2005 UPDATE

A STRATEGIC CONSERVATION AGENDA 2003-2007

Measuring Progress Toward Mission

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Natural Lands

Fisheries and Wildlife

Waters and Watersheds

Forests

Outdoor Recreation

Natural Resources Stewardship Education

March 2005
Update
Minnesota Department of Natural Resources
http://www.dnr.state.mn.us/conservationagenda/index.html

03/07/05

Commissioner's Message

Minnesota is known for its natural resources. Our lakes are legendary. Our forests are vast. And we are blessed with a rich array of plant and wildlife species. We in the Department of Natural Resources take seriously our responsibility to conserve the state's resources for you and for future generations.

A Strategic Conservation Agenda 2003–2007 highlights what this administration believes is important, what we intend to accomplish, and how we will hold ourselves accountable for achieving results. It lists strategic indicators and targets in six performance areas: natural lands, fisheries and wildlife, waters and watersheds, forests, outdoor recreation, and natural resources stewardship education. These indicators and targets provide a valuable framework for communicating desired results and evaluating progress over time.

This report addresses one of Governor Pawlenty's five principles to guide the work of government. This principle is: "Manage for Results… Develop challenging indicators and benchmarks for all levels of government, measure results, and use the outcomes to guide decisions and direct our work."

This report does not describe all of DNR's work. Rather, it presents key areas in which DNR will commit resources to achieve specific targets that are measurable by specific indicators. It is intended as a template for communicating how DNR programs are achieving mission results.

DNR's *Conservation Agenda* is a sound first step in using a succinct set of indicators and targets to report on DNR mission progress. We will routinely use these indicators as a guide to improve our conservation efforts and results. This dynamic report will be periodically updated as we refine and develop new indicators to track the health of our natural resources and with our partners, devise new strategies to achieve their long-term conservation.

The first edition of this report was produced in March 2004. Now, this March 2005 update represents DNR's first effort to review the set of indicators and report progress toward conservation targets. In addition, we have added ten new indicators and expanded the introduction sections to provide more detail about DNR's vision and critical trends in Minnesota's natural resources. We look forward to continued progress with our many partners.

Gene Merriam
Commissioner

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Introduction

DNR Mission

"The mission of the Minnesota Department of Natural Resources is to work with citizens to conserve 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."

DNR Management Principles

These management principles are guiding our work for 2003 through 2007 as we address a focused set of key performance areas:

- Enhance communication and working relationships with core natural resource constituents; give particular attention to hunters and anglers
- Cooperate with other agencies, local units of government, citizens, and stakeholders to effectively manage and sustain natural resources
- Provide for sustainable economic use of our natural resources; place immediate focus on enhancing the state's forest-based economy
- Make resource and land-use decisions at the local level
- Integrate planning and budgeting across area, regional, and state organizational levels
- Adapt DNR's organizational structure to more effectively and efficiently deliver services
- Use sound scientific principles, accurate information, and state-of-the-art technology in managing natural resources
- Model the sustainable use of natural resources in our work

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About This Report

Purpose and Audience

A Strategic Conservation Agenda 2003–2007 describes DNR's progress toward achieving conservation results. It uses approximately 85 measurable indicators and targets to paint a picture of natural resource conditions, DNR management activities, and the results we hope to accomplish through our management efforts.

The agenda is designed to:

- provide internal management direction by defining agency-level performance goals critical to mission success,
- demonstrate accountability to citizens and stakeholders by communicating our work in terms of measurable results, and
- fulfill the Governor's expectations for agency accountability to results.

This report is not a "report card" for all of Minnesota's natural resources. Nor does it describe all of DNR's work. Rather, it highlights key areas in which DNR will commit resources to achieve specific results.

No one organization can be solely accountable for the condition of Minnesota's natural resources. We emphasize the importance of education and partnerships as key DNR management strategies. Ultimately citizens, local government, numerous agencies, and organizations together will shape the future of Minnesota's environment.

Better performance information provides a foundation for better decisions, a healthier environment, and sustainable natural resource use. The full-color report is available on the DNR website at **http://www.dnr.state.mn.us/conservationagenda/index.html** and will be periodically updated as new data become available. We hope it will stimulate discussion and improve understanding of the state of our natural resources, our long-term goals, and progress toward attaining those goals.

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Report Structure

Historically, resource agencies have measured investments and activities. Today's society demands greater focus on establishing and measuring results. In response, *A Strategic Conservation Agenda 2003–2007* identifies priority indicators and targets in six key performance areas:

- Natural Lands
- Fisheries and Wildlife
- Waters and Watersheds
- Forests
- Outdoor Recreation
- Natural Resources Stewardship Education

Indicators are measures of natural resource trends or resource work performed. Targets define expected results; they serve as specific benchmarks that help us gauge progress toward long-term goals. Indicators and targets together paint for citizens a clear picture of what we are trying to do and how we are trying to do it. DNR will use indicators and targets to clearly communicate not only what funds we spend and what actions we take, but also what results we achieve.

The following sections provide selected indicators and targets for each performance area. Although they describe only a small part of DNR's conservation work, they nonetheless illustrate the range and reach of DNR's mission.

Although the indicators in this report have data of sufficient quality and coverage to support trend reporting, we recognize gaps in our ability to report on important natural resources trends. Each section concludes with a list of important indicators that require either additional data or new monitoring efforts. DNR will work cooperatively with its partners to develop new indicators that better track the health of Minnesota's natural resources.

Resource Connections

Pursuing multiple conservation objectives requires integrated resource management. That means our efforts must interact and reinforce each other, just as natural resources do. In the case of the Conservation Agenda, it means addressing indicators together, rather than independently, recognizing the trade-offs and connections among them. And it means working with partners to accomplish our mission.

In some cases, progress in one area means progress in another. For example, efforts that seek to meet our target of no-net-loss of wetlands can help us meet targets related to duck harvest, flood damage reduction, and frog and toad populations. In other cases, progress in one area may conflict with another area. Integrated resource management means paying attention to how management activities intended to achieve specific targets also affect other conservation values.

None of the Conservation Agenda's targets can be pursued—or achieved—in a vacuum. As we make progress toward one, we will, intentionally or not, influence progress toward others. The challenge—and, ultimately, the reward—will lie in seeing and embracing the links and anticipating and minimizing negative impacts as we work with partners and fulfill our mission "to work with citizens to conserve 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."

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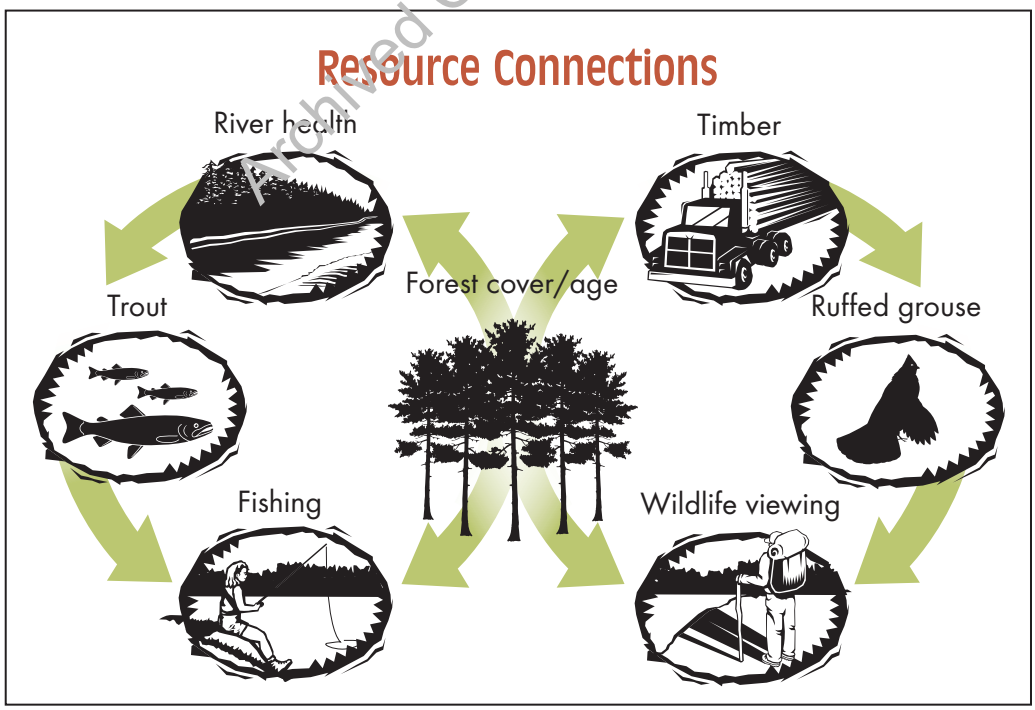

Improving indicators in one performance area affects indicators in others as well.

Report Preparation and Updating

The indicators in this report were developed through a multi-step, agency-wide process under the direction of the Commissioner's Office. The Science Policy Unit, housed in DNR's Office of Management and Budget, worked with DNR operations managers (representing all DNR divisions and regions) to compile the final report. The first edition of DNR's Conservation Agenda was produced in March 2004.

This current report, updated in March 2005, is DNR's first effort to review the set of indicators and report progress toward conservation targets. DNR will continue to update this report periodically on the DNR web site at **http://www.dnr.state.mn.us/conservationagenda/index.html**. We will track existing indicators over time and chart and report progress toward conservation targets. We will add new indicators to fill information gaps. We will work with our partners to adjust targets as conditions change and develop new targets as opportunities arise to better conserve natural resources. The indicators and targets presented in this report keep us up to date, help us check our progress, and allow us to better focus our efforts and constantly improve what we do.

For More Information

This report provides an agency-wide picture of DNR progress towards mission results. It does not describe all DNR's work. For more information about specific divisions or programs, visit the DNR website at www.dnr.state.mn.us. For additional information about using indicators and targets to measure conservation results, or to comment on this report, contact OMBS-Science Policy Unit: Laura Preus (science policy analyst, 651-296-1816, laura.preus@dnr.state.mn.us) and Keith Wendt (program manager, 651-297-7879, keith.wendt@dnr.state.mn.us).

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Section One: Natural Lands

Minnesota's Natural Lands Will Be Conserved

Minnesotans enjoy a rich, varied landscape. Numerous natural resources and environments contribute to our high quality of life. Natural lands support a diversity of fish and wildlife, aquatic ecosystems, and forests that are a foundation for agriculture, timber production, mineral extraction, recreation, and environmental health.

For the sake of the future, we must carefully manage and conserve Minnesota's natural lands—parks, natural areas, working forests, wildlife areas, wetlands, and grasslands. And, because conservation efforts are interconnected, we must do so in the context of the other performance areas delineated in this report: Fisheries and Wildlife, Waters and Watersheds, Forests, Outdoor Recreation, and Natural Resources Stewardship Education.

DNR – What We Do

- Work with partners across ownerships and landscapes to conserve natural lands and waters
- Use grants, education, and technical assistance to help landowners care for natural and agricultural lands.
- Manage 5.5 million acres of land

A Vision for the Future

Our vision for Minnesota's future is one of a healthy, sustainable network of natural lands in balance with agricultural, urban, and developed spaces. Undeveloped areas will protect for posterity our natural heritage, providing plant and animal habitat, water and watershed protection, and beauty and open space.

In the future we envision, **remaining natural ecosystems will be conserved.** Impacts of agriculture on water quality and flow will be minimal. Natural habitats will be better connected by natural corridors. Native prairie will be protected and grasslands and riparian forest restored through donations, purchases, and easements. We will take good care of DNR-administered lands and be a good neighbor to adjacent landowners.

We envision a future in which **degraded habitats will be restored.** Lakes, wetlands, and rivers will be renewed. Grasslands and forests will return to some areas from which they have been lost. More marginal cropland will be enrolled in long-term conservation easement programs. Resources in corridors such as public rights-of-way will be improved.

We envision a future in which **access to mineral resources** will be preserved. Adequate supplies of sand and gravel will be available with minimal harm to natural lands and waters. Aggregate deposits will be assessed early in areas facing development. Mining and reclamation will be planned to meet community needs, minimize conflicts, and ensure environmental integrity.

We envision a future in which **healthy, working farmland and critical habitat are protected** as land is developed. Recreation associated with farms, such as hunting and wildlife viewing, will expand.

We envision a future in which **urban and developing areas will support a diversity** of plant and animal communities. Natural lands in these areas will be connected, and will offer diverse recreational opportunities without degrading the resource. Developed areas will have water discharge rates similar to those before development. Surface and ground water will meet quality standards, and will be conserved to meet the needs of ecosystems, businesses, and residents. Local decisions will be supported by public-private partnerships, with DNR providing technical assistance and coordination.

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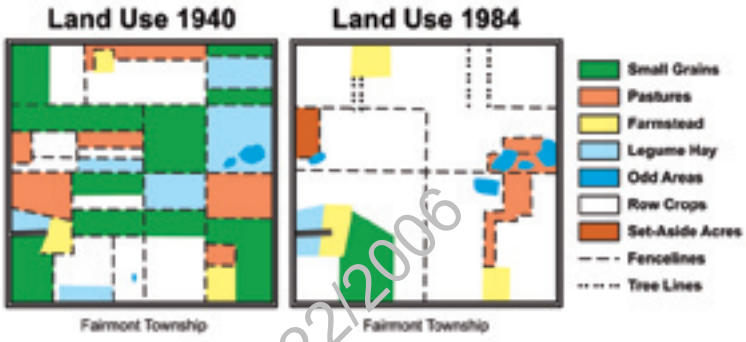
Critical Trends

As we strive to achieve this vision, we must address challenging trends affecting natural lands today.

