the state. Land use conversion is the process of converting forest or other natural areas into housing and related uses (commercial development, parking lots, roads, etc.). At the same time, many larger blocks of land are being subdivided into smaller blocks. Increased fragmentation of the landscape is a critical threat to the state's natural resource base. Land conversion and fragmentation decrease the area in forest cover, destroy fish and wildlife habitat, degrade water quality, and reduce the large blocks of ownership best suited to managing land holistically. This concern is greatest when it occurs within significant blocks of public ownership as the character and ability to manage the surrounding land is changed dramatically. Over the long term, a continuation of these patterns poses significant concerns for the health of forest resources and viability of industry dependent on healthy forest ecosystems. These concerns form the basis for DNR's approach to developing Smart Growth and *Conservation Connections* strategies. They also are the basis for DNR's investment in Sustainable Forest initiatives.

### Forest Ecosystem Goals and Objectives

*Building on the GEIS, the Minnesota Forest Resources Council (MFRC) identified three priority forest management goals. DNR has developed a fourth goal to address mineral development in forest ecosystems.*

**GOAL 1. Minnesota's forest land base will be enlarged and protected.** No net loss of forest land will occur and some previously forested areas will be returned to forest cover. The forest land base will be protected from decreases and fragmentation by land use changes.

**Objective 1.1. Landowners will have viable options for restoring former farmland to forest and other open land conditions.** As use of some lands changes from the production of agricultural commodities to other uses, opportunities arise to direct new uses to serve natural resource purposes, including forestry.

**Objective 1.2. Loss and fragmentation of private forest lands will be minimized.** Subdivision of forest lands or conversion of those lands to non-forest uses diminishes the capacity of forests to provide healthy public benefits and results in a net loss of forest acreage. The objective is to maintain the productive capacity of forests by minimizing the loss and fragmentation of private forest lands.

**GOAL 2. Forest ecosystems will be healthy, resilient, and functioning.** Forests will be composed of appropriate mixes of vegetative types and age classes that maintain wildlife and biological diversity.

---

**Objective 2.1. Forests will be managed for structural and plant species diversity.** A forest with a variety of tree species, native plant communities, and ages provides habitat suitable for more species and has greater potential to provide a sustainable yield of timber. A diverse forest generally is healthier and more resilient than a less diverse forest. Landscape metrics provide useful tools for measuring vegetative spatial patterns across landscapes. The objective is to establish and manage towards landscape goals that provide a diversity of age classes, habitats, patch sizes, and spatial configuration using the natural range of variation as a guide.

**Objective 2.2. Forest practices will ensure healthy forest soils and water resources.** The objective is to ensure that forestry practices minimize damage to soils and maintain healthy aquatic ecosystems.

**Objective 2.3. Forests will support self-sustaining fish and wildlife populations.** Self-sustaining fish and wildlife populations - game and non-game - are important to the recreating public and as components of healthy ecosystems. The objective is healthy, self-sustaining populations of all native and desirable introduced plant, fish, and wildlife species, especially those species listed as threatened and endangered.

**Objective 2.4. Forest habitat areas will be connected by natural corridors.** Where forests are fragmented by other land uses such as agriculture or urban areas, corridors of forest, often along streams or trails, may connect larger forest habitat areas serving both wildlife and recreation uses. Where older forest blocks are fragmented by younger forest in a primarily forested landscape, corridors composed primarily of older or uneven-aged forests and careful planning of timber harvest patterns can provide continuous forest cover. The objective is to identify and maintain natural areas representative of the variety of the forested landscape and connect those areas by natural corridors.

**Objective 2.5. Exotic species will have a minimal impact on forests and other native plant and animal species.** Minnesota's forests are susceptible to significant impacts from exotic species. Examples of exotics that adversely affect Minnesota forest resources include white pine blister rust, Gypsy moth, and buckthorn. Management will seek to minimize impacts from these species while also minimizing the impact of control measures on vulnerable native species.

**Objective 2.6. Damage from native insects, diseases, and wildlife will be managed at acceptable levels.** Native insects, diseases and wildlife have both positive and negative impacts on forests. On one hand, they are a major source of mortality and reduce resistance of forests to other stresses; on the other hand, they promote diversity of tree species and forest structure and generate dead wood, which provides important habitat and soil nutrients. Widespread pest outbreaks cause high levels of tree mortality and can have significant ecological and economic consequences. The objective is to reduce vulnerability of forests to the effects of significant outbreaks and to manage impacts of native pests, including wildlife, at levels consistent with forest ecosystem sustainability.

**Objective 2.7. The acreage of healthy brushland landscapes will increase.** Large, open brushlands are some of the state's most productive wildlife habitat and are essential to survival of several wildlife species, some of which are declining in Minnesota (e.g. sharptailed grouse, yellow rail, savanna sparrow, short-eared owl). Brushland acreage has declined due to conversion to agriculture and fire suppression.

**GOAL 3. Forest-based economic and recreational opportunities will be numerous and wide-ranging.** The contribution of forests to the state's economic and social well-being will be acknowledged. Economic opportunities for Minnesota's forest-based industries, including tourism and wood-based businesses, will be large, sustainable, and diverse.

**Objective 3.1. Commercial timber supply will be abundant and sustainable.** DNR will manage state lands and work with other forest landowners to help provide a predictable and sustain-

---

able amount of quality wood to meet the raw material needs of a growing population consistent with the sustainability of forest ecosystems. Predictable and sustainable harvests of quality wood from forests will support a strong state economy by helping maintain a viable forest products industry in the state.

**Objective 3.2. Use of non-timber forest products will expand.** Non-timber products, such as balsam boughs and birch bark, help diversify local economies. DNR will expand use of non-timber forest products consistent with sustainability of forest ecosystems.

**Objective 3.3. Forest management will minimize impacts on visual quality.** The visual quality of forest landscapes is especially important in areas of significant public use, such as roadsides, shorelands, and park areas. MFRC has incorporated “*Visual Sensitivity Categories*,” developed by the Timber Tourism Visual Quality Committee, into site level forest management guidelines. DNR will apply the appropriate guidelines so that visual quality is not adversely impacted during forest management activities.

**Objective 3.4. Forests will support diverse recreation opportunities.** Forests provide opportunities for many outdoor recreation activities, which in turn provide economic benefits to local communities. The objective is to meet the demand for forest related outdoor recreation where and when these activities are consistent with the sustainability of forest ecosystems. See the Recreation Systems section for a more comprehensive development of recreation goals.

**Objective 3.5. Private forest land owners will be able to manage their forests to provide public benefits.** Public lands cannot provide all benefits demanded from forests. Private lands will play a key role. The objective is for private landowners to have sufficient access to the technical assistance and other services they need to satisfy their own management goals, while also maintaining healthy forest ecosystems, providing timber, and serving recreation needs.

**Objective 3.6. Cultural resources will be protected.** Cultural resources are scarce, nonrenewable features that provide physical links to our past. MFRC voluntary site-level guidelines protect cultural resources during forest activities. The objective is to increase the awareness and use of the guidelines by forest landowners, loggers, and resource managers.

**Objective 3.7. Trust fund revenues from mining and forest management will continue.** Trust fund and other DNR-administered state land management will be proactive in the identification of surplus parcels for an annual sale and will initiate land exchanges with private landowners within established natural resource management areas to consolidate state ownership. The DNR also will identify and remove some trust fund lands from non-revenue producing natural resource management units on an annual basis.

**GOAL 4. Mineral resources use will be economically viable and environmentally sound.** Extraction of subsurface resources on all lands will continue to be a significant component of the state’s economy. DNR will manage mineral development to protect public health and safety, reduce environmental impacts, and restore land for post-mining uses.

**Objective 4.1. Opportunities for mineral exploration will continue.** Minnesota has excellent potential for non-ferrous and industrial mineral deposits. These deposits are found throughout the state, though predominantly in the forested areas. Mineral exploration requires availability of land in areas of high mineral potential, preferably within regions with compatible land uses. The objective is to provide improved data on the quality and quantity of mineral deposits including a consideration of the ecological impacts of minerals extraction.

**Objective 4.2. The diversity of the minerals industry will continue to expand.** Areas for mineral development include peat, clay, stone, non-ferrous minerals, and stockpiled material from existing or previous mining. Value-added processing of taconite or iron ore will further add stability and diversity to the minerals industry. The objective is to develop uses, marketing, and

---

transportation strategies in cooperation with industry and other partners in order to expand the diversity of the minerals industry.

**Objective 4.3. Mining and exploration will have minimal environmental impacts.** The objective has three components: 1) restoring expired mine lands to productive uses including for recreation and fish and wildlife habitat, 2) minimizing the impact of new mining operations on areas with high biodiversity or where extractive operations will fragment significant native habitats, and 3) addressing the multiple concerns relating to how mining operations affect surface and subsurface water resource quality and flows.

## Forest Ecosystem Management Strategies

*DNR will employ the following management strategies to achieve forest lands resource goals and objectives.*

**Strategy 1. Develop landscape-scale management plans to guide timber harvest and biodiversity protection.** DNR is developing ecosystem subsection plans for forest management. Plans will develop interdisciplinary approaches to meeting multiple forest objectives on state Forestry and Wildlife lands. Harvest, reforestation, and protection strategies will guide management in reaching a variety of objectives such as timber production, diversity of age classes, patch size distribution, native plant communities (forest land, wetland, and open brushland communities), and connectivity (to provide habitat corridors and wildlife habitat). DNR's Old Growth and Extended Rotation Forest Guidelines will focus on maintaining older forests. DNR will coordinate landscape plans and priorities with other owners when possible, including MFRC's landscape planning effort. (This strategy applies to Objectives 1.1–3.7.)