One major trend is the **conversion** of natural lands to other uses. Each day Minnesotans lose an average of 170 acres of land to development. From 1982 to 1997, the amount of urban land in the state increased by 27 percent.

Rural Minnesota has changed dramatically in the past 50 years. Wetlands have been drained, grasslands have been converted to row crops and fewer livestock roam the landscape. Larger, less-diverse farms support less habitat for wildlife.

Federal farm policy drives many of the day-to-day decisions of Minnesota farmers and is key to protecting wildlife habitat on private lands. While conservation land retirement programs have retired about 1.8 million acres of land and have shown success for wildlife and water quality, there remain significant long-term challenges. For example, approximately 800,000 acres enrolled in the Conservation Reserve Program (CRP) are scheduled to expire in 2007-08. New strategies will be needed for contract extension and renewal. At the same time acreage devoted to row crop production, which provides limited habitat value, has continued to increase (soybeans increased from 5.1 million acres in 1985 to 7.5 million acres in 2003). These trends taken together can be detrimental to long-term habitat conservation and water-quality improvements. DNR will continue to support existing conservation programs, and new efforts such as the Conservation Security Program and others, that both protect income and reward farmers for producing conservation benefits.



These maps illustrate the long-term historical changes in the agricultural landscape. Land use in the 1940s was diversified and provided a variety of habitat for wildlife. By the 1980s, land use became simplified as many areas converted to row crops.

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Minnesota's natural lands are a defining component of the state's quality of life. This forest-wetland complex in Scott County protects critical wildlife habitat. It was conserved through community efforts and DNR's Metro Greenways program.

Rare natural areas such as old-growth forest and native prairie have declined in recent years. Old-growth forest today covers less than 4 percent of the area it covered before European settlement. Native prairie, Big Woods forest, and oak savanna cover less than 1 percent of their original extent.

Fragmentation of natural habitats is a major concern. Natural land tracts are being reduced in size and isolated from each other, creating islands of habitat too small to support a healthy ecosystem or sustainable recreational or commercial use.

Efforts to conserve natural lands face tremendous challenges. Partnerships and education are critical to surmounting them. We have a narrow window of opportunity to protect natural areas before they disappear. DNR planning and activities such as those delineated by the indicators and targets that follow are keys to achieving the sustainable future for Minnesota's natural lands that we envision.

Natural Lands Conservation Indicators & Targets

Indicator	Target	Page
DNR-administered lands		**Page**
Number of acres protected in Wildlife Management Areas (WMAs)	Acquire 5,000 WMA acres per year in FY 2003–06	4
Number of shoreline miles protected in Aquatic Management Areas	Acquire 10 miles of trout-stream access and permanently protect 5 miles of lakeshore in AMAs each year for the next 10 years	5
Number of acres protected within statutory park boundaries	Purchase highest priority inholdings as funding is available	6
Number of sites protected in Scientific and Natural Areas (SNAs)	Dedicate three to seven SNAs in FY 2004–05	7
Number of DNR land management units mapped for terrestrial invasive plants; acres of control efforts.	Continue to map and control aggressive terrestrial invasive plant species on DNR lands.	8
Percentage of DNR lands inventoried as to natural resource purpose	The FY2004-05 target of conducting site-specific inventories on all acquired DNR lands with respect to use by the public was met by the November 2004 due date	9
Number of school trust land parcels meeting fiduciary responsibilities	During FY2005-06, formulate plans to exchange about 640 acres of school trust land out of management units that inhibit the generation of revenue	10
Forecast income from state mineral leases	Have taconite revenues from ore produced off Permanent School Trust Lands, Permanent University Trust Fund Lands, and Tax Forfeited Lands meet or exceed levels forecast by DNR and the taconite mining industry.	11

Farmland conservation		**Page**
Acres in conservation land retirement programs under state and federal farmland programs	Have more than 2 million acres enrolled in conservation land retirement programs by the end of 2005 and 2.5 million acres by 2010	12
Number of prairie stewardship plans and management projects	Conduct at least 30 prairie stewardship plans and 50 management projects each year	13

Conservation partnerships and community assistance		**Page**
Acres acquired for local community projects funded with grants	Acquire approximately 200 acres per year in 2005–06 and 200 to 300 acres per year thereafter	14
Number of habitat acres protected in the Twin Cities metropolitan area	Protect an additional 1,200 habitat acres and restore about 2,500 habitat acres through the Metro Wildlife Corridors Project from 2004 through 2008	15
Number of counties with a Minnesota County Biological Survey	Complete a total of 62 counties and portions of 5 counties by 2007 and all counties by 2021	16
Number of local governments using Natural Heritage data	Provide technical assistance and natural features information to an additional 40 local governments by 2005	17
Environmental review: Number of development projects with environmental review; number of habitat acres affected	No target set	18
Acres of mine-land reclaimed	Maintain assistance for current rates of mine-land reclamation	19
For land use planning education indicator see section on Stewardship Education		105

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Wildlife Management Areas

Indicator: Number of Acres Protected in Wildlife Management Areas (WMAs)

Why is this indicator important?

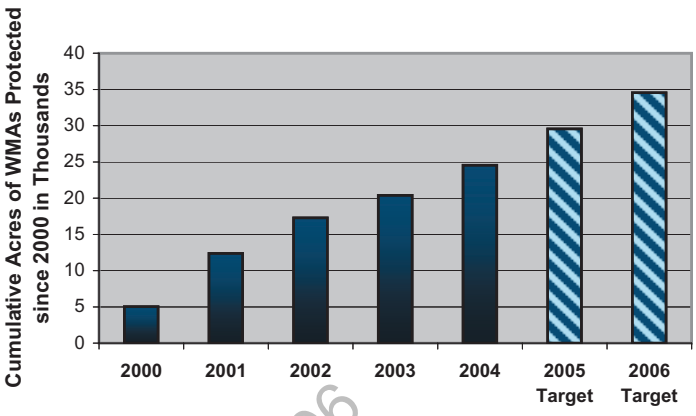
DNR acquires and manages public recreation lands and waters in order to provide abundant outdoor recreation opportunities. DNR manages more than 1,360 public wildlife areas covering 1.2 million acres of high-quality habitat in 86 of the state's 87 counties. These areas provide recreation for hundreds of thousands of hunters and wildlife watchers each year, who contribute significantly to the state's economy.

What is DNR doing?

DNR works with stakeholders to develop and manage a network of high-quality Wildlife Management Areas (WMAs) across Minnesota. While most WMAs are in western Minnesota, the overall widespread distribution of these areas ensures that many landscape types are represented. This helps sustain a variety of species and provides different kinds of outdoor recreation opportunities to people throughout the state. DNR provides online information and maps for WMAs, including hunter access trails, disabled access, and habitat types.

Target: Acquire 5,000 WMA acres per year in FY 2003–06. DNR will continue its efforts to acquire 5,000 acres of WMA land per year through FY 2005–06. Under the planned acquisition expansion in the Governor's capital budget proposal, DNR seeks to acquire an additional 11,400 acres during FY 2006–07. Stakeholders recommend DNR acquire 21,000 acres per year for the next 10 years, and then acquire 12,250 acres per year for the following 40 years. Long-range planning will help Minnesota achieve a high-quality network of WMAs totaling an additional 700,000 acres over the next 50 years.

Acres Protected in Wildlife Management Areas



Acres protected in Wildlife Management Areas. DNR plans to add 5,000 acres to the WMA system each year during FY 2003–2005.

Minnesota has more than 1,360 public wildlife areas covering 1.2 million acres of habitat.

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Learn more about:

- Wildlife Management Areas at: http://www.dnr.state.mn.us/wmas/index/html
- Hunting at: http://www.dnr.state.mn.us/hunting/index/html
- Wildlife viewing at: http://www.dnr.state.mn.us/nature_viewing/wildlife/index.html

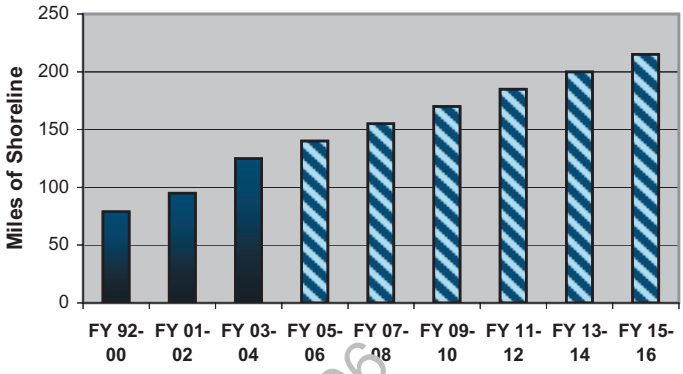
Aquatic Management Areas (AMAs)

Indicator: Number of shoreline miles protected in Aquatic Management Areas

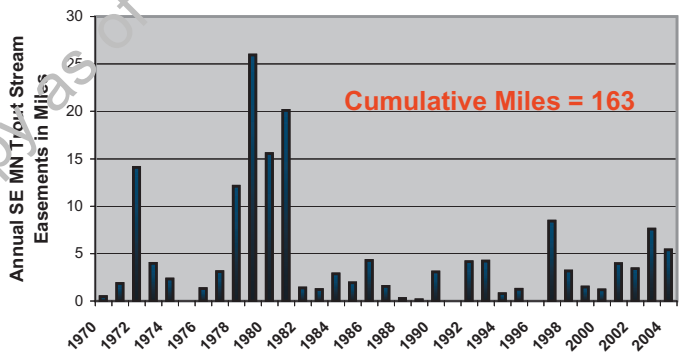
Why is this indicator important?

Fishing is a key component of Minnesota's quality of life. Minnesota has approximately 1.6 million licensed anglers, and fishing-related tourism contributes $1.3 billion to $2.8 billion annually in direct expenditures to the state's economy. Demand for shoreline property is high, and riparian areas are rapidly being developed. DNR's acquisition of riparian parcels called Aquatic Management Areas (AMAs) ensures that critical fish and wildlife habitat will be conserved, non-boat public access to water resources will always be available, and habitat can be developed on previously disturbed areas. Acquisition of AMAs is a critical step in maintaining Minnesota's reputation for providing excellent fishing opportunities and an outstanding quality of life for those who visit and live here.

Cumulative Miles of Shoreline Protected Since 1992



Miles of Easements Purchased on Southeastern Minnesota Trout Streams



What is DNR doing?

The AMA program, created by the 1992 Legislature as part of the Outdoor Recreation Act, administers more than 136 AMA shoreland miles across Minnesota. This is an addition to 534 miles of trout-stream access and 80 miles of lakeshore previously acquired as Fish Management Areas (FMAs). AMAs provide angler and management access, protect critical shoreland habitat, and provide areas for education and research. DNR is planning to incorporate the FMA units into the AMA program.

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Target: Acquire 10 miles of trout-stream access and permanently protect 5 miles of lakeshore in AMAs each year for the next 10 years.

DNR will continue efforts to acquire as many miles of permanent trout stream easement as annual funding allows until trout stream angling opportunities are maximized. DNR will continue to acquire fee title and conservation easements on lakes and warm-water streams as partnership opportunities become available and as annual funding allows.

Learn more about:

- DNR Trout Stream Easement Program at: http://www.dnr.state.mn.us/fisheries/management/access.html

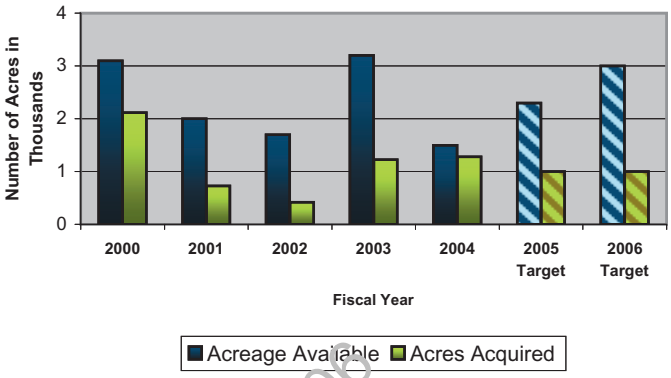
State Park Lands

Indicator: Number of acres protected within statutory park boundaries

Why is this indicator important?

Minnesota's 66 state parks and six recreation areas protect the state's most treasured landscapes and historic sites and are enjoyed by millions of visitors each year. As the number of Minnesota residents grows, so does demand for recreation space. Failure to keep up with this growing demand would result in overuse and deterioration of facilities. In addition, acquisition of critical parcels of land adjacent to and within parks is key to providing future generations with satisfying outdoor experiences. About 45,000 acres of land within existing state parks and recreation areas remain to be acquired. If these lands are sold and developed privately, they are lost to the system for another generation.

Number of Acres Protected within Statutory Park Boundaries



Number of acres protected in statutory park boundaries. DNR acquires critical parcels within statutory park boundaries as they are offered for sale. Frequently there are more acres available for sale than it is possible to acquire.

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What is DNR doing?

DNR continues to develop long-term management plans for the park system. Along with local landowners and governments, we identify boundary expansion possibilities that meet goals such as adding a buffer to an existing facility within the park, buffering the park from development outside the park, providing recreational facilities such as campground expansion, protecting a unique natural or cultural resource, expanding a trail system within the park, or providing public access to lakeshore. When a final management plan is approved, DNR proposes legislation for a boundary change. DNR focuses on acquiring the most critical properties as they become available. We have been able to acquire an average of 1,000 acres per year (including donations) over the past five years. We also partnered with organizations such as the Parks and Trails Council of Minnesota, The Nature Conservancy, and the Conservation Fund to acquire critical parcels.