**Strategy 2. Apply MFRC Site-level Forest Management Guidelines.** DNR will apply the MFRC guidelines on DNR-administered land and encourage widespread adoption and use of the guidelines on other public and private lands to protect wildlife habitat, historic and cultural resources, riparian areas, soils productivity, water quality, and visual quality of forest lands across the state. The DNR will assist with education and training for guideline implementation and coordinate efforts to monitor the application of these guidelines in forest management practices. DNR will encourage land managers to use the guidelines whenever appropriate (e.g. road construction, forest harvest, pesticide use, reforestation, thinning, fire management, and recreation management). In some cases, land managers may choose to apply land treatments that are more restrictive than the guidelines; in other areas, less restrictive standards may be appropriate. Specifics of local conditions and management objectives will determine appropriate application of guidelines. (This strategy applies to Objectives 1.1–3.7.)

**Strategy 3. Manage insect pests and forest diseases.** Exotic insects such as the gypsy moth and native insects (such as the spruce budworm) as well as diseases (such as white pine blister rust and oak wilt) are major threats to forest resources. DNR will monitor exotic and native forest insects and diseases and seek to minimize damage on public and private lands. DNR will seek to minimize impacts of control efforts on non-target organisms. DNR will coordinate management efforts with the Minnesota Department of Agriculture, the U. S. Forest Service, and the U. S. Dept. of Agriculture. (This strategy applies to Objectives 2.1, 2.2, 2.3, 2.5–3.5, and 3.7.)

**Strategy 4. Expand focus on corridor management and planning.** Corridors provide opportunities to connect habitat, provide outdoor recreation, and protect scenic vistas. DNR, through the *Conservation Connections* initiative, will work closely with private landowners, other land management agencies, and local communities to identify corridor opportunities and to implement corridor management concepts. (This strategy applies to Objectives 1.1–2.4, 2.7, and 3.3–3.5.)

**Strategy 5. Provide habitat for rare and threatened species.** Restoring populations of rare and threatened species requires information on the location and prevalence of suitable habitats and development of guidelines and plans to ensure that habitats are restored or maintained, such as DNR's Old

---

Growth Forest guidelines. DNR will take a leadership role in advocating for maintaining habitat for rare and threatened species in all forests regardless of ownership. (This strategy applies to Objectives 1.1–2.7, and 3.5.)

**Strategy 6. Enhance opportunities to use state forests for outdoor recreation.** DNR will continue to seek a balance between intensive recreation uses (off-highway vehicles - OHVs) and activities that require nature and solitude in forests. DNR will maintain forest campgrounds and will complete its recreation trail system planning for OHVs. Additional focus on recreation opportunities in forest ecosystems appears in the Recreation Systems section. (This strategy applies to Objectives 1.1–2.7, and 3.3–3.7.)

**Strategy 7. Incorporate wildlife population targets in all forest management efforts.** DNR will consider fish and wildlife population targets in forest ecosystem management as part of an integrated strategy to maintain healthy forest ecosystems. Fish and wildlife population goals will continue to be an important consideration in planning timber harvests, old growth management, reforestation, and forest recreation. (This strategy applies to Objectives 2.1–3.7.)

**Strategy 8. Provide appropriate access roads to forest lands.** Access to forest lands is provided by an intermingled network of federal, state, county, and private forest access roads. Cooperation with other forest land owners will be critical in maintaining existing access to DNR forest lands and to coordinate future road access needs and road management direction. DNR balances a variety of considerations (e.g., biodiversity, wildlife management, fire suppression, timber harvest, and recreation) in developing access roads. DNR will continue providing access to forest lands consistent with management plans, MFRC site-level guidelines, and forest ecosystem sustainability. (This strategy applies to Objectives 1.1, and 2.1–3.7.)

**Strategy 9. Manage fire to protect public safety and foster healthy, diverse forest and brushland ecosystems.** Wildfire prevention and suppression will continue to be guided by statutory directives to protect public safety, property, and natural resources. Prescribed (i.e., ignited and controlled) fire will be used to mimic natural processes, alter forest or brushland composition, encourage regeneration of certain species, eliminate exotic species, and reduce risk/potential of wildfire (i.e., fuels reduction). DNR will increasingly use prescribed burning to manage wildlife habitats, plant communities, brushlands, and timber lands. Fuels management (including prescribed fire, constructing fire breaks, and salvage harvesting), will be a growing need to help reduce the risk of dangerous wildfires in forested areas damaged by natural events (e.g., blowdowns, insects, and diseases) and where residential and commercial development has expanded into forested areas. (This strategy applies to Objectives 1.2–3.7.)

**Strategy 10. Accelerate management of brushland landscapes.** Active management is required to maintain productive brushlands wildlife habitat. DNR will complete efforts to assess the extent and quality of large, open brushland landscapes. DNR will use the landscape planning process to identify priority brushland areas and will develop management plans across all ownerships for these areas. Management plans will specify appropriate use of controlled fire, mechanical disturbance, and herbicide treatments to maintain the health of the priority brushlands using the range of natural variation as a guide. (This strategy applies to Objectives 2.1, 2.2, 2.3, and 2.7.)

**Strategy 11. Increase focus on timber quality and productivity.** Demand for more and higher quality timber will continue as society's need for forest products continues to grow and Minnesota's forest industry seeks to remain competitive in a world-wide market. Focusing attention on timber productivity and quality will help increase the quality and quantity of wood available for harvest in Minnesota and will enhance the protection of non-timber values in forested landscapes. For example, increasing the wood fiber productivity of a certain portion of the forest will help reduce the intensity of harvest pressures on other forest land. DNR will increase efforts in programs and initiatives that focus on increasing the amount and quality of timber produced from appropriate forest lands. (This strategy applies to Objectives 1.1, 1.2, 2.1, 2.5, 2.6, 3.1, 3.2, 3.5, and 3.7.)



---

**Strategy 12. Continue acquisition of critical land parcels.** DNR will continue to acquire parcels of land that are adjacent to or within blocks of existing DNR lands. This strategy is especially important in areas of growing recreation or residential/commercial pressures. (This strategy applies to Objectives 1.2, 2.4, 3.1, 3.2, 3.4, and 3.7–4.2.)

**Strategy 13. Cooperate broadly with stakeholders and other agencies.** Cooperative approaches to managing forest resources have expanded, especially with MFRC activities. DNR will continue to involve other agencies, stakeholders, and the public in forest management decisions. The forest subsection planning process provides opportunities to involve the public to provide input in developing management goals. (This strategy applies to all objectives.)

**Strategy 14. Cooperate with other landowners in sale and exchange of DNR-administered land.** DNR will be proactive in identifying surplus parcels for sale and will initiate land exchanges with public and private landowners within established natural resource management areas to consolidate state ownership. DNR will identify and remove trust fund lands from non-revenue producing natural resource management units on an annual basis. (This strategy applies to all objectives.)

**Strategy 15. Cooperate with other agencies, local government, and stakeholders to help establish viable rural economies.** DNR will work with other state agencies, especially the Minnesota Department of Agriculture and the Department of Trade and Economic Development, and with other stakeholders to strengthen the rural economy by minimizing the impact of land fragmentation and development on forest lands. (This strategy applies to all objectives.)

**Strategy 16. Increase investments in information technology.** Information technology includes data collection, research, ecosystem monitoring, inventory efforts, and acquisition of technology. The expansion of information management technology allows a better understanding of the relationships between management techniques and resource conditions.

Forest inventories, and related data-gathering efforts provide information needed by all land owners to manage land in a sustainable manner. DNR will maintain and provide access to a wide range of databases (e.g., Forest Inventory and Analysis, Cooperative Stand Assessment, ECS, Forest Health Monitoring, County Biological Survey, Natural Heritage, mineral potential, etc.) and coordinate access to other data bases that provide information on forest composition, wildlife habitat, rare species, cultural resources, etc. DNR will develop compatible forest information across all ownerships, focusing on spatial features of landscapes (habitat patch size, shape, connectivity) not addressed in previous inventories and assessments.

Data assessment and applications, such as those made possible by the Native Plant Community Classification effort and the interagency effort to develop a Range of Natural Variation for forest age classes, provide important opportunities to better use databases. Monitoring of impacts from roads, timber harvests, and recreation use provide information needed to develop timber management plans and forest use policies. DNR will intensify data collection, database development, information sharing, data assessment, and monitoring efforts so as to provide forest managers with the information tools needed to manage forest ecosystems in a sustainable manner. DNR will improve the state land records system so that GIS technology can be better used to analyze land ownership records. (This strategy applies to all objectives.)

**Strategy 17. Provide technical assistance and financial incentives to landowners.** DNR will use private landowner assistance and easement programs (e.g., Private Forest Stewardship plans, Conservation Reserve Program and Forest Legacy Program) to help landowners manage their lands to meet personal and broader forest ecosystem objectives for timber production, maintaining forest ownership parcel size, recreation, wildlife habitat, and other forest resources. DNR will provide technical assistance to builders and developers to assist them in developing land in ways that are compatible with the limitations and opportunities provided by natural settings. DNR will coordinate stewardship programs with other entities, such as soil and water conservation districts.

---

DNR will provide technical assistance for mineral processing projects and for reclamation of mineral extractive sites. Long term management planning will provide communities with information and advice for mineral resources development and associated land use practices. DNR will assist private landowners in developing mineral product marketing efforts. (This strategy applies to all objectives.)

**Strategy 18. Continue forest restoration and improvement.** DNR will encourage restoration of non-forest land to forest cover where appropriate. DNR will assist private landowners in considering options for using land once in non-forest cover for timber and other beneficial uses. DNR will restore the presence of some forest types such as Big Woods and white pine, which are less common than they once were. Other restoration strategies (removal of buckthorn and prescribed fire) will restore and maintain the ecological health of forest habitats. (This strategy applies to all objectives.)

## Measuring Progress

*Measuring progress toward forest management goals and objectives requires regular collection of forest resources information, including information on how those resources benefit society. In order to demonstrate forest resource accountability, DNR also must document how strategies have been implemented. Information (and specific indicators, where appropriate) will allow DNR to measure: 1) the ecological status of forests; 2) the economic status of forest-based industries; and 3) progress in implementing management strategies.*

**Goal 1: Minnesota's forest land base will be enlarged and protected.** Maintaining the state's forest land base is fundamental to achieving all of DNR's goals, including those associated with forests. To ensure that forest land is protected for the long term, DNR needs information on the extent of forest land, ownership, and productive capacity. Examples of performance measures are:

- Acres of forest land categorized by ownership type (public, private industrial, private non-industrial) and productivity class (timber producing, non-timber producing).
- Average size of non-industrial private forest land ownership.

**Goal 2: Forest ecosystems will be healthy, resilient, and functioning.** Forest ecosystem health and resilience insures that forests can respond to disturbances and the demands society places on them. Measures of forest composition and ecosystem functions are useful in documenting forest health. Examples of performance measures that focus on the distribution of forest plant communities, species, and ages are:

- Acres of old growth forest by type, or
- Acres of forest by community or forest type and age class.

Examples of performance measures that focus on forest health are:

- Number of species of plants and animals with significantly reduced geographic ranges or population sizes (compared to historic conditions).
- Tree growth rates.

**Goal 3: Forest-based economic and recreational opportunities will be numerous and wide-ranging.** Performance measures for this goal focus on uses of forests and the benefits of those uses for Minnesotans. Examples of performance measures are:

- Quantity of timber available.
- Quantity of timber harvested.
- Implementation of Visual Quality Guidelines.
- Number of state forest campground user nights.

---

## ➤ Agricultural Areas

Agricultural lands are extensive in Minnesota, occupying up to 45% of the state. DNR has a significant interest in agricultural areas because of its stewardship responsibility for many of the natural resources within the agricultural landscape and because agricultural practices and land use impact the quality of the region's water and land resources. DNR and the agricultural community share a common interest in land and water management. The inter-relationship between management and use of natural resources is clear to both. Each is concerned about practices that may damage or contribute to resource problems, such as degradation of water quality and increased flows in streams and rivers. Each is concerned about land conversion that degrades and fragments habitat and farmlands, and both recognize the need to address land use issues associated with development and production. Smart Growth and *Conservation Connections* provide information, technical assistance, and other needed strategies to address land use conversion trends.

### Agricultural Areas Goals and Objectives

**GOAL 1. Surface water and ground water quality will be protected in the agricultural areas of the state. Natural surface and subsurface water flow patterns (also known as flow regimes) will be maintained or restored where desirable and practicable in the agricultural region of the state.** Flow regimes include surface water flow through streams and rivers as well as subsurface flows which are critical concerns throughout agricultural areas of Minnesota and especially in the Karst region of southeastern Minnesota.

**Objective 1.1. Negative human impacts on water quality and flow regimes (e.g., soil erosion, chemical contamination, and sedimentation of water resources) will be minimized throughout the agricultural region of Minnesota.**

**Objective 1.2. Natural flow regimes will not be impaired by agricultural land use, water management practices, or land use development.**

**Objective 1.3. Land identified as prime farmland in the Red River Valley will be protected from ten year flooding. (Ten year floods are those that statistically occur on the average of once every ten years.)**

More detailed objectives and strategies addressing water resources appear in the Water Resources section.

**GOAL 2. Remaining natural ecosystems (wetlands, grasslands, undeveloped shorelands) within the farmland region will be maintained on public lands and their integrity enhanced on private lands where collaborative efforts with private landowners are possible.**

**Objective 2.1. Remnant natural areas will remain in a natural condition.** Many remaining natural areas are under pressure for conversion to agricultural, residential, or extractive uses. DNR will seek to prevent further conversion of remaining natural areas (e.g., native prairie, oak savanna, wetlands, wet prairies, riparian forests, grasslands, etc.) to other land uses.

**Objective 2.2. Remnant natural areas will be connected by natural corridors.** As the acreage of natural areas, especially native prairie, declines, connectivity of remaining parcels will be increasingly important to the wildlife movement and the health of natural ecosystems. Through the *Conservation Connections* initiative, DNR will seek to expand right of way, cropland retirement programs, grasslands, and riparian land corridors that connect isolated natural areas.

---

***GOAL 3. Degraded, high priority ecosystems and habitats will be maintained or restored to a more natural condition on public lands and on those private lands where collaborative efforts with private landowners are possible.***

**Objective 3.1. Acreage of restored grasslands and forest cover will increase on public lands.**

Restored grasslands and forest cover provide habitat for many prairie-dependent wildlife and plant species and contribute to the viability of natural ecosystems. DNR will restore additional acreage of grasslands and forest cover that are composed of the typical native species on DNR-administered lands. Restoration will focus on areas where grassland and forest cover were the presettlement native vegetation.

**Objective 3.2. Acreage of marginal cropland removed from agricultural production and placed in long-term conservation easement programs will increase.** Private land removed from agricultural production provides habitat for wildlife and supports the economy of farm operations. Some agricultural land, due to steep slope and proximity to water resources, is unusually susceptible to damaging erosion. Removing this land from production and enrolling the land in conservation easement programs will increase habitat, reduce damage to aquatic ecosystems, and help reduce peak water flows.

**Objective 3.3. Acreage of restored high priority lake and wetland complexes will increase.** DNR restores degraded lakes (e.g., Heron Lake, Swan Lake) and wetland complexes working in broad partnerships with landowners and local governments. Each of these projects poses multiple benefits for flood control, habitat management, water quality, and recreation.

**Objective 3.4. The ecosystems of high priority rivers in the agricultural region will be restored.** The Minnesota, Mississippi, and Red Rivers are high priority river systems based on their importance to the economy, lifestyles, and ecological well being of Minnesota. Human activity has seriously degraded these river systems. The Minnesota and Mississippi Rivers have been identified as significant contributors to the hypoxia of the Gulf of Mexico. The Mississippi River also has been designated as a nationally significant ecosystem in need of restoration. The Red River flooding problems need special attention. DNR will support and foster measures to improve the water quality and natural flow regimes for these rivers.

***GOAL 4. Diverse recreation opportunities in the agricultural region will be developed in a sustainable manner on public and private lands.***

**Objective 4.1. Recreational opportunities associated with agri-tourism will expand.**

Agricultural regions of the state pose many opportunities for increasing tourism. For example, native prairies, grassland, and certain farmlands provide habitat for plants and wildlife used for recreation; e.g., waterfowl for hunting, prairie chickens for viewing. The objective is twofold: 1) to expand populations of grassland and prairie-dependent plant and wildlife species, especially native species used for recreation, and 2) expand access opportunities to public and private lands as a part of a broader cooperative effort between DNR, local communities, and private landowners to expand eco-tourism opportunities in the agricultural region.

**Objective 4.2. Habitat value of rights-of-way will increase.** Utility, road, and railroad rights-of-way provide critical habitat and connectivity opportunities in many agricultural areas. The objective will be to increase the value that these rights-of-way areas have for plant and wildlife habitat, especially relevant to recreation opportunities (hunting and wildlife viewing).

The Recreation Systems section provides a more comprehensive assessment of the broad range of recreation management goals and objectives that apply within the agricultural region.

---

**GOAL 5. Access to mineral resources will be preserved.**

**Objective 5.1. Extractive operations will be managed for sustainable use.** Sand and gravel deposits play an increasingly important role in economic development at the state and local level, especially as demand on the limited sand and gravel resources rises. Commercial deposits of aggregate resources lie beneath many native prairie and restored grasslands as well as sites desired for forest management and urban development. DNR, through its Smart Growth initiative, will seek to ensure adequate supplies of sand and gravel resources while eliminating or greatly minimizing further destruction of native prairie, forest resources, and other natural areas, and negative impacts on water quality and supply.

**GOAL 6. Conversion of land to urban and other uses will have minimal impacts on prime and important farmland and on critical habitats.**

**Objective 6.1. Principles of Smart Growth management will help guide the conversion of land to urban and related land uses.** As DNR and cooperating agencies, including the MDA, better define Smart Growth management approaches, strategies to better manage land conversion will protect prime farmlands and critical habitat areas.

## **Agricultural Areas Strategies**

*DNR will use the following management strategies to achieve agricultural areas resource goals and objectives.*

**Strategy 1. Support land retirement programs.** DNR will work cooperatively with land owners, other agencies, and with stakeholders to support federal and state programs that provide incentives for retiring land from crop production and for placing that land into vegetative cover. This strategy has several components:

- Enroll lands in programs that provide longer term protection.
- Preserve remnant natural areas, especially native prairie.
- Establish forest cover in appropriate areas, such as riparian corridors.
- Focus enrollments in ways that buffer existing natural remnants, contribute to the scale of grassland complexes, remove cropland from flood prone and floodplain areas, or contribute to connectivity of natural areas.