Grand Portage State Park contains Minnesota's highest waterfall.

Target: Purchase highest priority inholdings as funding is available. We will work with landowners, local governments, and the Legislature to reach this goal. Our management plan process will continue to help identify expansion needs. DNR's goal is to purchase parcels that are critical to the integrity and resource managment of the parks and surrounding communities.

Learn more about:

- State parks at: http://www.dnr.state.mn.us/state_parks/index.html

Scientific and Natural Areas (SNAs)

Indicator: Number of sites protected in Scientific and Natural Areas

Why is this indicator important?

Minnesota's Scientific and Natural Areas (SNAs) preserve and perpetuate the ecological diversity of Minnesota's natural heritage, including landforms, fossil remains, plant and animal communities, rare and endangered species, and other biotic features and geological formations for scientific study and public edification as components of a healthy environment. We work to protect natural communities, rare species, and geological features in order to provide opportunities for nature observation, education, and research.

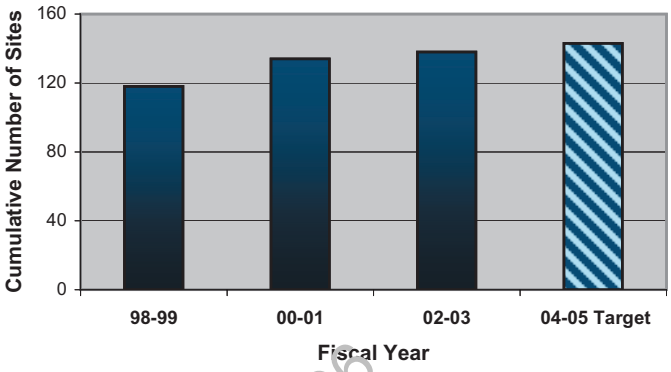
The SNA program's goal is to ensure that no rare feature is lost from any region of the state. This requires protection and management of each feature in sufficient quantity and distribution across the landscape. It is estimated that 500 natural areas are needed throughout the state to adequately protect significant features, including important habitat and natural communities.

What is DNR doing?

The SNA program, created by the 1969 Minnesota Legislature, administers more than 130 natural areas across Minnesota. The program protects and manages land, educates citizens, carries out research, produces publications, and helps private landowners. DNR works with stakeholders to create long-term plans to acquire priority areas.

Target: Dedicate three to seven SNAs in FY 2004–05. DNR's long-term goal for 2085, set with stakeholder input, is to manage a system of 500 natural areas by establishing at least five SNAs per subsection for state significant natural communities, and establishing at least three SNAs per subsection for rare species and geological features. Protecting multiple sites in each landscape region is a vital means of capturing genetic diversity and preventing loss of important species and communities.

Number of Sites Protected as Scientific and Natural Area



Number of sites protected as Scientific and Natural Areas (SNAs). DNR aims to establish three to seven new SNAs in FY 2004-05 for state significant rare natural features.

R. Hamilton Smith

The Blazing Star unit within the Felton Prairie SNA. This is one of the most important prairie complexes in the state, home to numerous rare plant and animal species.

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Learn more about:

- Scientific and Natural Areas at: http://www.dnr.state.mn.us/snas/index.html

Terrestrial Invasive Plant Species

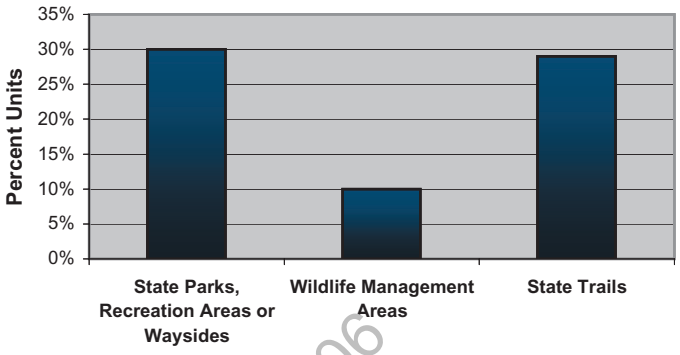
Indicator: Number of DNR land management units mapped for terrestrial invasive plants; acres of control efforts

Why is this indicator important?

Invasive species are non-native plants or animals that can naturalize, threatening natural resources and their use. They are considered the second most significant threat to biodiversity protection in the United States, affecting about half of all rare species. Some invasive species are classified as prohibited noxious weeds and must be controlled as required by Minnesota statute.

About 20 percent of plants in Minnesota are introduced species. DNR has identified invasive species as one of the greatest land and water challenges facing the state. Many DNR units, such as Ecological Services, Parks, Trails and Waterways, and Wildlife are investing substantial time and effort in eradicating small infestations, keeping larger infestations in check, and preventing new infestations.

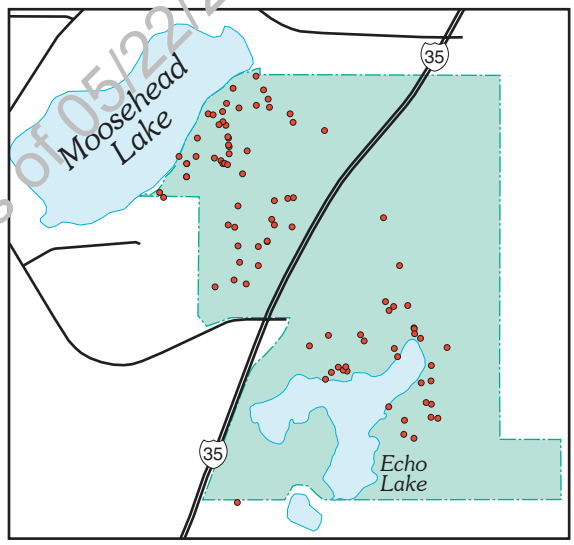
Percent of DNR Land Management Units Mapped for Terrestrial Invasive Plant Species



What is DNR doing?

In 2004, DNR began mapping terrestrial invasive species on DNR-administered lands. The goal of this effort is to give land managers a better idea of the scope of the problem. Mapping was conducted at 157 units in 2004.

Efforts to eradicate or control invasive species are taking place on many DNR lands, such as state parks, state trails, Scientific and Natural Areas, and Wildlife Management Areas. The Division of Parks and Recreation conducts an average of 160 invasive plant control projects annually affecting about 4,320 acres.



Dots indicate locations of 91 invasive plant infestations at Moose Lake State Park. Moose Lake is located in Carlton County. The park contains a mixture of woods, open fields, lakes & ponds.

Target: Continue to map and control aggressive terrestrial invasive plant species on DNR lands. DNR has two long-term goals for this indicator. The first is to document the location and abundance of priority invasive plants in state parks, state trails, Scientific and Natural Areas, and Wildlife Management Areas. The second is to reduce the amount and impact of terrestrial invasive species on DNR-managed lands.

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Learn more about:

- Terrestrial invasive plant species identification, issues, and control at: http://www.dnr.state.mn.us/invasives/terrestrialplants/index.html

Inventory of DNR-Lands

Indicator: Percentage of DNR lands inventoried as to natural resource purpose

Why is this indicator important?

DNR manages 5.5 million acres of state-owned land. To effectively manage this land, and make well-informed decisions as to which land should be retained, sold, exchanged, or purchased, requires basic knowledge such as where they are located, number of acres, and current use.

What is DNR doing?

Several state agencies are conducting inventories of certain land for which the state owns fee title, as defined by Minnesota Statutes, Sec.16B.245. The statute directs the commissioner of administration to collect inventory information from land managing agencies and report the results to the Legislature.

The DNR's inventory covers approximately 2,954,700 acres. Its purpose is to determine if the land is being used for a public purpose or if such use is anticipated. The inventory does not include land held in trust by the state for political subdivisions of the state, permanent school trust fund land, university trust fund lands, mineral interests, or trunk highway right-of way.

A 2002 DNR inventory, based on electronic records, was submitted to the Department of Administration in February 2003. By statute "by January 15 each odd-numbered year thereafter, the commissioner must report on the inventory to the chairs of the house and senate committees with jurisdiction over higher education, capital investment, and natural resources and environment finance, and the chairs of the house committee on ways and means and the senate committee on finance."

Target: The target of conducting site-specific inventories on all acquired DNR lands with respect to natural resource use by November 2004 was met. We are now developing plans to periodically update the inventory between now and 2007, when we are again required to report it to the Legislature. We also intend to extend the inventory to other lands we manage, such as school and university trust parcels, expanding it to ensure it collects information needed to manage the trust lands. DNR is submitting budget proposals to the 2005 Legislature that will allow completion of the new inventory during the FY 2006-–07 biennium.

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Learn more about:

- Lands and minerals at: http://www.dnr.state.mn.us/lands_minerals/index.html

Meeting Fiduciary Responsibilities for School Trust Lands

Indicator: Number of school trust land parcels meeting fiduciary responsibilities

Why is this indicator important?

DNR manages about 2.5 million acres of school trust lands. Constitutional and legislative directives require us to maximize long-term economic return to the permanent school fund. DNR is committed to implementing management changes to meet its fiduciary responsibilities as outlined in Minnesota Statutes, Sec. 127A.31 and the Minnesota Constitution, Article XI, Sections 8, 10, and 11.

What is DNR doing?

To generate additional revenues, DNR is working to increase sales of timber and minerals from school trust lands. We are working to adopt changes in forestry management practices outlined in the Governor's Advisory Task Force Report on the Competitiveness of Minnesota's Primary Forest Products Industry. These include: 1) using management practices intended to increase wood and fiber availability and production, and 2) pursuing legislation that will provide additional funds for increasing field staff and dedicated accounts intended to increase timber sales. With respect to minerals, we are increasing efforts to identify and evaluate construction aggregate (natural sand and gravel and crushed rock) deposits that can be sold to local government and private industry.

In the past DNR has exchanged school trust lands out of management units, such as parks, that inhibit revenue generation. An exchange of 600 acres of trust land within three state parks was recently completed. The department is currently planning a similar–sized exchange involving a portion of the remaining 5,400 acres of school trust land in other parks. In addition, DNR will attempt to identify other methods of trust compensation to be used as an alternative to exchanges alone.

Target: During FY 2005-2006, DNR will formulate plans to exchange about 640 acres of school trust land out of management units that inhibit the generation of revenue. In addition, DNR will develop strategies to identify other methods of trust compensation. It is anticipated that a combination of exchanges and other means will be needed to compensate for limitations on revenue generation from lands designated as Peatland Scientific and Natural Areas or Wildlife Management Areas and forestry lands managed for old growth. DNR has committed by 2010 to either exchange or identify other means of compensation for all trust lands (about 80,000 acres) located in these types of management units.

Learn more about:

- Land exchanges at: http://www.dnr.state.mn.us/lands_minerals/index.html

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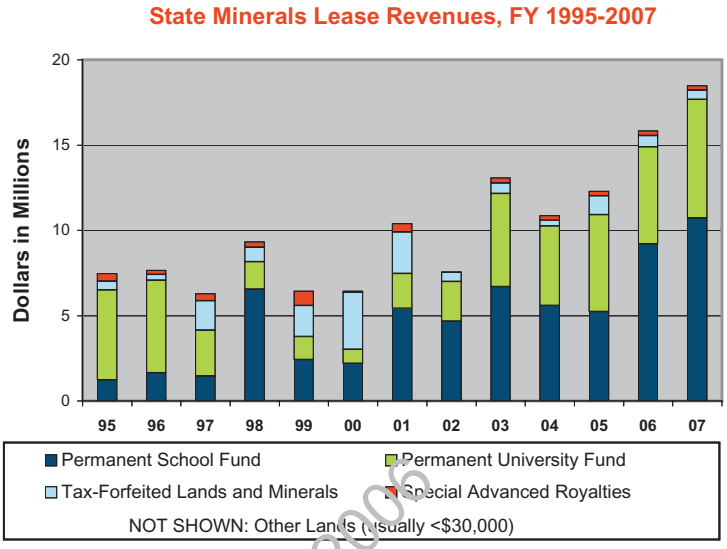
Mineral Lease Income

Indicator: Forecast income from state mineral leases

Why is this indicator important?



DNR manages about 25 percent of the minerals located on the Mesabi Range at nearly all the state's taconite mining operations. We have developed mineral production estimates in conjunction with Minnesota's taconite mining industry. The mining industry needs this information to ensure that an appropriate volume of taconite can be produced at a competitive price to meet customer needs. DNR uses it to ensure that the mineral owners (primarily consisting of trust fund and local units of government) continue to receive long-term income from the lease of their mineral rights and that mining is conducted in a manner that does not waste the mineral reserves by leaving valuable resources in the ground. In addition, both the industry and the state have an overall general interest in the broad economic health of the mining industry in order to: 1) ensure continuation of operations, 2) protect jobs, and 3) maintain the industry's contributions to the state's economy.

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What is DNR doing?

DNR is working to encourage the mining of state minerals at prices that will keep Minnesota's taconite pellets competitive with other iron ore producers around the world. We have initiated a number of contacts with companies around the world that have or are in the process of developing value-added technologies that could enhance the competitive nature of Minnesota's taconite industry. Finally, we are investigating innovative uses of mine wastes that may result in future income streams for the Permanent School Fund, the University Fund, and local units of government, all of which may potentially benefit from the materials produced on state-owned lands.