(This strategy applies to Objectives 1.1, 1.2, and 3.2–4.2.)

**Strategy 2. Increase the effectiveness of federal land and water policies and programs.** Federal agricultural policies and programs greatly influence farm practices. DNR efforts to influence federal agricultural policies and programs can greatly benefit habitat in the agricultural areas of Minnesota. DNR support for the CREP program will continue to be a key strategy. DNR will support revisions in the Federal Farm Bill that will enhance natural resources in agricultural areas. (This strategy applies to Objectives 1.1, 1.2, 2.2, and 3.2–4.2.)

**Strategy 3. Cooperate broadly with stakeholders and other agencies.** DNR cooperative efforts are especially relevant in the agricultural region, where most land is in private ownership. An example of cooperative efforts includes linkages with other agencies and organizations in a broad effort to encourage land and water stewardship practices that will sustain the flow regimes and ecosystems of major rivers (Mississippi, Minnesota, Red Rivers). Another example would be working with the MDA, BWSR, and MPCA to identify and prioritize environmental issues relating to agriculture. (This strategy applies to all objectives.)

---

**Strategy 4. Establish DNR as a “Good Neighbor” to landowners adjacent to DNR-administered lands.** DNR will coordinate a number of strategies designed to establish good relations with owners of land adjacent to DNR-administered land. This includes such strategies as management of certain invasive vegetation that could encroach on neighboring farmlands. (This strategy applies to Objectives 2.1, 2.2, 3.1, and 3.3.)

**Strategy 5. Cooperate with other agencies and stakeholders to help establish viable rural economies.** DNR will work with other state agencies, especially the Minnesota Department of Agriculture, and the Department of Economic Development, and with other stakeholders to strengthen the rural economy by minimizing the impact of land fragmentation and development on working farms and associated woodlots. (This strategy applies to Objectives 4.1–5.1.)

**Strategy 6. Protect critical habitat areas through land acquisition.** The agricultural region has little public land ownership. Much of the private land is in agriculture. DNR will continue to acquire critical parcels through donations, purchase from willing sellers, or easement acquisition. Critical parcels include areas with native prairie or that pose opportunities to establish grasslands or a riparian forest cover. (This strategy applies to Objectives 1.1–1.3, and 2.2–4.2.)

**Strategy 7. Expand focus on corridor management and planning.** DNR will promote use of management practices (e.g., planting local source native grasses, mowing, chemical treatment practices, etc.) on rights-of-way (highway and rail corridors, utility line easements, etc.) that enhance the value for native plants and wildlife. DNR will support the National Prairie Passage program (a federal/state effort to establish a network of prairie byways between Texas and Manitoba) and seek to link it closely with the DNR *Conservation Connections* initiative. (This strategy applies to Objectives 2.1–4.2.)

**Strategy 8. Seek opportunities to connect recreational users with private landowners.** The urbanizing nature of Minnesota’s population results in fewer opportunities to access private land suitable for recreation opportunities such as hunting. DNR will support a growing agri-tourism industry to provide optional income sources for farmers and to provide incentives for use of private land to serve public outdoor recreation needs. (This strategy applies to Objective 4.1.)

**Strategy 9. Apply appropriate land treatment to native prairies and grasslands on DNR-administered land.** DNR will continue to use prescribed fire to maintain grasslands and native prairie in a natural condition (assuming appropriate guidelines in burn size, season, and rotation to reduce risk of species extirpation). DNR will continue to monitor and control noxious weeds on DNR lands. (This strategy applies to Objective 3.1.)

**Strategy 10. Increase investments in information technology.** Scientific management of agricultural ecosystems depends on continued investments in data collection (e.g., County Biological Survey, Aggregate Inventory, etc.), monitoring, classification, and research (e.g., Prairie Bird Conservation Study and Western white fringed prairie orchid study). DNR will increase its investments in information technology and in efforts to communicate that information to the public. (This strategy applies to all objectives.)

**Strategy 11. Assist local government (counties, municipalities, townships, watershed districts, etc.) to make land use and public infrastructure decisions that enhance sustainability of natural resources.** Most land use decisions are made at the local level. Local government reviews and approves many of these decisions and plays a major role in land use through development of public infrastructure. Building and siting roads, dams, sewers, and drainage systems pose major implications for ecosystem health and for access to subsurface resources such as sand and gravel. (This strategy applies to Objectives 1.1–2.2, and 3.2–4.2.)

**Strategy 12. Provide technical assistance and financial incentives to landowners.** DNR, using the assistance of other organizations and working through existing local resources entities (such as counties and watershed districts), will increase efforts to provide technical assistance and financial

---

incentives to help landowners manage land in ways that are compatible with sustaining native plant and wildlife populations and to manage water resources more effectively. DNR technical assistance in the field will focus on the Conservation Reserve Enhancement Program and other assistance programs. DNR will encourage adoption of Best Management Practices by farmers and other land managers. DNR will cooperate with landowners to manage exotic species and encroaching vegetation that disrupt the ecological integrity of natural areas on public and private land. The strategy may include training of staff in other organizations to provide the technical assistance farm managers need. The strategy has several components.

- **Prairie Stewardship Planning Assistance:** Prairie Stewardship plans are an outgrowth of the DNR’s Forest Stewardship Plan program. The program provides opportunities for professional land planning assistance to landowners with guidance on protecting prairie and grasslands in ways that are compatible with the landowners personal philosophy and land management goals.
- **Cooperative Farming Agreements:** Use cooperative farming agreements (food plots) and grazing agreements to demonstrate agricultural techniques that support ecosystems health consistent with landowner management goals.
- **Cooperative Forums:** Work closely with agricultural organizations to develop forums and other learning opportunities to deliver information to the farming community.
- **Encourage establishing permanent vegetation on some marginal farmlands:** Help landowners establish vegetation, including alternative crops and native vegetation, on lands that are producing a marginal economic return to farm managers.
- **Tree Planting:** Increase funding for DNR programs that assist private landowners to establish tree cover in high priority areas, such as in riparian corridors, while discouraging planting of trees in or adjacent to native prairies.
- **Water Management:** DNR will assist landowners and work with cooperating agencies to prevent excessive runoff and hold water on the landscape for ecological health and human safety.

(This strategy applies to objectives 1.1–2.2, and 3.2–6.1.)

## Measuring Progress

*DNR goals and objectives for the agricultural areas of the state recognize the importance of agriculture and emphasize achieving natural resource goals while maintaining high agricultural productivity. Because opportunities for making progress toward DNR goals may be more limited here than in other regions of the state, performance measures focus on documenting where those opportunities exist and what management activities are implemented.*

**Goal 1: Surface water and ground water quality will be protected and improved in the agricultural areas of the state.** The quality of water resources in agricultural areas is intimately tied to agricultural practices and other land use decisions. Examples of performance measures that tie land use decisions to changes in water quality are:

- Percent of tilled acres that use conservation tillage practices.
- Percent of river miles with flow regimes within the range of natural variation.

---

**Goal 2: Remaining natural ecosystems (wetlands, grasslands, undeveloped shorelands) within the farmland region will be maintained on public lands and their integrity enhanced on private lands where collaborative efforts with private landowners are possible.** Remnants of natural ecosystems and other areas with relatively little disturbance are especially important as examples of native ecosystems and as reservoirs of plant and animal diversity. Using these areas as centers to which other areas are connected is important to achieving natural resource goals.

Examples of performance measures that document our use of these areas are:

- Acres of prairie managed using prescribed burning.
- Degree of connectivity between areas suitable for wildlife habitat.
- Riparian acres planted to woody vegetation.

**Goal 3: Degraded high priority ecosystems and habitats will be maintained or restored to a more natural condition on public lands and on those private lands where collaborative efforts with private landowners are possible.** Restoration of disturbed areas include hunting and wildlife viewing. Examples of performance measures that document progress in this area are:

- Acres of restored grasslands.
- Acres of land enrolled in federal and state land retirement programs.
- Acres of wetland removed from production and restored.
- Acres of riparian corridors.

**Goal 4: Diverse recreation opportunities in the agricultural region will be developed to a more natural condition on public lands and their integrity enhanced on private lands where collaborative efforts with private landowners are possible.** Outdoor recreation in agricultural areas includes hunting and wildlife viewing. Examples of performance measure which document DNR's goal of enhancing these opportunities include:

- Acres of land with public access for hunting.
- Population sizes of selected games species.
- Miles of trail.



---

## ➤ Urban and Developing Areas

The natural features of urban and developing areas provide numerous benefits to human communities. Natural areas provide a variety of recreation and other quality of life opportunities. Wetlands provide natural water storage and purification systems. Watersheds provide a network of streams and rivers that drain the landscape. Native plant communities and urban forests clean the air we breathe, sequester and store carbon, and provide habitat for wildlife. Urban forests help to moderate the climate, offering winter shelter and summer cooling that provide energy savings. All of the environmental services provided by natural features fundamentally support the communities and economies of urban and developing areas.

At the same time, development in urban and other areas causes substantial pressures and impacts on the very natural features on which the communities rely. Land cover conversion reduces the area of permeable and ground surfaces, reducing the land's capacity for filtering and storing water. Settlement patterns and transportation corridors may cause habitat loss or fragmentation to the detriment of the environmental services those habitats provide. Rising recreational demands may also have harmful effects as the availability of natural areas to satisfy those demands decreases. Preservation of natural features is often placed in competition with pressure for development. Based on the density of development, the issues for natural resource management in built environments will vary among the urban core or central city, the suburban or exurban fringes, and areas of lakeshore development in predominately rural regions. A sense of urgency is needed for addressing these issues, regardless of location, so that action is taken before resources are lost and before taking action becomes too expensive.

As changes in technology and the growth of the global economy expand people's choices of where to locate, attention to the natural features that make an area livable and desirable becomes all the more important. Land use decisions should seek to maintain a healthy environment and healthy natural resources so that they and the economies they support will continue to attract people, business, and industries to contribute to our overall quality of life.

The following goals and objectives will address issues for natural resource management in urban and developing areas within Minnesota. Not all are the sole responsibility of DNR to achieve, but require working in partnership with other agencies, local units of government, and citizens to achieve multiple positive outcomes from the strategies used.

### Urban and Developing Areas Goals and Objectives

***GOAL 1. The natural environment in urban and developing areas will have the long term capacity to produce ecological, social, and economic benefits.***

**Objective 1.1. Discharge rates of water from urban watersheds will be similar to discharge rates prior to large-scale alterations to the hydrologic characteristics of the watershed.** The intent is to minimize increased flow rates when development occurs. In areas with a high impervious surface coverage in the watershed, maintain existing areas of vegetation and seek opportunities to increase water infiltration, reduce runoff, and restore vegetative cover. In developing areas with a low percentage of imperviousness, seek opportunities through site development (infiltration ponds, swales, or other site designs) to manage the amount of runoff that is infiltrated versus runoff into lakes and streams.

**Objective 1.2. Surface and ground water storage capacity will be sufficient to supply the needs of ecosystems, economic activities, and population growth.** Take advantage of opportunities to infiltrate water, recharge groundwater, and filter pollutants.

---

**Objective 1.3. Surface, ground water, and subsurface flows will be free from pollution by heavy metals, excessive nutrients, bacteria, and sediment.** The intent is to meet or exceed existing water quality standards.

*More objectives and strategies addressing water resources statewide appear in the Water Resources section.*

**Objective 1.4. Habitat and vegetative cover will be sufficient to support a diversity of plant and animal communities, and species in these communities will be capable of dispersal.** Reduce habitat fragmentation; preserve large, intact natural areas; and seek opportunities to restore habitat connectivity in order to support a diversity of animal and plant species in urban and developing areas. Reduce loss of trees and wooded areas from development and construction practices.

**Objective 1.5. Natural lands in urban and developing areas will support a diversity of quality outdoor recreation opportunities.** Public use of natural lands should be appropriate to the resource base and should not result in degradation of the resource.

**Objective 1.6. Residents of urban and developing areas will have access to a diversity of quality outdoor recreation opportunities.** Recreation areas, including land and water, will be open and accessible to the public.

*More objectives and strategies addressing outdoor recreation appear in the Recreation Systems section.*

**Objective 1.7. Residents of urban and developing areas will have opportunities to learn about the relationships between people and the natural environment.** The demographics of Minnesota's population is changing, becoming older and more diverse. Natural resource stewardship education opportunities should be accessible to all citizens and address the needs of all population sectors.

**Objective 1.8. Lands with subsurface resources will have the long term capacity to meet the infrastructure and development needs of urban and developing areas.** Minnesota's expanding population is driving an increase in consumption of aggregate materials. The intent is to identify aggregate resources before development occurs. This will allow mining to proceed in conjunction with development, in a manner that conserves identified aggregate resources. Further, it will allow for early reclamation planning designed to meet the post-mining needs of the developing community.

***GOAL 2. Local communities will have the information, expertise, and resources to plan for and manage their natural resources.***

**Objective 2.1. Local communities will have a decision-support system that facilitates consideration of natural resource issues in land use planning.** Support for local decisions will come from partnerships among all agencies in all levels of government, non-governmental organizations, and citizens with a natural resource decision making role in the community. DNR's role is to provide technical assistance and decision coordination.

**Objective 2.2. Local communities will have access to the necessary information to incorporate natural resource issues in land use planning.** Information comes from a wide range of organizations. DNR's role is to provide easily accessible information. This will influence how we collect and provide data in order to elevate the importance of natural resources in the land use planning process.

---

**Objective 2.3. Local communities will have access to information that guides management of natural resources to produce long term ecological, social, and economic benefits.** DNR's role is to provide and interpret information and to assist in understanding how it applies to local decisions. The intent is that local communities will understand the consequences of decisions affecting natural resources in order to make informed choices between multiple goals.

## Urban and Developing Areas Management Strategies

*The DNR will use the following approaches to achieve the goals and objectives for urban and developing areas in Minnesota.*

**Strategy 1.** In cooperation with federal, state, and local agencies and Soil & Water Conservation Districts, encourage best management practices in local communities to manage storm water discharges, control erosion and runoff, and maintain the water storage and infiltration capacity of the watershed to ensure that development is not damaged by future floods. Ensure that urban development policies minimize adverse changes to the hydrologic system, including stream flow rates, total runoff volume, ground water recharge, and erosion and sedimentation discharge. (Objectives 1.1, 1.2, and 1.3)

**Strategy 2.** Identify and implement habitat redevelopment opportunities in the urban core, protect quality habitat and communities, and maintain habitat connectivity in developing areas. Coordinate with local units of government to address development issues in sensitive natural areas, such as blufflands. Train local staff and volunteers in natural resource restoration projects, monitoring native habitats and species, and other indicator projects. (Objective 1.4)

**Strategy 3.** Promote local planning that incorporates natural resource base line information early in the planning process, and work with citizens and local units of government to develop natural resource and wildlife management plans and guidelines that reduce people and wildlife conflicts. (Objectives 1.7, 2.1, 2.2, and 2.3)

**Strategy 4.** Promote working in partnerships across governmental boundaries and encourage and assist in partnerships with private and public land owners. (Objectives 2.1, 2.2, and 2.3)

**Strategy 5.** Maintain vegetative cover and reduce the extent of impervious surfaces in the watershed. Where feasible remove development with high-damage potential from areas needed to convey flood flows and restore these areas with native vegetation. Protect and restore to native vegetation lands sensitive to development impacts (lake shores and stream banks, steep slopes, flood plains). Protect and restore shoreline vegetation. (Objectives 1.1, 1.2, and 1.3)

**Strategy 6.** Reduce or eliminate populations of invasive non-native aquatic and terrestrial species and eliminate introductions of invasive non-native species. (Objective 1.4)

**Strategy 7.** Increase tree canopy in urban areas and maintain or increase tree canopy in developing areas. (Objective 1.4)

**Strategy 8.** Protect and restore habitat. Maintain and enhance existing habitat connectivity to reduce the impacts of development on habitat and wildlife populations. (Objective 1.4)

**Strategy 9.** Collect, interpret, and disseminate information that uses the concept of cumulative effects to evaluate on a watershed basis the impacts of development on the quantity and quality of water resources. Monitor and evaluate water supply demands and the effectiveness of conservation efforts. Assist communities in understanding the impacts of development on surface and ground water quality and quantity. (Objectives 1.1, 1.2, and 1.3)

---

**Strategy 10.** Increase DNR's information base on the natural resource impacts of land use decisions, population, growth, and recreation pressures and on the effectiveness of management strategies in urban and developing areas. (Objectives 1.4, 1.5, and 1.6)

**Strategy 11.** Increase the accessibility and usability of natural resource information to local units of government, business, landowners, non-governmental organizations, and other state agencies. (Objectives 2.2 and 2.3)

**Strategy 12.** Define and quantify existing levels of outdoor recreation currently occurring with urban and developing areas across the state. (Objectives 1.5 and 1.6)

**Strategy 13.** Identify potential aggregate resources in areas likely to be needed for urban development to avoid encumbrance of aggregate deposits that can be used for development. Identify post-mining land use needs with associated site specific reclamation practices and plan and stage activities to meet community growth needs. (Objectives 1.8, 2.1, 2.2, and 2.3)

**Strategy 14.** Work with local communities to encourage adopting Smart Growth principles and best management plans that protect surface and ground water quality, conserve ground water, protect fish and wildlife habitat, preserve natural areas, and conserve wetlands and wooded areas. Assist local communities in developing and implementing resource conservation and management plans. Use the DNR Environmental Review Process to inform local decision makers about fish and wildlife needs and benefits and to help guide environmentally-friendly development. Work with local communities in guiding aggregate mining to reduce conflicts and to support good reclamation practices. (Objectives 1.1, 1.2, 1.3, 1.4, and 1.8)

**Strategy 15.** Provide education materials, workshops, data (MCBS), maps, handbooks, and best management practices guidelines to local communities. Enhance coordination and integration of natural resource guidance given to local communities by DNR programs and other agencies. Train local planners, resource managers, and consultants on how to assess and use natural resource information effectively in local land use planning. (Objectives 1.4, 2.1, 2.2, and 2.3)

**Strategy 16.** Assess the capacity of local communities to effectively manage their natural resources and provide assistance through information and training. (Objectives 2.1, 2.2, and 2.3)

**Strategy 17.** Promote planning grants that support natural resource inventories and plans. Support local land use planning that actively and effectively involves citizens and stakeholders. Tie grant criteria to working in partnerships across governmental boundaries. Coordinate and consolidate where practical the various DNR financial assistance programs to local communities. (Objectives 2.1, 2.2, and 2.3)