Target: To have taconite revenues from ore produced off Permanent School Trust Lands, Permanent University Trust Fund Lands, and Tax Forfeited Lands meet or exceed levels forecast by the DNR and the taconite mining industry.

The chart entitled "State Minerals Lease Revenues, FY 1995–FY 2004" contains actual revenue values through FY 2004, and forecast values for FY 2005, FY 2006, and FY 2007. The projections may be affected by the U.S. economy, the demand for steel, and/or international commodity markets.

Learn more about:

- DNR lands and minerals at: http://www.dnr.state.mn.us/lands_minerals/index.html

Farmland Conservation

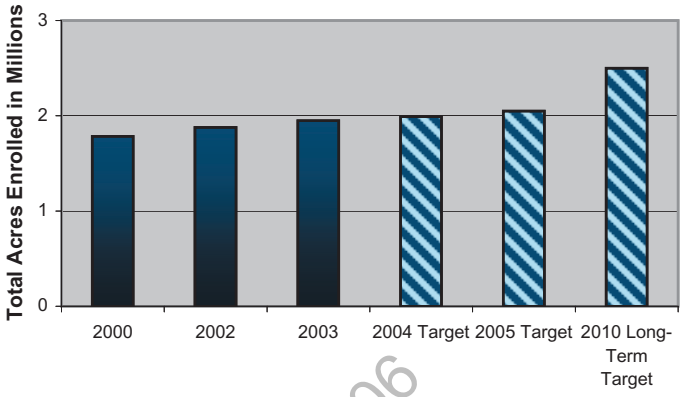
Indicator: Acres in conservation land retirement programs under state and federal farmland programs

Why is this indicator important?

Farming has dramatically altered the landscape in Minnesota's agricultural areas. Wildlife populations declined as the historic prairie wetlands of southern and western Minnesota were converted to croplands.

Federal farm policy has played an important role in shaping this landscape. The 1985 Federal Farm Bill's Conservation Reserve Program (CRP) has provided substantial conservation opportunities on agricultural lands. Subsequent farm bills have continued to provide significant conservation provisions vital to habitat conservation.

Acres in Conservation Practices Under State and Federal Farmland Programs



Acres enrolled in state and federal farmland retirement programs. Nearly 2 million acres of land have been enrolled in conservation programs to improve soil and water quality and increase wildlife habitat. Natural resource staff help tailor conservation programs to individual farming operations.

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What is DNR doing?

DNR is increasing collaboration with the Minnesota Board of Water and Soil Resources (BWSR), Pheasants Forever, and Soil and Water Conservation Districts (SWCDs) to promote the full range of conservation provisions of the 2002 Federal Farm program.

Target: Have more than 2 million acres enrolled in conservation land retirement programs by the end of 2005 and 2.5 million acres by 2010.

To reach this target, DNR will provide $337,500 in FY 2005 to hire technicians, who will work out of SWCD county offices, to help landowners enroll in Federal Farm Bill and state land retirement conservation programs. DNR will encourage enrollment in continuous CRP and the state's Reinvest in Minnesota (RIM) Reserve program. DNR also is supporting the Governor's initiative requesting an additional 120,000 acres in a new CREP. We will continue to partner with Pheasants Forever, The Wildlife Management Institute, and the International Association of Fish and Wildlife Agencies and others to further expand and improve the conservation provisions within federal farm policy. In 2007, nearly 400,000 acres of CRP contracts will expire in Minnesota, with another 400,000 acres expiring in 2008. DNR will work with partners to develop strategies for contract extension or renewal. This issue needs to be addressed in the conservation provisions of the 2007 Federal Farm bill.

Learn more about:

- Land conservation programs at: http://www.dnr.state.mn.us/fad/land/rim.html
- Financial assistance at: http://www.dnr.state.mn.us/fad/matrix.html
- Farmland programs at: http://www.bwsr.state.mn.us/

Prairie Stewardship Assistance

Indicator: Number of prairie stewardship plans and management projects

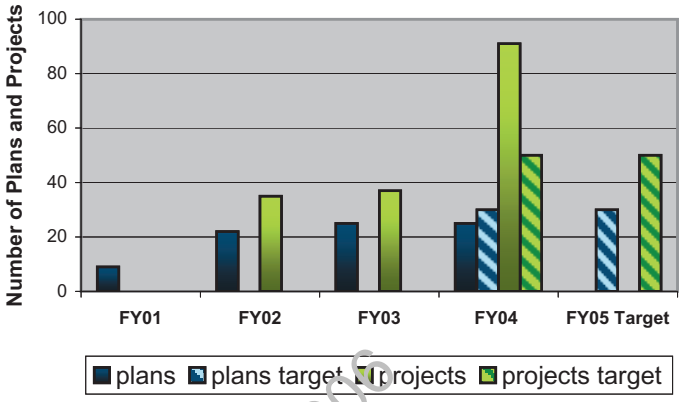
Why is this indicator important?

Prairies are Minnesota's most endangered major habitat type. About 150,000 of the state's original 18 million acres of prairie remain; these lands are home to more than 40 percent of Minnesota's state-listed species (see Endangered Species indicator in Fisheries and Wildlife section). Native prairie requires management such as prescribed burning and exotic species control to remain healthy. Approximately 70 percent of prairie land is privately owned, so conservation depends on private landowners.

What is DNR doing?

DNR manages several programs to help private landowners manage native prairie. Landowners can receive help developing a stewardship plan from Scientific and Natural Areas (SNA) program prairie specialists, or from private consultants funded by the SNA program. The SNA program then uses its seasonal prairie management crew, private sector contractors, Sentence to Serve crews, or direct cost-share assistance to help selected landowners carry out their plans. Landowners can also enroll qualifying prairie land in the DNR Native Prairie Bank easement program (63 sites totaling 5,000 acres currently enrolled), and/or the Prairie Tax Exemption program (about 400 landowners and 16,000 acres enrolled). DNR has been providing planning assistance to private prairie landowners since FY 2000 through LCMR-funded projects. We began providing technical and management assistance in FY 2002 by stationing a private lands prairie specialist in the DNR Windom office.

Number of Prairie Stewardship Plans and Management Projects



Number of prairie stewardship plans and management projects. DNR plans to assist with at least 30 prairie stewardship plans and 50 management projects each year starting in FY 2004.

Prairie Landowners. Three generations of landowners and a DNR prairie specialist survey a protected Jackson County prairie.

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Target: Conduct at least 30 prairie stewardship plans and 50 management projects each year. To reach this target DNR will use recently acquired federal funding, the Landowner Incentive Program – "Prairie Species at Risk" project. Expanded funding will be sought to continue and accelerate existing programs to provide 100 plans and projects each year.

Learn more about:

- Prairie Restoration at: http://www.dnr.state.mn.us/prairierestoration/index.html
- MN Prairie Bank easement programs at: http://www.dnr.state.mn.us/fad/land/prairiebank.html
- Northern Prairie Wildlife Research Center at: http://www.npwrc.usgs.gov/

Helping Local Communities Protect Open Space

Indicator: Acres acquired for local community projects funded with grants

Why is this indicator important?

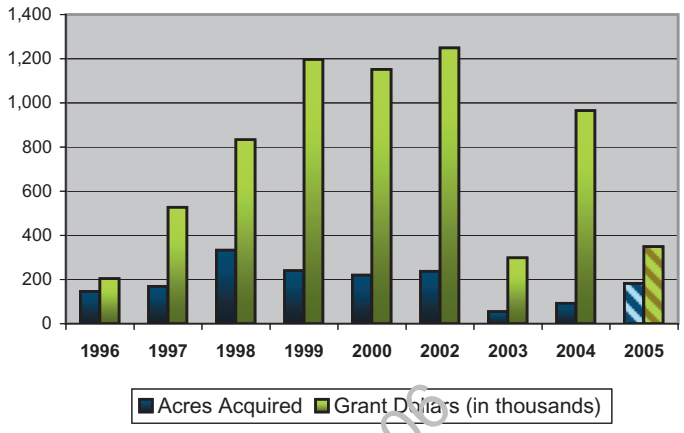
Open spaces are often lost because local governments lack resources to acquire them. Local governments, particularly in the fast-growing counties ringing the Twin Cities metropolitan area and in the growth corridor between the Brainerd Lakes area and Rochester, have an opportunity to acquire and protect open space and natural areas. But that opportunity is fading fast.

What is DNR doing?

DNR manages several matching grant programs to help local governments protect open space and natural habitats. These programs reimburse local governments for 50 to 60 percent of the appraised value. Because local governments assume responsibility for the areas, this partnership allows the state to help protect natural resource and recreation areas without having to operate or maintain them. In the last 3 years, DNR helped local governments acquire 800 acres of regional parkland outside the Twin Cities metro area. Over the past nine years, 49 Natural and Scenic Areas grants helped local governments acquire almost 1,700 acres of high-quality land.

Target: Acquire approximately 200 acres per year in 2005–06 and 200 to 300 acres per year thereafter. To reach this target, we have requested funding for the Natural and Scenic Areas and Regional Parks (Outside the Metro) grant programs through DNR's 2004 bonding request. In addition, we are seeking continued funding through the Legislative Commission on Minnesota Resources (LCMR) and the federal Land and Water Conservation Fund (LAWCON) program.

Natural and Scenic Areas Grants



Natural and Scenic Areas Grants. Grants totaling more the $6.7 million have helped local communities acquire 1,677 acres of high-quality lands.

Lutsen township, natural and scenic area

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Learn more about:

- Financial assistance at: http://www.dnr.state.mn.us/fad/matrix.html, see "Grants"

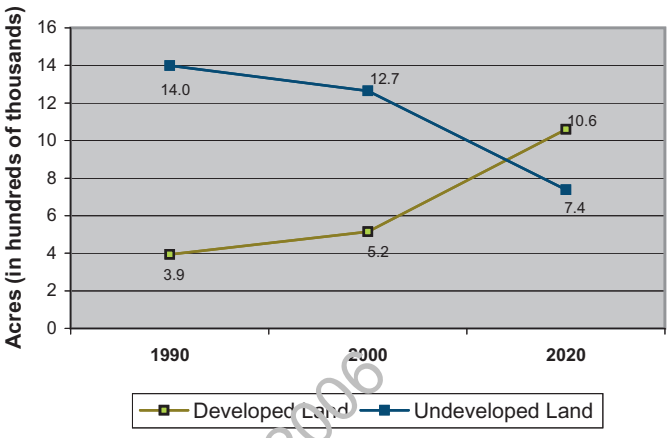
Habitat Protection in Urban and Developing Areas

Indicator: Number of habitat acres protected in Twin Cities metropolitan area

Why is this indicator important?

Urban development patterns directly impact natural habitats. Current patterns of low density development threatens remaining habitats by fragmenting areas into smaller and smaller parcels that cannot sustain healthy plant and animal populations or by eliminating habitat altogether. Each day, nearly 42 acres of open land in the metro area is lost to development. Many studies have documented the economic savings to society derived from "free" ecological services provided by natural habitats, such as public dollars saved by water purification provided by wetlands. Because Minnesotans benefit greatly from the services provided by nature, it is imperative, as the state becomes more populous, that habitats be conserved for future generations.

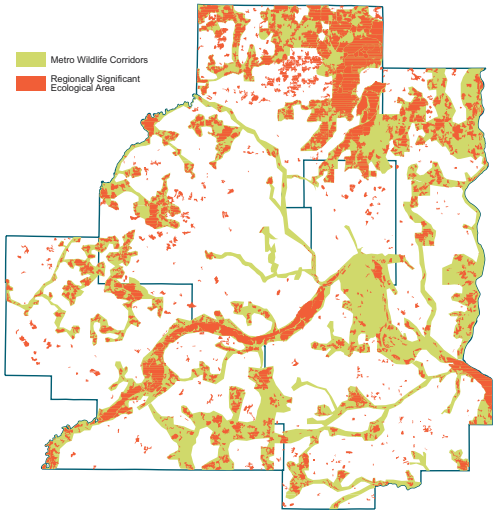
Development Trends in the Twin Cities



As developed land increases in the Twin Cites, opportunities to conserve natural lands decreases. *Based on Metropolitan Council's Land Use layers from 1990, 2000, and Regional Planned Land Use, which is a compilation of comprehensive plans from townships and municipalities.

What is DNR doing?

DNR provides communities with technical and financial assistance to increase local capacity to conserve natural resources. DNR has provided grants to local communities to complete natural resource inventories and has developed an ecological assessment that identified approximately 280,000 acres of undeveloped high-quality terrestrial and wetland habitats in the seven County Metro Area. DNR helps support the protection and restoration of important habitat areas through its Metro Greenways Program, which has protected about 1,700 acres in the metro area, and the Metro Wildlife Corridor Partnership, which focuses protection and restoration efforts on high-quality habitats in collaboration with nonprofit partners and local governments.



In 2003, the seven-county Twin Cities metro area still had significant terrestrial and wetland natural resource areas.

Target: Protect additional 1200 habitat acres and restore about 2500 habitat acres through the Metro Wildlife Corridors Project from 2004 through 2008.

To reach this target, we will request Metro Greenways funding through DNR's 2005 bonding request and are seeking additional funding through the Legislative Commission on Minnesota Resources (LCMR). These state funds will leverage additional funds from other public and private partners. We will also expand the program to high growth counties outside of the seven County Metro Area.