**Strategy 18.** Encourage conservation of ground and surface water use and withdrawal so that water supplies are sustained. Communicate the importance of protecting wildlife habitat and natural areas—including the impacts of non-native aquatic and terrestrial species—as well as practical ways that protection can be accomplished. Inform on the need and appropriateness of management tools such as removal of invasive non-native species, hunting, and capture-transport-release. (Objectives 1.2, 1.4, and 1.7)

**Strategy 19.** Maintain and enhance DNR programs that address educational, aesthetic, and social qualities of communities in urban and developing areas. Enhance the DNR School Forest, Neighborhood Wilds, and other cooperative outdoor nature study area programs in urban and developing areas. (Objective 1.7)

**Strategy 20.** Recognize the demographic changes in urban and developing areas and meet the needs of all citizens. (Objective 1.7)

---

**Strategy 21.** Maintain and enhance hunting, fishing, and non-game activities in urban and developing areas. Provide public access to areas for hunting, fishing, wildlife viewing, biking, and other terrestrial and water recreation areas. Provide access to open space for unstructured exploration of the natural world. (Objectives 1.5 and 1.6)

**Strategy 22.** Develop a system of linked parks and trail ways within a greenways network. Maintain and enhance trails in urban and developing areas, and give attention to preserving existing routes that are threatened by development. Provide assistance in planning trail placement and design to ensure natural features are protected and enhanced. Incorporate environmental criteria into the design and siting of recreation areas. (Objectives 1.5 and 1.6)

## Measuring Progress

*Measuring progress toward DNR goals and objectives for urban and developing areas requires that we track progress toward maintaining the capacity of the natural environment to produce the ecological, social, and economic benefits (Goal 1) which are associated with contributing to Minnesota's quality of life. Furthermore, because the decisions of local communities impact the natural environment, measuring progress towards providing local communities with the information, expertise, and resources they need to plan for and manage their natural resources (Goal 2) is equally vital. To these ends, examples of performance measures linked to DNR goals and objectives are described below:*

**Goal 1: The natural environment in urban and developing areas will have the long-term capacity to produce ecological, social, and economic benefits.** Measuring progress toward this goal requires an emphasis on the environmental outcomes required to sustain benefits such as the capacity of watersheds to infiltrate and transport water; adequate supplies of clean water to meet the demands of ecological systems and local economies; a diversity of plant and animal communities, and natural lands open and accessible to outdoor recreation. Example measures are:

- Average annual flood damages.
- Water levels in wells in principal aquifers.
- Acres of large, intact natural areas.
- Connectivity of vegetative communities (connectivity, dispersion indices to be determined).
- Total acres of land and water open and accessible to the public.

**Goal 2: Local communities will have the information, expertise, and resources to plan for and manage their natural resources.** This goal focuses on increasing the ability of local communities to incorporate natural resources into land use decisions and increasing their understanding of the consequences of land use decisions on the environment's ability to provide a sustainable flow of benefits. Example measures are:

- Number of local comprehensive plans with natural resource baseline information.
- Number of watershed and landscape level natural resource plans (across jurisdictional boundaries) and grant dollars provided to these initiatives.

---

## ➤ Recreation Systems

### DNR's Outdoor Recreation System

Outdoor recreation generates benefits for individuals, families, and society at large. In short, recreation adds value to our personal and collective lives. Demands for these benefits provide a rationale for establishing recreation opportunities, facilities, and services. Ensuring these benefits are available is the basic goal of outdoor recreation providers such as the Department of Natural Resources.

Outdoor recreation generates personal, social, economic, and environmental benefits. Personal benefits of outdoor recreation include improved mental and physical health, personal growth and education, an enhanced connection to nature, and simply the opportunity to have fun. Social benefits include stronger family or interpersonal bonds and a heightened sense of community identity. The economic benefits of outdoor recreation in Minnesota are quite apparent. They include strengthening the state's resort and tourism industry; attraction, retention and growth of local and regional businesses; the revitalization of small communities; and increased workforce productivity. Environmental benefits include a strengthening of the public's environmental ethic, a higher commitment to protect significant natural resource areas, and more active citizen involvement in environmental issues.

Providing outdoor recreation opportunities is truly a public-private partnership in Minnesota. All levels of government are involved from federal to state to local. And each level has its own particular niche to serve. The federal and state levels focus primarily on the resource-extensive opportunities—such as wildlife areas, large parks and primitive areas—while local governments tend to focus on population-oriented facilities, such as athletic fields and community parks. The private sector is a major provider, too, as demonstrated by Minnesota's thriving recreation-oriented tourism industry.

The DNR is the primary state-level provider of outdoor recreation. DNR's focus is on natural resource-based outdoor recreation opportunities, from hunting and fishing to hiking and trail riding to a variety of water sports. The DNR has a multi-faceted role in recreation, ranging from the direct provision of recreation opportunities (e.g., water accesses, trails and parks), to the maintenance of the natural resource base upon which outdoor recreation opportunities depend (e.g., plant and animal habitat, and connecting resource hubs through the new *Conservation Connections* initiative), to the safety of outdoor recreation participation (e.g., boating safety and hunter education).

Central to DNR's recreation role is the management of an outdoor recreation system with eleven units established by the state legislature (M. S. 86A. 05). These units provide a wide variety of recreational opportunities that benefit a range of outdoor enthusiasts.

1. State Parks
2. State Recreation Areas
3. State Trails
4. State Scientific and Natural Areas
5. State Wilderness Areas
6. State Forests
7. State Wild, Scenic and Recreational Rivers
8. State Water Access Sites
9. State Wildlife Management Areas
10. State Aquatic Management Areas
11. Other DNR units identified in the Outdoor Recreation Chapter (M. S. 86A) including State Safe Harbors.

As DNR develops these recreation units, it will work with local and county governments to plan for the impacts of increased recreational activities on the services required of local governments (e.g., police, fire, emergency medical services, roads).

---

The DNR's outdoor recreation goals, objectives, and strategies are presented below. They demonstrate the wide ranging importance of outdoor recreation at the DNR. They encompass DNR programs involved with the maintenance of the natural resource base upon which many recreation opportunities depend (organized under Goal 1 below), programs involved with the direct provision of recreation opportunities (Goal 2), and programs concerned with the safety of outdoor enthusiasts (Goal 3).

*Note: The strategies in this chapter are listed under their relevant objectives. This format differs slightly from the other chapters which have strategies grouped together after the goals and objectives sections.*

## Outdoor Recreation Goals, Objectives and Strategies

### **GOAL 1. Minnesota's natural resources will be able to produce outdoor recreation benefits over the long term.**

**Objective 1.1. Minnesota will continue to have a diversity of recreation landscapes that provide a range of opportunities for outdoor recreation experiences.** Minnesota has a variety of recreation landscapes from lightly modified to heavily modified. Lightly modified recreation landscapes include primitive and semi-primitive areas such as those in northeastern Minnesota (see Figure 1). Heavily modified recreation landscapes exist throughout Minnesota but are more common near urban and agricultural areas. Nearly 80% of Minnesota's primitive and semi-primitive lands and many of the state's urban natural areas are publicly owned, which underlines the important role public land management plays in permanently maintaining a full spectrum of recreation landscapes.

**Strategy 1.** Preserve natural, remote outdoor recreation opportunities through public land ownership and partnerships with private landowners.

**Strategy 2.** Develop and maintain outdoor recreation opportunities in and around urban areas through partnerships and acquisition.

**Strategy 3.** Manage view sheds to maintain natural settings for water-related outdoor recreation opportunities.

**Objective 1.2. Minnesota's native plant and animal communities will be preserved** (remnant communities from the time of European settlement). Minnesota's native plant and animal communities include the habitats of rare, threatened and endangered species, geologic sites and other natural features. These resources serve as the basis for outdoor recreation opportunities and numerous DNR programs.

**Strategy 1.** Identify and protect natural features that have a high priority for recreation use (see other resource sections for related strategies and performance measures).

**Strategy 2.** Create opportunities both to preserve Minnesota's native plant and animal communities and to provide for expanding outdoor recreation opportunities.