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Learn more about:

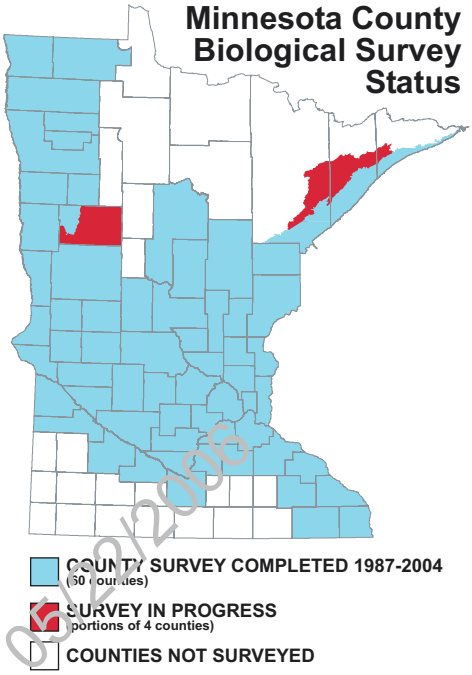
- Metro Wildlife Corridors and Greenways Program at: www.dnr.state.mn.us/greenways.html
- Remaining significant terrestrial and wetland habitats at: www.dnr.state.mn.us/rsea/map.html
- Metro growth trends at: www.metrocouncil.org

Minnesota County Biological Survey

Indicator: Number of counties with a Minnesota County Biological Survey

Why is this indicator important?

Most Minnesota land is not directly managed by DNR. Thus, an important goal for DNR is to ensure that all landowners have the information they need to manage natural resources wisely. The Minnesota County Biological Survey (MCBS), a systematic survey of the state's native plant communities, rare species locations, and potential natural areas, provides baseline information about unique natural areas and rare features, as well as tools to help sustain them. We must complete surveys in a timely manner because of development pressure, conversion of natural habitats, and rapidly rising demand for rare features data and ecological management tools.



What is DNR doing?

We have completed surveys in 60 of Minnesota's 87 counties and have surveys underway in four others. We make survey information available in various formats, including maps, publications, and electronic data files. Published maps of MCBS results in 24 counties are available upon request and digital map files for all or portions of 43 counties are accessible at http://www.deli.dnr.state.mn.us/metadata/index_th.html.

Target: Complete a total of 62 counties and portions of 5 counties by 2007 and all counties by 2021.

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Using County Biological Survey information and a Natural and Scenic Area grant, Stearns County expanded its Quarry Park Natural Area, now a 622-acres multi-use area providing habitat for rare populations of turbercled rein-orchid, red-shouldered hawk, and Acadian flycatcher.

Learn more about:

- County Biological Survey at: http://www.dnr.state.mn.us/ecological_services/mcbs/index.html
- Counties with maps at: http://www.dnr.state.mn.us/ecological_services/mcbs/maps.html
- Native plant communities at: http://www.deli.dnr.state.us/metadata/index-th.html

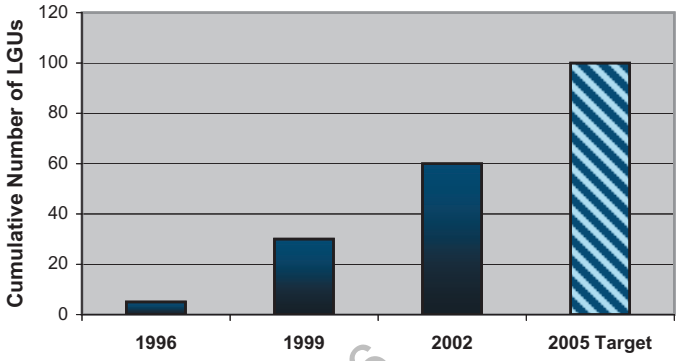
Local Governments Using Natural Heritage Data

Indicator: Number of local governments using Natural Heritage data

Why is this indicator important?

Local government staff and elected officials make numerous decisions that affect natural resources. Technical assistance and up-to-date data on natural features can help them protect natural resources in a cost-effective, collaborative manner. Processes such as comprehensive planning, parks and open space planning, development of zoning and subdivision ordinances, review of development proposals, and stewardship of public lands are much more effective when such assistance and data are easily available.

Number of Local Governments Using Natural Heritage Data



Number of local governments units (LGUs) using Natural Heritage data. The first regional plant ecologist position was created in 1996. The addition of two more regional plant ecologists accelerated technical assistance to local governments.

What is DNR doing?

DNR's regional plant ecologists provide technical assistance to local governments and citizens in DNR's northwest, central, and southern regions using data collected by the Minnesota County Biological Survey and stored in the Natural Heritage Information System. Their activities include making presentations to county boards, city councils, planning and parks commissions, and local government staff about the importance of natural features; providing information about funding sources for natural resource inventory, planning and acquiring land; and providing electronic data, maps showing local natural features, and books detailing land protection options. Since the inception of the regional plant ecologist program in 1996, a total of 64 local governments have received technical assistance with natural features information.

County, state, and city officials celebrate the establishment of the Sandhill Crane Natural Area, a collaborative effort working to protect an important natural area in East Bethel.

Target: Provide technical assistance and natural features information to an additional 40 local governments by 2005. To reach this target, regional plant ecologists will respond to the many requests for assistance they receive from local governments. They also will contact local governments where important natural areas and rare species finds have been recently documented to offer assistance. Other DNR programs will provide related technical assistance. For example, in a pilot effort, 60 local governments who were awarded MN ReLeaf Community Forestry Grants will also receive Composite Community Natural Resource Maps. Such maps help local governments set priorities and conserve natural features by making more informed zoning and comprehensive planning decisions.

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Learn more about:

- Case studies of communities using information at: http://www.dnr.state.mn.us/ecological_services/index.html
- Rare plants, animals, and natural features at: http://www.dnr.state.mn.us/ecological_services/nhnrp/index.html

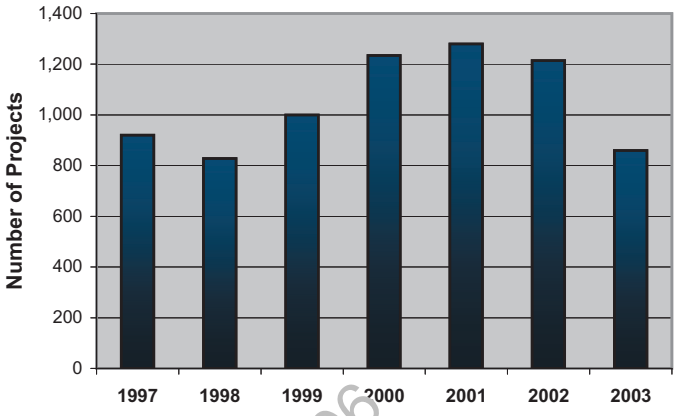
Environmental Review by DNR

Indicators: Number of development projects with environmental review; Number of habitat acres affected by development projects

Why are these indicators important?

More than 1,000 land development projects are proposed each year by local, state, and federal government agencies as well as private citizens and businesses. In total, these projects convert thousands of acres each year of natural habitats such as woodlands, grasslands, and wetlands into developed landscapes that are less supportive of healthy wildlife populations. The number of projects reviewed each year and the amount of natural habitat involved in project proposals provide two metrics for the level of conservation assistance provided by DNR staff.

Development Projects Reviewed by Year

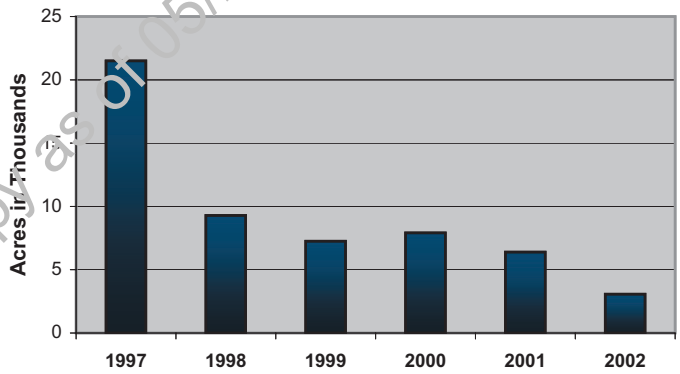


What is DNR doing?

Through environmental review, we seek to reduce fish, wildlife, and native plant habitat losses due to development; ensure long-term health (sustainability) of ecosystems and natural communities; conserve a healthy economy for environmental products and services; and incorporate consideration of natural resources and environmental health into project design.

Almost 80 percent of Minnesota's land base is in private ownership. Many of the land development activities that occur on private land affect public resources such as fish and wildlife living on that land or nearby public lands. Environmental review is one of few tools we have to influence decisions on private land.

Wetland, Woodland and Grassland Habitat Affected



The number of development projects reviewed each year and the amount of natural habitat involved in project proposals provide two metrics for the level of conservation assistance provided by DNR staff.

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Environmental review looks at real, on-the-ground projects. We are able to examine the whole project, not just the pieces that require permits. Our review is timely, and can inform permit decisions that follow. We analyze both direct and offsite impacts associated with project proposals, and examine cumulative impacts when applicable. Through environmental review, we can also look at multiple landscape scales.

The number of projects we review and the number of wetland, grassland and woodland acres potentially affected by those development proposals are measures of DNR's environmental review activity. Our expected output is at least 1,000 new project proposals reviewed each year. Our long-term desired result is to stem the loss and degradation of natural habitat. DNR qualitatively tracks the effectiveness of environmental review in protecting natural resources by documenting success stories each year. Case studies can also document significant trends in loss of habitat due to development. Quantitative indicators that measure damage prevented because of environmental review or related program activities are lacking; such indicators are difficult to develop and accurately assess.

Learn more about:

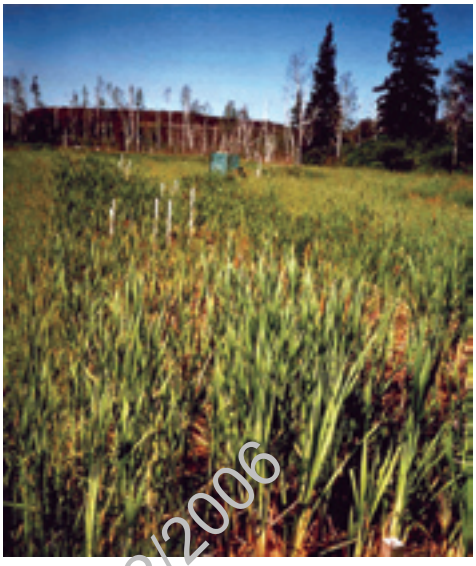
- Environmental review at: http://www.dnr.state.mn.us/ecological_services/ereview/index.html

Land Stewardship Through Mine-Land Reclamation

Indicator: Acres of mine-land reclaimed

Why is this indicator important?

Iron ore and taconite mining has disturbed more than 100,000 acres of land since mining began in Minnesota in the 1890s. Most disturbed lands are on the Mesabi Iron Range in northeastern Minnesota.



Reclamation of disturbed areas, conducted in a manner that provides for future uses such as recreation, light industry, tourism, community growth, and infrastructure, is at the core of land stewardship along the Mesabi Range. In Minnesota, the Mineland Reclamation Law (Minnesota Statute 93.44-93.51) requires mine operators to submit long-range mining and reclamation plans. Proper mine planning and reclamation, in conjunction with local planning and zoning, can alleviate many future land-use conflicts.

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What is DNR doing?

Since 1980, mining companies have permanently reclaimed more than 10,000 acres of disturbed land. While the majority of reclamation involves revegetation, some reclaimed sites are being used for housing and recreation.

DNR is currently exploring other options for reclaimed lands. For example, projects are investigating the use of tailing basins for growth of short rotation biomass for wood fiber and fuel; the use of biosolids as a soil amendment to increase fertility of mine lands; and the establishment of wetlands in tailings basins.

Target: Maintain assistance for current rates of mine-land reclamation. About 400 acres of land are reclaimed each year on the Mesabi Iron Range, while 1,000 acres of tailings are temporarily stabilized through revegetation. To reach this target, DNR will continue to monitor reclamation work and compliance with approved plans. Close monitoring ensures that long-range reclamation goals are met. DNR will also continue to undertake cooperative projects with industry to expand knowledge about wetland creation, use of biosolids, and other ways of enhancing the usefulness of reclaimed mined lands.

Learn more about:

- Aggregate mining and reclamation at: http://www.dnr.state.mn.us/lands_minerals/pubs.html

Natural Lands Key Indicator Gaps

Indicator Gaps:

Although the indicators in this report have data of sufficient quality and coverage to support trend reporting, we recognize gaps in our ability to report on important natural resources trends. The following is a preliminary list of important indicators that require either additional data or new monitoring efforts. When baseline and trend data for new indicators are available, cooperative efforts will be needed to establish conservation targets.

A preliminary list of indicator gaps include:

Indicator to track land use change in rapidly developing areas.
Indicator to measure the status and change in the extent of natural habitat in urban and developing areas.
Indicator to track acres of critical habitat restored in urban areas each year.
Indicator to track the number of partnerships actively conserving natural lands and habitats.

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Section Two: Fisheries and Wildlife

Minnesota's Fish and Wildlife Will Be Conserved

Fishing with an old friend . . . walking through the crisp autumn woods in search of deer . . . marveling with family at the sight of an eagle soaring far overhead . . . just about anyone who has spent time in Minnesota has a fond memory that involves animals in the outdoors.

Conserving fish and wildlife resources, ensuring the health and abundance of habitats and fish and wildlife populations, and supporting recreation tied to these resources are all part of DNR's mission.

"It's for me, too!" Conserving fish and wildlife ensures future generations will enjoy Minnesota's outdoors heritage.

Vision for the Future

When we look to the future we envision **great fishing, hunting, trapping, and wildlife viewing opportunities** that meet the expectations of hunters, anglers, and wildlife watchers. Minnesotans and visitors will have access to rich public lands and recreational opportunities. Businesses dependent on fish and wildlife resources will support long-term and sustainable management of these resources.

We envision a future in which fish and wildlife populations and the habitats that support them are **stable and healthy.** Habitat types in jeopardy, such as prairies, wetlands, and shallow lakes, will be restored. Endangered and threatened species and species of special concern will be conserved.

We envision a future with **strong conservation partnerships** and a **strong stewardship ethic.** Public and private sector partners will work together to support Minnesota's resources and promote conservation. Natural resources education and enforcement will help citizens safely enjoy outdoor recreation and provide decision makers with the information they need to make wise resource-related decisions.

DNR – What We Do

- Conserve, improve, and restore fish and wildlife populations, habitats, and ecosystems
- Protect endangered and threatened species and species of special concern
- Promote natural resources stewardship through partnerships, technical assistance, and education
- Support fish and wildlife recreation opportunities by acquiring and developing access opportunities
- Conduct fish, wildlife, and native plant community inventory and research
- Propagate fish for stocking in publicly accessible waters

Critical Trends

Our efforts to achieve this desired future will be greatly challenged by trends related to our fish and wildlife resources. Most critical is an alarming **loss of habitat.** Natural lands and waters are being degraded, fragmented, and developed. Urban development and agriculture are reducing natural habitats and affecting the quality of waterways. Wetlands critical to waterfowl and many other species are being polluted and drained. Lakeshores are losing vegetation buffers needed to protect habitat and water quality.

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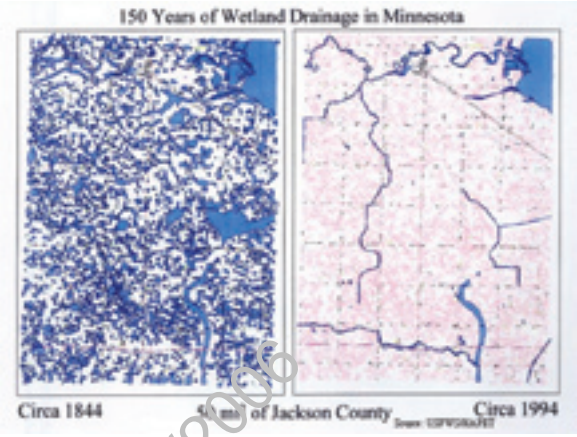
Trickle-down effects of human actions pose serious threats. Intentional and unintentional introductions of invasive species can result in the crowding out of native plants and animals. And man-made vehicles accelerate the movement of cargo where diseases can be inadvertently spread. These diseases can negatively impact fish and wildlife and threaten recreation that is dependent on healthy animal populations. Human alterations to the environment can change the impacts of natural disturbances such as fires and floods.

Changing land ownership patterns also affect fish and wildlife and related recreation. Ownership of multiple small parcels creates challenges for managing ecosystems as functional units. Fragmentation of land ownership makes it harder to maintain quality habitat, and reduces hunting and wildlife-watching opportunities. Growing demand for land makes acquiring key habitat more challenging and expensive than ever.

Increasing recreational and economic demands on fish and wildlife resources fosters opportunities for conflict. Some hunters want motorized access, while others want silence. Some people want land managed for different economic uses. In some places and at some times the number of motorized watercraft can have an impact on the quality of outdoor experiences.



These maps illustrate 150 years of wetland drainage in southern Minnesota. Shaded areas represent wetland coverage. The left map (heavy shading) illustrates former, extensive wetland coverage. The right map (light shading) illustrates today's lack of wetland habitat.

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Increasing **interactions between people and wildlife** also challenge us as we pursue our vision for fish and wildlife. More people are spending more time in places that bring them into contact—and sometimes conflict—with deer, geese, turkey, bears, and other animals. Our increasingly urban population may not always be aware of fish and wildlife needs and laws. Natural resources education can improve people's conservation knowledge and help everyone appreciate and nurture Minnesota's abundant fish and wildlife resources.

On the positive side, we are seeing a **growth in conservation partnerships** between public and private entities and a **growth in natural resources stewardship.** Agencies and organizations are working together to restore and protect habitat and promote conservation of specific species. People are paying more attention to conservation issues such as harmful invasive species, chronic wasting disease, and species recovery efforts.

Conserving fish and wildlife is a large and complex task. Emerging challenges demand creative responses. We are committed to growing conservation by bringing unprecedented time, energy, and enthusiasm to the cause. As we strive to sustain Minnesota's fish and wildlife populations, in part illustrated by the indicators and targets outlined here, we look forward to working with our partners in the months and years ahead.

Fish and Wildlife Resource Facts

- 16,000 miles of fishable streams
- 5,400 fishing lakes
- Over 50 game species managed through regulated harvest
- Over 1,100 known wildlife species; many in conservation need
- 15% of Minnesotans hunt or trap
- 36% of Minnesotans fish
- 54% of Minnesotans view/photograph wildlife

Fisheries and Wildlife Indicators & Targets

Indicator	Target	
Fisheries resources and angler satisfaction		**Page**
Amount of lakeshore habitat restored; number of lakeshore workshop participants	Restore 10,000 to 15,000 linear feet of shoreline each year in FY 2004–05; reach 275 realtors with shoreline workshops in 2005	26
Pounds of walleye fingerlings stocked; walleye population levels	Stock 160,000 pounds of walleye fingerlings each year beginning in FY 2004	27
Red Lake walleye biomass and mature female spawning stock	Achieve a self-sustaining walleye fishery that supports a thriving sport fishery beginning in May 2006, with mature female spawning stock exceeding 1.5 pounds per acre and a diverse age structure of spawning fish	28
Brown trout population levels; miles of easements on southeastern Minnesota trout streams	Maintain or increase larger brown trout populations and add 10 miles of easements on southeastern Minnesota trout streams by 2007	29
Lake Superior steelhead trout catch rates and spawning numbers	Maintain an average catch rate of 0.08 to 0.10 steelhead per angler-hour statewide, and increase the average annual number of spawners returning to the Knife River from about 400 to 1,000 over the next 10 years	30
Percentage of wild lake trout in the recreational fishery of Lake Superior	Achieve a self-sustaining lake trout population capable of supporting a recreational fishery and limited commercial fishery. Reduce stocking in MN-1 and MN-2 when criteria are met	31
Number of metro region ponds stocked for fishing and education	Stock 45-50 lakes, primarily with bluegill and crappie, by the end of FY 2005	32
Angler satisfaction levels (as measured by surveys)	Maintain or improve angler satisfaction levels	33
For additional aquatic education indicators see section on Natural Resources Stewardship Education		105

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Fisheries and Wildlife Indicators & Targets

Indicator	Target	
Wildlife resources and hunter satisfaction		**Page**
Hunter satisfaction levels	Maintain 90 percent satisfaction rates among hunters	34
Chronic wasting disease (CWD) sampling of harvested deer	DNR has already met its 2004 target to complete cervid monitoring for CWD. DNR will maintain targeted surveillance of wild deer for CWD in the foreseeable future	35
Percentage of deer permit areas within goal range for harvest levels	Maintain deer populations within goal ranges in at least 75 percent of deer permit areas	36
Number of wild turkey hunting permits offered; harvest levels; range expansion	Offer 30,000 permits by 2006 and 35,000 permits by 2010	37
Pheasant harvest levels	Achieve an average harvest level of 450,000 pheasants by 2008 and 750,000 pheasants by 2025	38
Ruffed grouse harvest levels	Provide an average annual harvest of 650,000 ruffed grouse	39
Number of landscapes designated as priority open landscape areas	Designate 40 LTAs across the forest and transition zones of Minnesota as priority open landscape areas during DNR's subsection forest resources management planning process	40
Number of prairie wetland complexes	Increase the number of high-quality prairie wetland complexes through wetland and grassland restorations	41
Number of wild rice lakes actively managed for waterfowl	Working with partners such as Ducks Unlimited, increase the number of actively managed wild rice lakes to at least 170 in the next 10 years	42
Minnesota's share of the yearly Mississippi River Flyway duck harvest	Increase Minnesota's share of the Mississippi River Flyway duck harvest to 1970's average levels of one duck in six by 2011	43
Number of youth license sales; number of participants in special youth hunts	Maintain youth hunter participation as measured by license sales and double participation inspecial youth hunts in 2004 and 2005	44

Fish and wildlife enforcement		Page
Number of law enforcement hours by activity	Hire and train up to a total of 36 new officers in the FY04 – FY05 biennium	45
Number of enforcement hours designated to work special regulation waters	Increase time spent in fisheries enforcement, particularly enforcing the regulations of experimental and special regulations waters, by 20 percent from FY 2003 to FY 2006 (based on staffing)	46
Number of enforcement hours designated for the Waterfowl Task Force	Increase efforts in waterfowl enforcement by 15 percent by FY 2006	47

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Fisheries and Wildlife Indicators & Targets

Indicator	Target	Page
Nongame wildlife populations and wildlife observation		
Loon population levels in six lake index areas	Sustain a population of two to three adult loons per 100 acres of lake in the Aitkin/ Crow Wing area	48
Frog and toad species distribution	Maintain or increase frog and toad distribution	49
Number of species on the Minnesota endangered species list	Fewer species moved to endangered status with each list revision	50
Percentage of stream reaches in the Missouri River watershed with Topeka shiner	Maintain or increase the percentage of stream reaches in the Missouri River watershed with Topeka shiner present	51
Number of Species in Greatest Conservation Need	Complete the Minnesota CWCS document by October 2005; sustain or enhance Minnesota's set of species in greatest conservation need through habitat conservation, restoration, monitoring, research, and surveys	52
Number of participants in wildlife observation; number of local birding events	Assist local communities with four birding trail/wildlife festival events or products per year.	53

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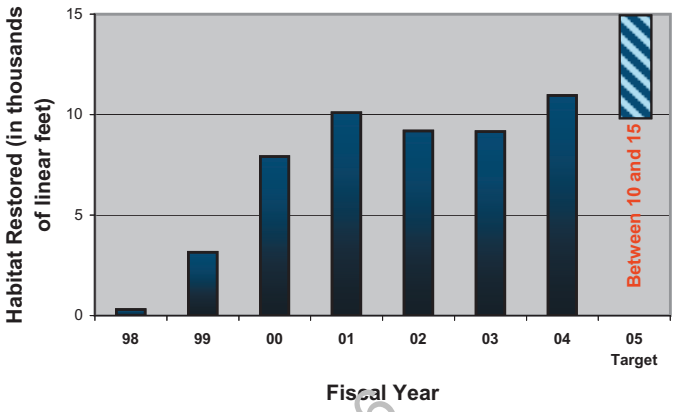
Shoreland Habitat Conservation

Indicators: Amount of lakeshore habitat restored; number of lakeshore workshop participants

Why is this indicator important?

Healthy shorelines have long been recognized as critical for water quality, aquatic plants, and fish and wildlife that live in or near Minnesota's lakes and streams. In 2003, a Bemidji State University study showed that lake water clarity is significantly related to lakeshore property values. The study states that the worst land-use practices include the removal of trees, native plants, and aquatic vegetation along shorelines. As native shoreline habitat is lost to development, shorelines lose their ability to support the fish, wildlife, and clean water that are so appealing to the people attracted to Minnesota's water resources.

Amount of Lakeshore Habitat Restored

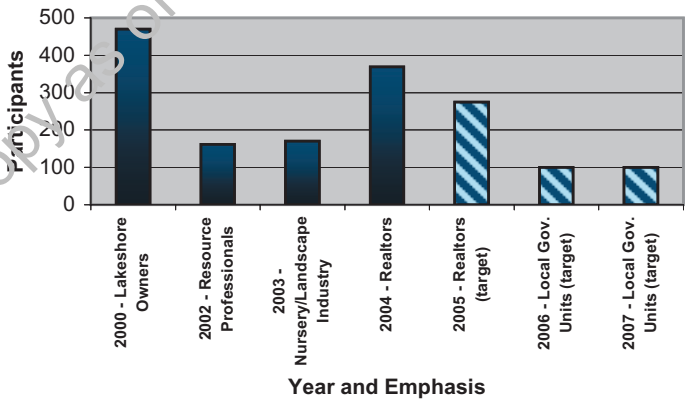


Amount of lakeshore habitat restored. DNR has helped restore over 50,000 linear feet of lakeshore.

What is DNR doing?

DNR provides education, technical assistance, and grants to private citizens, conservation organizations, and local governments to restore altered shoreline habitat in order to expand diversity and abundance of native aquatic plants, improve and protect quality of shoreline habitat, and enhance and protect water quality. Since 1998, DNR has completed restoration projects on 175 sites, comprising 50,406 linear feet and 45.74 acres of shoreland habitat.

Education Workshop Participants



Number of lakeshore workshop participants. Workshops have reached more than 1,000 individuals.

DNR also produces educational materials on conserving and restoring shoreline habitat, including the book *Lakescaping for Wildlife and Water Quality* and the interactive CD-ROM *Restore your Shore: A Guide to Protecting and Restoring the Natural Beauty of Your Shoreland*. It also hosts shoreline management workshops for citizens, natural resource professionals, and nursery and landscaping companies.