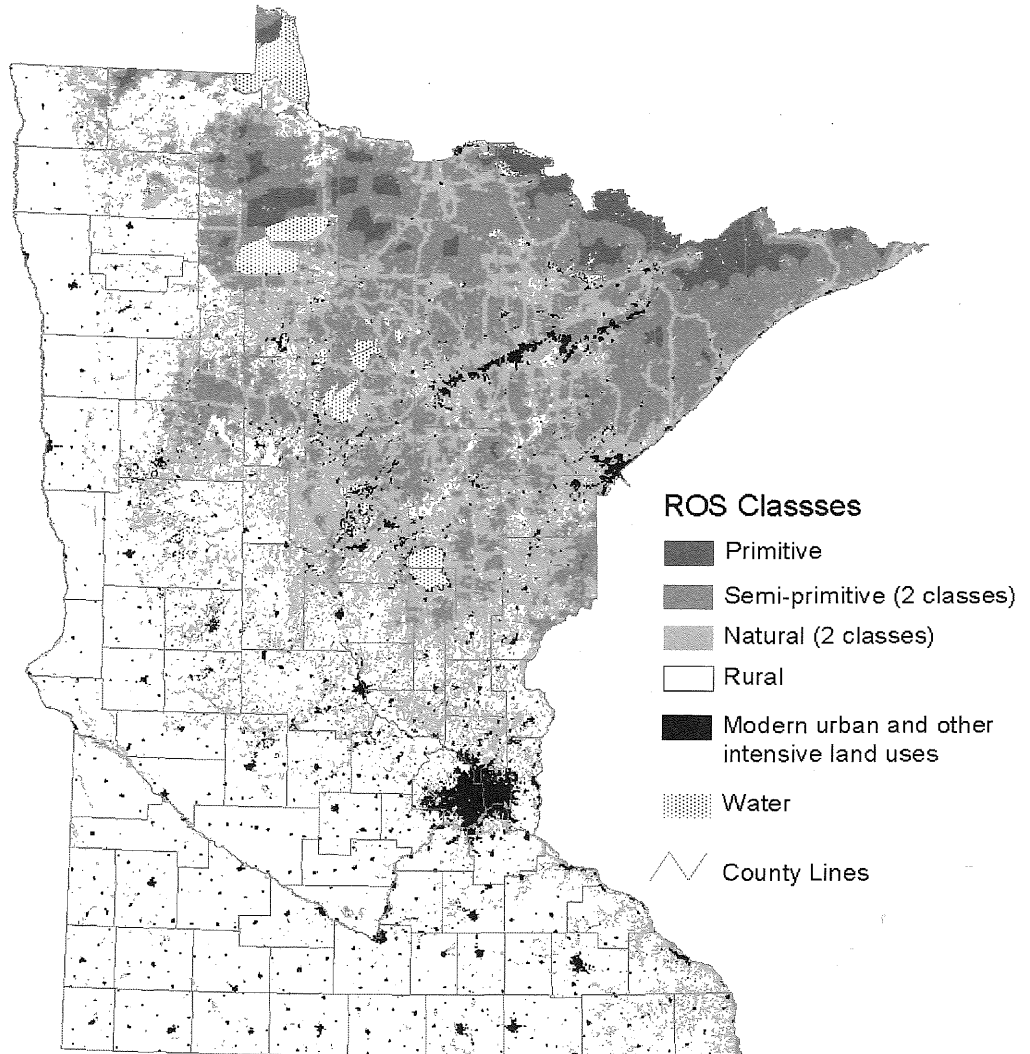
**Objective 1.3. Minnesota lakes and rivers will be fishable and swimmable.** Many of Minnesota's outdoor recreation opportunities depend on healthy lakes, rivers, and wetlands. While not all water bodies are, nor can be, fishable and swimmable, DNR will work to attain this objective where appropriate.

**Strategy 1.** Protect, enhance, and restore Minnesota's aquatic resources (see Waters section for related strategies and performance measures).

**Strategy 2.** Manage recreation development in a manner that protects lakes and rivers. This includes both public (e.g., boat access, campground, shore fishing site) and private (e.g., shoreland housing, resort, marina) developments.

Figure 1

## Recreation Opportunity Spectrum (ROS)



Source: MN DNR, 1984-89 Statewide Comprehensive Outdoor Recreation Plan.



---

**Objective 1.4. Recreation activities will not significantly impair the natural resource base on which they depend.** There are limits to the use of Minnesota's natural resources. DNR will manage recreation activities to ensure the long term health of the state's natural resources.

**Strategy 1.** Develop and enforce outdoor recreation rules that protect Minnesota's natural resources (e.g., surface water use zoning, use restrictions at sensitive environmental sites).

**Strategy 2.** Develop outdoor recreation areas and facilities in suitable places and minimize impacts to natural resources when they cannot be avoided (e.g., seasonal closures, separation of trail uses, lake-scaping, facility siting).

**Strategy 3.** Enhance efforts to monitor and evaluate recreational activities that impact natural resources over large geographic areas (e.g., off-highway vehicle use, motorized watercraft use, mountain biking, horseback riding).

**Objective 1.5. Minnesota's natural environment will support populations of fish, wildlife, and plant species to sustain recreational opportunities.** Minnesota has some of the highest participation rates for hunting, fishing, and wildlife viewing in the nation. High participation in outdoor recreation can stress and deplete natural resources.

**Strategy 1.** Develop and enforce regulations that conserve populations of fish, wildlife, and plants.

**Strategy 2.** Continue research to support healthy fish, wildlife, and plant populations for fishing, hunting and viewing.

***GOAL 2. Outdoor enthusiasts will have access to Minnesota's natural resources for a variety of recreation opportunities including environmental education.***

**Objective 2.1. Public lands and waters will be open and accessible for public recreation use.** Public lands and waters in Minnesota are owned in common by state residents. In most cases, some form of developed access is necessary to make them available for use.

**Strategy 1.** Continue to create and maintain access to public lands and waters through facility developments (fishing piers, boat accesses, trails, etc.), cooperative agreements with public and private land owners, and acquisition of land and easements.

**Strategy 2.** Develop facilities that provide access for multiple recreational uses at one location when appropriate.

**Strategy 3.** Provide outdoor recreation opportunities close to where people live.

**Objective 2.2. People of all abilities will have access to outdoor recreation opportunities.** Opportunities should be accessible to all people including those with impairments that affect mobility, sight, hearing, and cognitive functions.

**Strategy 1.** Build DNR facilities using universal design principles and reconstruct or modify existing facilities that are not accessible.

**Strategy 2.** Require facilities that receive DNR financial assistance to meet accessibility principles.

**Objective 2.3. DNR will address the needs of diverse populations when developing outdoor recreation programs and facilities.** Minnesota's demographics have changed significantly in the last ten years. The state's population is increasingly older and more diverse. Immigrants need information, education, and assistance to learn about outdoor recreation opportunities.

**Strategy 1.** Enhance outreach efforts to diverse populations.

**Strategy 2.** Provide public information in different languages and formats.

**Strategy 3.** Evaluate and provide for the outdoor recreation needs of different groups and cultures.

**Objective 2.4. Representative examples of Minnesota's natural and cultural heritage will be available for public education and enjoyment.** Using a variety of educational tools, recreation enthusiasts will be able to understand and enjoy Minnesota's heritage. Examples of tools are self-guided displays and tours, naturalist programs, classes, publications, and kiosks.

---

**Strategy 1.** Provide access to Minnesota’s natural features, landscapes, and rare resources for scientific research, public education, and enjoyment.

**Strategy 2.** Cooperate with schools, environmental learning centers, and universities to provide natural resource stewardship education opportunities. Determine gaps in existing opportunities and make needed adjustments.

**Strategy 3.** Work with Minnesota’s diverse populations, including Native Americans, to interpret the state’s pre-settlement and settlement cultural heritage.

**Strategy 4.** Design new educational tools and programs for enhancing understanding of Minnesota’s heritage.

**Objective 2.5. DNR— in cooperation with the public, other providers, and the private sector — will help ensure a range of natural resource based outdoor recreation opportunities.**

DNR provides a portion of the outdoor recreation opportunities that people desire. A complete outdoor recreation system requires participation from multiple levels of government and the private sector (see Figure 2).

**Strategy 1.** Develop a statewide outdoor recreation plan that defines the department’s recreation priorities, guides actions, involves citizens, and meets guidelines to qualify for federal funding.

**Strategy 2.** Encourage broad participation from the outdoor recreation community and stakeholders to better coordinate the provision of a complete outdoor recreation system.

**Strategy 3.** Provide financial and technical assistance to local governments for outdoor recreation facilities.

**Objective 2.6. The public will be aware of the outdoor recreation opportunities DNR provides.** DNR uses many approaches to inform the public about outdoor recreation opportunities. DNR will ensure that these approaches are effective and keep abreast of emerging technologies.

**Strategy 1.** Improve and integrate public information, education, marketing, and outreach.

**Strategy 2.** Research how the public learns about outdoor recreation opportunities.

**Objective 2.7. People who use DNR outdoor recreation facilities, services, and programs will be satisfied.** DNR will measure public satisfaction to ensure that its facilities, services, and programs are high quality and that it is managing public expectations within the carrying capacity of the resource.

**Strategy 1.** Measure public satisfaction through market research and customer surveys.

**Strategy 2.** Use survey results to refine DNR’s outdoor recreation services and programs, and ensure that they are high quality.

***GOAL 3. Outdoor enthusiasts will have the opportunity for safe and responsible experiences.***

**Objective 3.1. Outdoor enthusiasts will demonstrate safe behavior.** Responsible behavior as defined by state law and common sense is an essential component of a safe recreation experience.

**Strategy 1.** Enforce outdoor recreation safety regulations.

**Strategy 2.** Provide clear, consistent outdoor recreation information and education regarding rules and expected behaviors.