Target: Restore 10,000 to 15,000 linear feet of shoreline each year in FY04 and FY05; reach 275 realtors with shoreline workshops in 2005.

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Learn more about:

- Shoreland habitat and fisheries management at: http://www.dnr.state.mn.us/fisheries/management/habitat.html
- Shoreline restoration interactive CD-ROM and books at: http://www.dnr.state.mn.us/restoreyourshore/index.html
- Natural shorelands at: http://www.dnr.state.mn.us/shorelandmgmt/ecosystems/natural_shoreland.html

Walleye Stocking

Indicators: Pounds of walleye fingerlings stocked; walleye population levels

Why is this indicator important?

Walleye fishing is an integral part of Minnesota's outdoor fishing heritage. Minnesota has a 36 percent participation rate in fishing—the second highest in the nation, behind Alaska.

What is DNR doing?

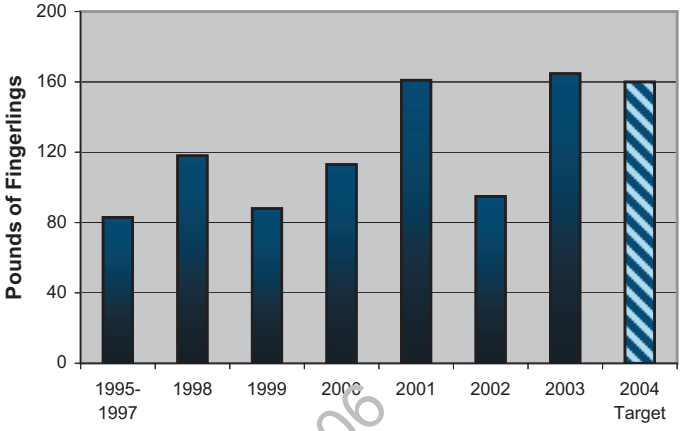
DNR protects and improves walleye habitat, regulates catch, and stocks walleye into approximately 900 lakes where natural reproduction is lacking. DNR has obtained public input on walleye management for more than 350 lakes since 1999. Each lake has its own fisheries management objectives, such as stocking targets. To achieve individual lake stocking targets, the DNR produces fingerlings (4- to 6-inch walleyes) in natural rearing ponds. Stocking is just one part of the picture, however; most walleyes caught in Minnesota are from natural reproduction.

Target: Stock 160,000 pounds of walleye fingerlings each year beginning in FY 2004.

This 160,000-pound target was raised from an earlier target of 120,000 to 130,000 pounds. Annual variations above or below the target are to be expected because walleye fingerling production, which occurs in natural ponds around the state, is strongly influenced by weather.

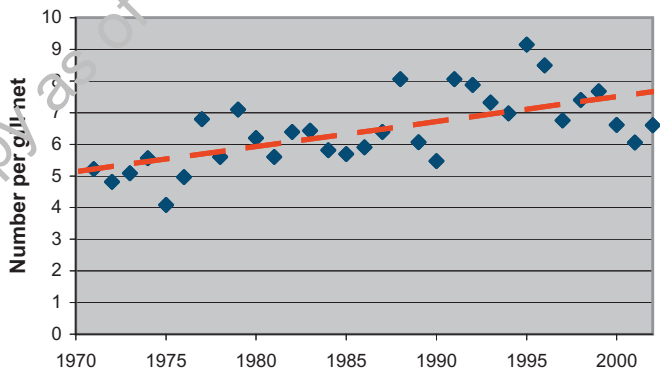
The target is sufficient to supply walleye fingerlings for lakes that depend on stocking. Walleye populations have shown an upward trend in stocked lakes since the 1970s. Walleye populations will be evaluated over the next decade to determine if they are responding to increased stocking.

Pounds of Walleye Fingerlings Stocked



Pounds of walleye fingerlings stocked. DNR's target is to stock 160,000 pounds of walleye fingerlings per year.

Walleye Population Levels in Currently Stocked Lakes



Walleye population levels in currently stocked lakes. The number of walleye in stocked lakes shows an overall upward trend.

Walleye

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Learn more about:

- Walleye management and stocking at: http://www.dnr.state.mn.us/fish/walleye/management.html
- Individual lake and stocking reports at: http://www.dnr.state.mn.us/lakefind/index.html
- Other fish species at: http://www.dnr.state.mn.us/fishing/index.html

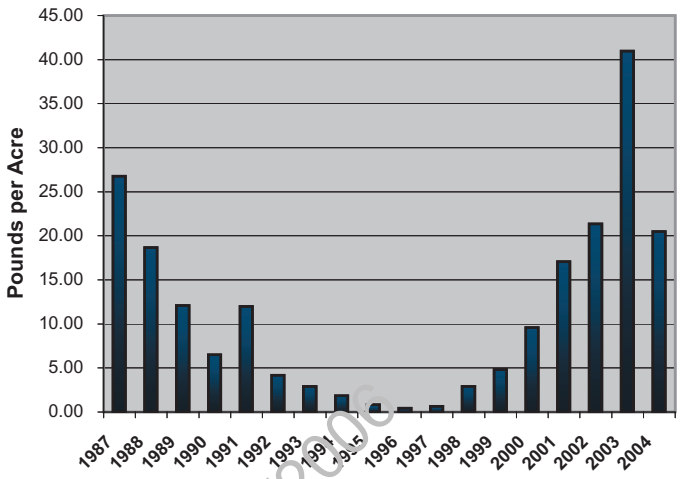
Red Lake Walleye Restoration

Indicator: Red Lake walleye biomass and mature female spawning stock

Why is this indicator important?

The Red Lakes encompass approximately 275,000 acres, with 227,000 acres lying within the Red Lake Reservation and 48,000 acres outside of the reservation under state jurisdiction. The walleye population collapsed in the mid-1990s due to overharvest. The biomass of mature female walleye was reduced to a level that was deemed too low to sustain the fishery. Overall walleye biomass and the portion of the population that represents mature female spawning stock are key indicators of ecosystem health in large natural walleye lakes. Biologists have identified a threshold of 1.5 pounds per acre of mature female walleye as a long-term management goal.

Red Lake Walleye Biomass

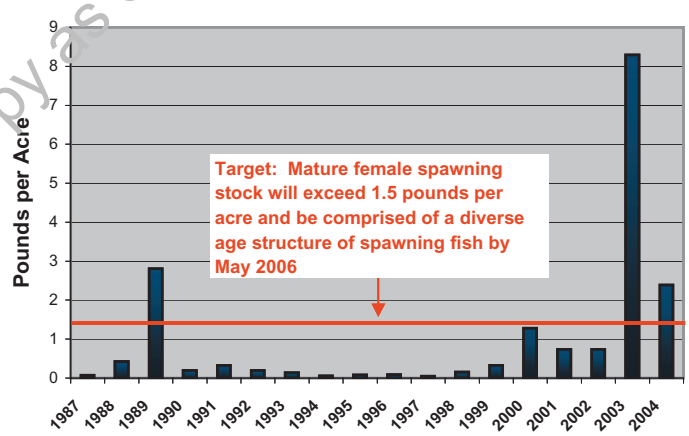


Total Walleye Biomass Estimates 1987–2004

What is DNR doing?

In April 1999, DNR, the Red Lake Band of Chippewa Indians, and the Bureau of Indian Affairs signed a historic agreement committing each to implement a program to restore walleye populations in the Red Lakes. Before the walleye collapse, the band operated an important commercial and subsistence fishery and the state had a thriving sport fishery. Key components of the recovery plan include a lakewide moratorium on walleye harvest, a short-term fry stocking program to accelerate recovery, joint monitoring, and increased enforcement by band and DNR conservation officers. Progress to date has been excellent. Stocking has been successful at establishing three strong year-classes of walleye, and spawning stock abundance has increased to the point where no additional stocking is needed. Overall walleye abundance is higher than it has been in the past 20 years. The Red Lake Fisheries Technical Committee has projected that walleye harvest will resume in 2006. The Red Lake Band and DNR are working on sustainable harvest management frameworks.

Mature Female Walleye Biomass



Mature Female Walleye Biomass 1987–2004

Target: Achieve a self-sustaining walleye fishery that supports a thriving sport fishery beginning in May 2006, with mature female spawning stock exceeding 1.5 pounds per acre and a diverse age structure of spawning fish.

Learn more about:

- Other fish species at: http://www.dnr.state.mn.us/fishing/index.html

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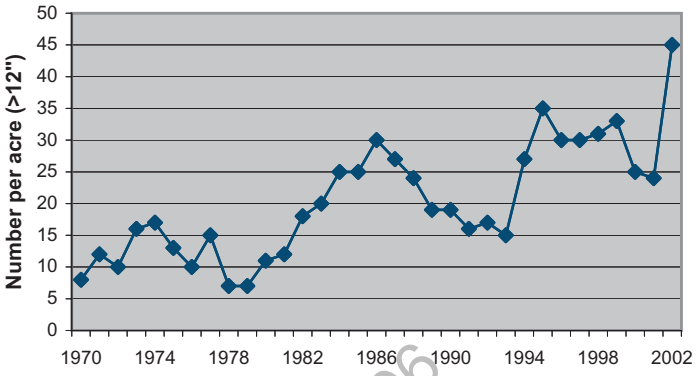
Brown Trout Populations

Indicators: Brown trout population levels

Why is this indicator important?

Trout management in southeastern Minnesota streams dates back to the 1870s with the introduction of angling regulations and trout stocking. Today, southeastern Minnesota has 181 cold-water steams totaling 790 miles. This resource provides a popular fishery with an estimated 520,000 angler-trips annually generating an economic impact of almost $30 million in sales and $18 million in income. Healthy trout populations are needed to maintain angler satisfaction.

Brown Trout Populations 12" and Larger in SE MN Streams



What is DNR doing?

DNR's activities in southeastern Minnesota focus on the protection and improvement of trout streams. DNR purchases easements from landowners to provide angler access. We improve trout streams through in-stream habitat rehabilitation, riparian corridor management, environmental protection, and watershed management. Trout are stocked in streams that cannot support a fishery through natural reproduction. We also use special regulations on some streams to increase catch rates and the number of large trout.

Target: Maintain or increase larger brown trout populations and add 10 miles of easements on southeastern Minnesota trout streams by 2007. DNR has completed a long-range plan for the management of trout streams in southeastern Minnesota. This plan will guide trout management over the next six years. The long-term goal of this plan is to conserve, enhance, and restore self-sustaining trout populations and their habitats for anglers and the people of Minnesota.

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Learn more about:

- Trout fishing at: http://www.dnr.state.mn.us/fish/trout/index.html
- Other fish species at: http://www.dnr.state.mn.us/fishing/index.html

Steelhead Trout Populations

Indicator: Lake Superior steelhead trout catch rates and spawning numbers

Why is this indicator important?

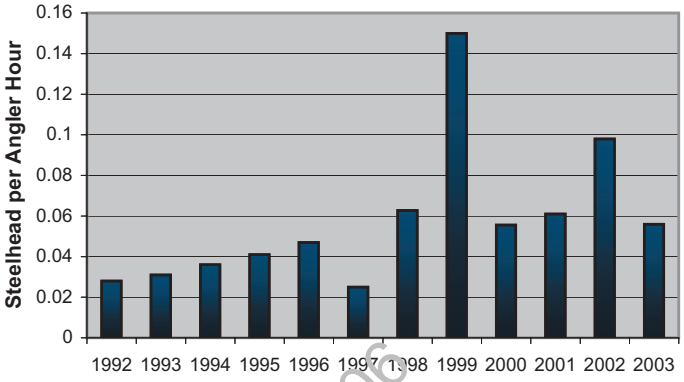
Steelhead trout were introduced into Lake Superior in the early 1900s and have since become naturalized throughout the lake. They migrate up streams to spawn each spring and are highly prized by sport anglers for their fight and beauty. During the 1970s and 1980s numbers declined due to overfishing, habitat degradation, and major changes in the Lake Superior fish community. Because of the sustained recovery of native Lake Superior fish species (lake trout and lake herring), it is unlikely that steelhead numbers will ever approach those anglers recall from the 1950s and 1960s. However, anglers are still interested in improving this fishery.

What is DNR doing?

DNR has worked closely with anglers over the past 10 years to implement the North Shore Steelhead Plan. This plan included restrictive harvest regulations, increased habitat protection and improvement, and stocking of hatchery-reared fish in selected streams. The 1992 North Shore Steelhead Plan was revised in 2002 with a renewed effort to rehabilitate steelhead in the Knife River system and continue the positive direction the population has taken over the past 10 years. Steelhead in Minnesota's portion of Lake Superior are at the thermal margin of their range; given the increased numbers of native species, it is uncertain how much more steelhead numbers can increase.

Target: Maintain an average catch rate of 0.08 to 0.10 steelhead per angler-hour shorewide, and increase the average annual number of spawners returning to the Knife River from about 400 to 1,000 over the next 10 years.

Catch Rate of Wild Steelhead From Lake Superior



Catch rate of wild steelhead from Lake Superior spring anadromous creel surveys, 1992–2003.

Steelhead migrate up Lake Superior streams to spawn each spring and are highly prized by sport anglers.