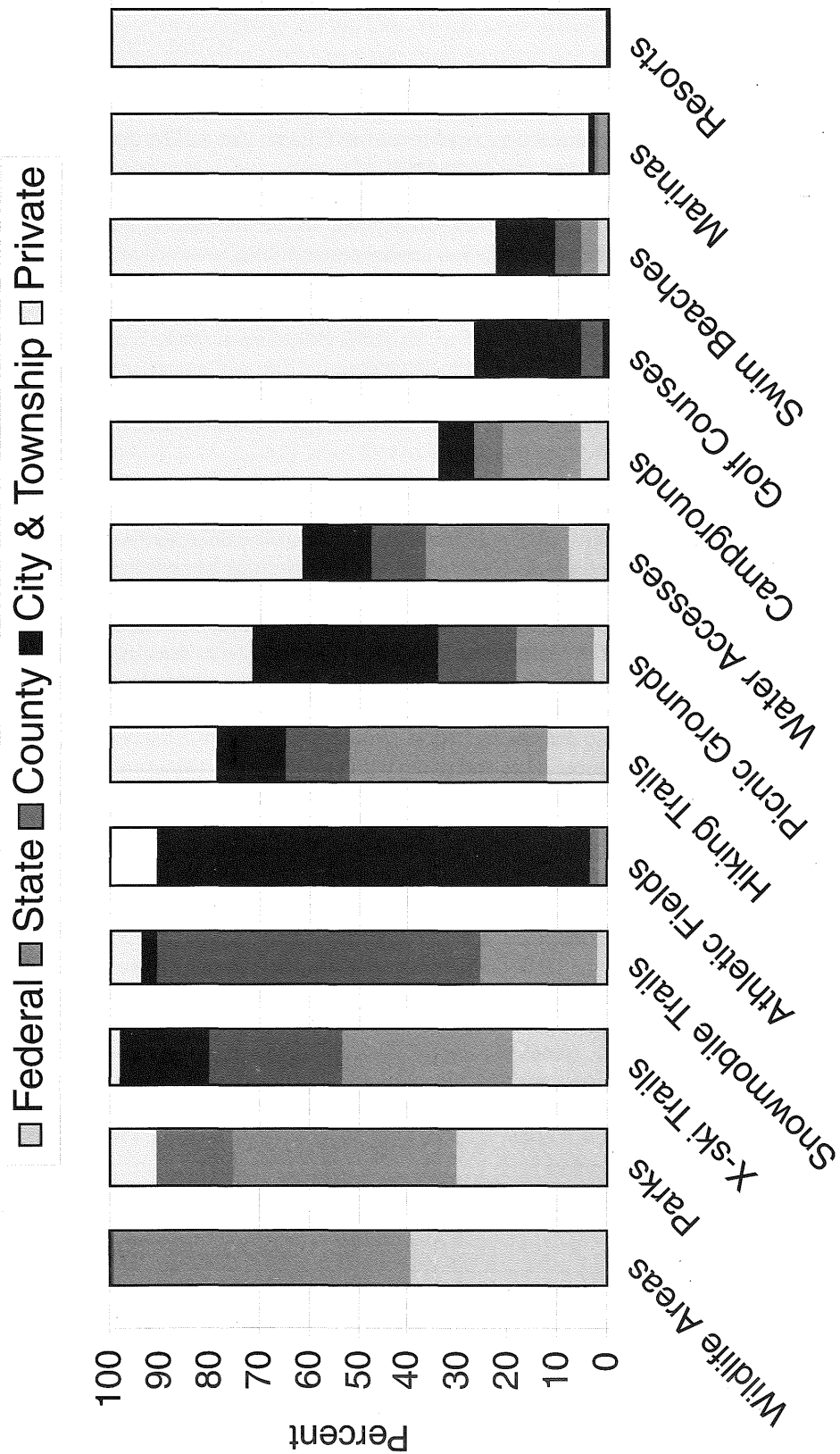
**Strategy 3.** Provide public education and safety training for hunting, snowmobiling, and ATV and watercraft use.

**Strategy 4.** Inform the public about health concerns such as fish consumption, Lyme disease, and swimmer’s itch.

**Objective 3.2. DNR’s recreation facilities will provide safe opportunities for the public.** Public health and safety is a responsibility of DNR and other government agencies. This responsibility includes outdoor recreation.

**Strategy 1.** Construct, operate, and maintain DNR recreation facilities in a safe, responsible manner.

Figure 2



---

## Measuring Progress

*How do we measure progress toward DNR's three recreational goals? Broadly, we need to track both progress toward maintaining a diverse, healthy environment that can provide long-term recreation benefits, and at the same time measure the variety and quality of Minnesota's recreation opportunities. Thus, meaningful measures will focus on both environmental and social outcomes. Examples of performance measures linked to DNR goals and objectives are described below.*

**GOAL 1: Minnesota's natural resources will have the ability to produce outdoor recreation benefits over the long term.** Measuring progress toward this goal requires an emphasis on environmental outcomes (e.g., healthy waters, forests, etc.). Many of these measures are described in other sections of *Directions 2000*, yet some measures such as the availability of diverse landscapes and native plant and animal communities, are particularly relevant to recreation. Example measures are:

- Acreage and distribution of each recreation landscape (identified along a Recreation Opportunity Spectrum from "primitive" to "urban"). (Measure of Objective 1.1)
- Acreage, location, and ownership (including fee title and easements) of native plant and animal communities. (Measure of Objective 1.2)
- Population and harvesting trends of selected species of recreational value (e.g., walleye). (Measure of Objectives 1.4, 1.5)

Examining relationships between our recreational activities and environmental outcomes (e.g., fishing pressure and fish population trends) helps ensure we minimize negative impacts and thus sustain the natural resources and recreation opportunities that Minnesotans care about so deeply.

**GOAL 2: Outdoor enthusiasts will have access to Minnesota's natural resources for a variety of recreation opportunities.** This goal focuses on creating opportunities to use natural resources by providing recreation facilities, services, and programs. The opportunities provided by the DNR need to meet the expectations of a variety of outdoor enthusiasts. Example measures are:

- Percent of Minnesota lakes and rivers with public access. (Measure of Objective 2.1)
- Percent of evaluated DNR sites and facilities that are accessible (trails, buildings). (Measure of Objective 2.2)
- Satisfaction levels of people who use DNR outdoor recreation facilities, services, and programs. (Measure of Objective 2.7)

**GOAL 3: Outdoor enthusiasts will have the opportunity for safe and responsible experiences.** While the DNR cannot be responsible for personal choices and behaviors, DNR's educational and enforcement activities promote safe recreational opportunities. Measuring progress toward this goal, however, must take into account external (non-DNR) factors that affect safety outcomes. For example, trends in accident rates are the result of many factors: length of a season, popularity of a recreational activity, alcohol use, etc. Performance measures are most meaningful when they are interpreted within the appropriate context. Example measures are:

- Rate of fatalities and major accidents by category (e.g., hunting, OHV, etc.). (Measure of Objective 3.1)
- Number of Citizens trained in safety programs. (Measure of Objective 3.2)

---

# The Task Ahead

## The task ahead includes:

**Budgeting:** *Directions 2000* will provide guidance for developing the DNR biennial budget. *Directions 2000* identifies strategies that merit additional budgetary or organizational support. An example is the DNR focus on *Conservation Connections* development.

**Organizational Targets:** DNR will develop numerical targets for selected objectives described in *Directions 2000*. Targets will allow DNR to measure success or progress in reaching both short term and long term goals.

**Performance Reporting:** *Performance Report 2001* will be based on the goals and objectives in *Directions 2000* and the targets developed for selected objectives.

**Agency Coordination:** Creation of specific goals, objectives, strategies, and targets establishes the basis for coordinated planning at the agency level. For example, DNR and the Minnesota Pollution Control Agency share common concerns for the health of natural resources. Each agency implements an array of strategies designed to foster sustainable ecosystems. Those strategies are most often compatible but not always coordinated. Development of the strategic plan provides the basis for closer coordination with federal, state, and local agencies.

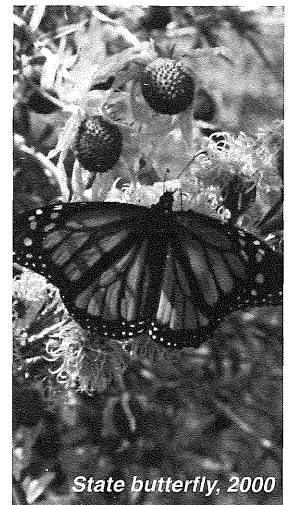
**Plan Implementation:** Implementation is the heart of a strategic plan. Plan implementation itself includes an array of efforts, such as a focus on the specific strategies identified in the plan (action planning), outreach to stakeholders, development of strategic plans for key DNR disciplines, and development of regional sustainability plans. All of these efforts collectively are part of the planning cycle and build towards a regular update of *Directions 2000*. That update probably will occur in 2002.

**Integration at the Discipline and Regional Level:** Over the long term, DNR will update existing strategic plans of its disciplines and regions using *Directions 2000* as a guiding framework.

DNR is receptive to suggestions and comments on any part of this strategic plan. Please direct such comments to:

Minnesota Department of Natural Resources  
OMBS Planning Unit, Box 10  
500 Lafayette Road  
St. Paul, MN 55155-4010

Comments also may be delivered to DNR's Web site: <http://www.dnr.state.mn.us>



State butterfly, 2000





Copyright 2000, State of Minnesota, Department of Natural Resources

Equal opportunity to participate in and benefit from programs of the Minnesota Department of Natural Resources is available to all individuals regardless of race, color, creed, religion, national origin, sex, marital status, status with regard to public assistance, age, sexual orientation or disability. Discrimination inquiries should be sent to MN-DNR, 500 Lafayette Road, St. Paul, MN 55155-4031; or the Equal Opportunity Office, Department of the Interior, Washington, DC 20240.

This document is available in alternative formats to individuals with disabilities by calling (651) 296-6157 (Metro Area) or 1-888-MINNDNR (MN Toll Free) or Telecommunication Device for the Deaf/TTY: (651) 296-5484 (Metro Area) or 1-800-657-3929 (Toll Free TTY).

Printed on recycled paper containing a minimum of 20% post-consumer waste and soy-based ink.