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Learn more about:

- Minnesota trout fishing at: http://www.dnr.state.mn.us/fish/trout/index.html
- Other fish species at: http://www.dnr.state.mn.us/fishing/index.html

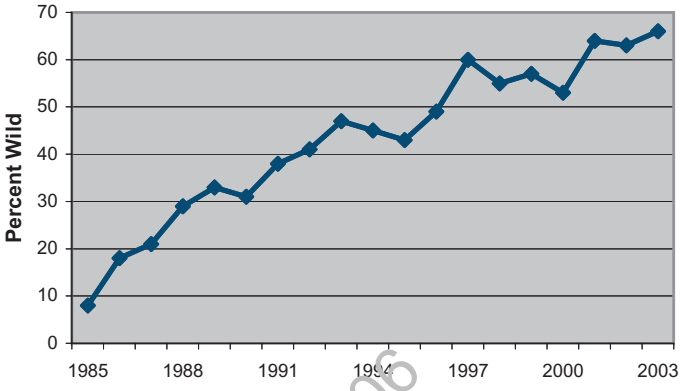
Lake Trout Populations

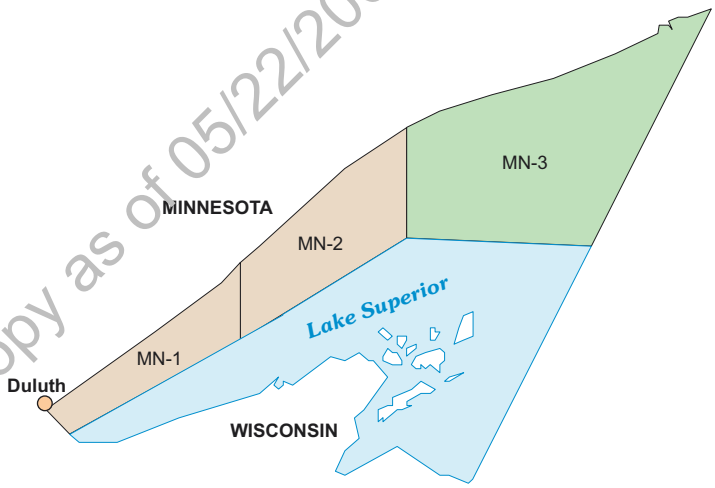
Indicators: Percentage of wild lake trout in the recreational fishery of Lake Superior

Why is this indicator important?

The lake trout is the top native predator in the Lake Superior ecosystem and the most important salmonid in the recreational fishery. Overfishing in the 1940s and 1950s and predation by exotic sea lamprey during the 1950s virtually extirpated the fish. Since then, fish management agencies around the lake have been working together, facilitated by the Great Lakes Fishery Commission (GLFC), to rehabilitate lake trout. Rehabilitation efforts include sea lamprey control and stocking. Rehabilitation is deemed successful when wild, self-sustaining populations predominate and stocking is no longer necessary or desirable. Rehabilitation has occurred in much of Lake Superior and is accelerating in Minnesota.

Percent Wild Lake Trout in the Lake Superior Creel Survey 1985-2003





Lake trout rehabilitation has occurred in much of Lake Superior. When wild self-sustaining populations predominate, stocking is no longer necessary or desirable. This has already been achieved in the northeast third of Minnesota waters (MN – 3).

What is DNR doing?

Strategies for lake trout rehabilitation are outlined in the Lake Superior Fisheries Management Plan for the Minnesota Waters of Lake Superior. DNR continues to work with the GLFC and the U.S. Fish and Wildlife Service to control sea lamprey. Restrictive commercial fishing and a regulated sport fishery also have helped. Stocking has been reduced in Minnesota and discontinued in the northeastern one-third of Minnesota waters. DNR coordinated, facilitated, and funded a project to identify and map lake trout spawning substrate along the Minnesota shoreline so it can be better protected. Recently, DNR developed Statistical-Catch-At-Age (SCAA) models that will help us determine total allowable catch (TAC) for the sport fishery and potentially for the commercial fishery as well.

Target: Achieve a self-sustaining lake trout population capable of supporting a recreational fishery and limited commercial fishery. Reduce stocking in MN-1 and MN-2 when criteria are met.

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Learn more about:

- Minnesota trout fishing at: http://www.dnr.state.mn.us/fish/trout/index.html
- Other fish species at: http://www.dnr.state.mn.us/fishing/index.html

Twin Cities Metropolitan Area Fishing

Indicator: Number of metro region ponds stocked for fishing and education

Why is this indicator important?

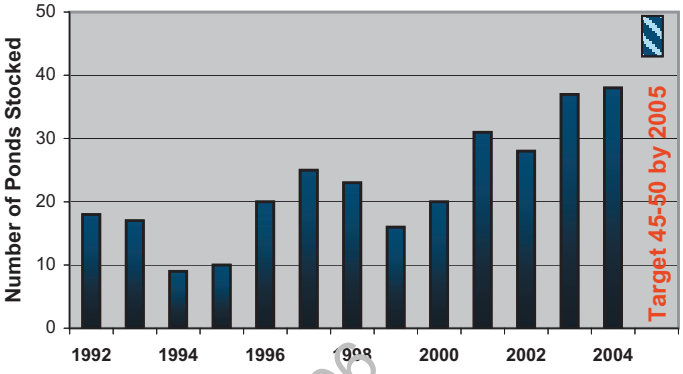
With more than 2 million anglers in Minnesota, it's clear that fishing is one of our state's most popular pastimes. As the state's population has grown, people have become concentrated in the greater metro region. The metro region has over 900 small lakes, but many area residents don't have access to them. Only one in six Minnesotans owns a boat, and many water bodies lack shorefishing facilities. We need to provide adequate fishing locations and management in the metro region to assure future generations will have opportunities to experience our outdoor fishing heritage.

What is the DNR doing?

Fishing in the Neighborhood (FiN) manages small lakes in the Twin Cities metropolitan area to make recreational fishing as good as it can be for present and future generations. The program benefits urban residents by providing stocked fish and shore fishing structures and fishing piers on small, local lakes. The program has a strong emphasis on cooperation with local groups to do shoreland habitat restoration and cleanup projects. The program also collaborates with the MinnAqua program, aquatic education, to meet with schools, environmental learning centers, or other organizations involved with environmental education to provide fishing and educational opportunities.

Target: Stock 45-50 lakes, primarily with bluegill and crappie, by the end of FY 2005.

Number of Metro Area Ponds Stocked for Fishing and Education



Number of metro region ponds stocked for fishing and education. DNR manages small lakes in the Twin Cities metropolitan area to benefit urban residents and promote recreational fishing.

DNR works with local partners to install fishing piers and platforms, stock fish, restore shoreline habitat, and support education programs.

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Learn more about:

- Fishing in the Neighborhood at: http://www.dnr.state.mn.us/fishing/fin/index.html
- Fisheries aquatic education at: http://www.dnr.state.mn.us/minnaqua/index.html

Angler Satisfaction

Indicator: Angler satisfaction levels as measured by surveys

The Minnesota DNR:	1987	1998
adequately manages Minnesota's fishing waters.	66.0%	71.3%
should allow more angler participation in making fish management decisions.	84.6%	86.5%
listens to anglers' concerns.	84.2%	78.8%
responds to anglers' concerns.	80.8%	69.5%
manages fisheries for special interests.	53.9%	62.5%
needs more funding to do a better job.	62.9%	64.8%
should manage lakes to have many fish, though the average size would be smaller.	67.3%	65.9%
should manage lakes to have big fish, though the number of fish harvested would be less.	53.4%	43.6%

Percent of Minnesota resident anglers that agreed with the statements about fisheries management issues, from statewide surveys in 1987 and 1998. The 1998 values in bold are significantly different (<0.05) than the 1987 values.

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Why is this indicator important?

The purpose of fisheries management is to ensure the sustainability of recreational, social, environmental, and economic benefits from fishing. In 2001, 1.6 million anglers spent 30 million days fishing in Minnesota, with $1.3 billion in total expenditures, according to the U.S. Fish and Wildlife Service. Anglers vary in their interests, from being alone in a natural area to competing in tournaments, from harvest to catch and release. Fisheries management is a complex balancing act that seeks to satisfy these diverse interests while sustaining the resource. Angler satisfaction is an important measure of how well we are managing fisheries.

What is DNR doing?

Statewide surveys were conducted in 1987 and 1998. DNR has obtained stakeholder input at annual fisheries roundtables since 1991. The first roundtables provided guidance on individual waters management, aquatic education programs, and habitat protection. Subsequent roundtables have provided guidance on fishing tournament permitting, statewide bag limit changes, walleye stocking, and license fee increases. DNR also seeks input through public meetings and open houses. We work with several citizen oversight committees to see that dedicated funds are used efficiently and appropriately.

Target: Maintain or improve angler satisfaction levels. DNR intends to conduct statewide angler surveys every five to six years using key questions shown in the table above. The next survey will be conducted in 2004 with data available in 2005. In addition, we may ask single questions of people through the electronic license sales program. Survey results will be used to guide our efforts to protect and improve fish habitat, regulate fishing, inventory fisheries resources, conduct aquatic education programs, and stock fish.

Learn more about:

- Minnesota fishing at: http://www.dnr.state.mn.us/fishing/index.html

Hunter Satisfaction

Indicator: Hunter satisfaction levels as measured by surveys

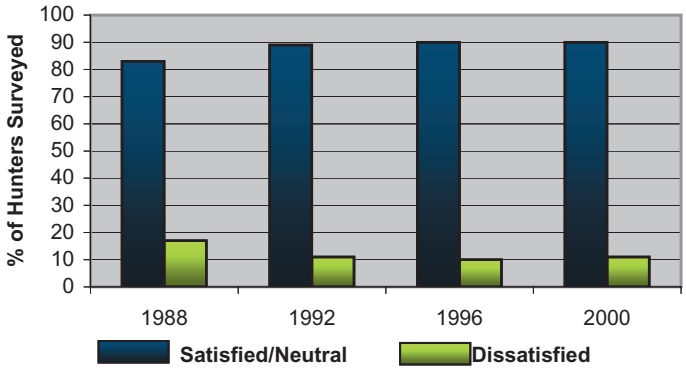
Why is this indicator important?

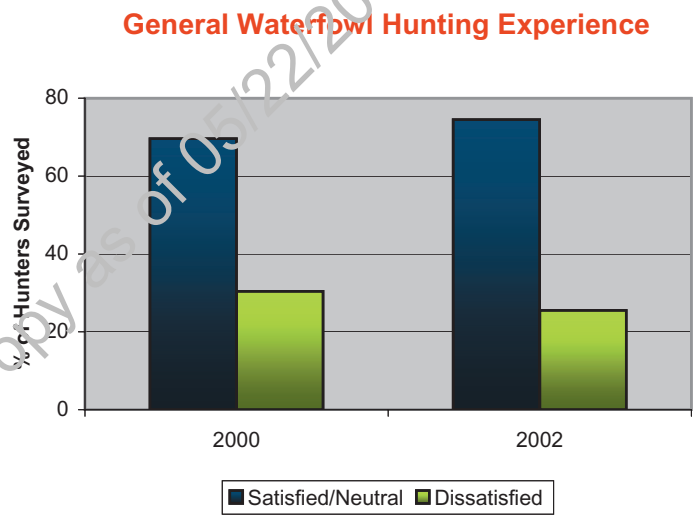
DNR is committed to providing high-quality recreational experiences associated with wildlife. Hunting is an important component of Minnesota's outdoor heritage, as evidenced by the fact that more than 77 percent of voters in the 1998 general election supported amending Minnesota's constitution to affirm hunting, fishing, and the taking of game and fish as a valued part of our heritage that shall be forever preserved.

What is DNR doing?

Hunter satisfaction is related to healthy wildlife populations and habitats, but it is a complex relationship. Satisfaction may be affected by the degree of crowding, availability of hunting areas, animals seen, animals bagged, size of animals, length and timing of seasons, bag limits, and other factors. In addition to managing populations and habitats for wildlife, DNR is conducting more "human dimensions" surveys to assess satisfaction and the contributors to high or low satisfaction.

Target: Maintain 90 percent satisfaction rates among hunters. While surveys indicate overall hunter satisfaction at or near this goal for hunting in general and for deer hunting, other types of hunting, such as waterfowl, do not meet this goal. Survey results will be used to modify hunting programs within biological limits to improve satisfaction. DNR has conducted two waterfowl hunter surveys within the past three years and has developed plans to improve Minnesota's share of the flyway waterfowl harvest (see Mississippi Flyway Duck Harvest indicator). In addition, DNR is assessing other contributors to satisfaction, such as harvest levels and regulations, that could be adjusted to improve satisfaction.





Hunter satisfaction levels as measured by surveys. Overall hunter satisfaction in Minnesota is relatively high, but for some specific types of hunting, particularly waterfowl, satisfaction rates are below the DNR goal of 90 percent.

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Learn more about:

- Minnesota hunting opportunities at: http://www.dnr.state.mn.us/hunting/index.html
- The USFWS 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation at: http://www.fa.r9.fws.gov/surveys/surveys.html

Chronic Wasting Disease

Indicator: Chronic wasting disease (CWD) sampling of harvested deer

Why is this indicator important?

Deer hunting is an important part of Minnesota's social and cultural heritage. The state has more than 1.1 million wild deer; each year nearly half a million deer hunters generate $236 million of retail spending here. Chronic wasting disease (CWD), a fatal disease of cervids (deer and elk), has not been detected in the state's wild deer population, but has been found in two captive elk. Although the disease is not known to affect human health, it has the potential to devastate wild deer populations. Sampling will help us detect and respond to CWD quickly to minimize its adverse impacts on the deer herd.

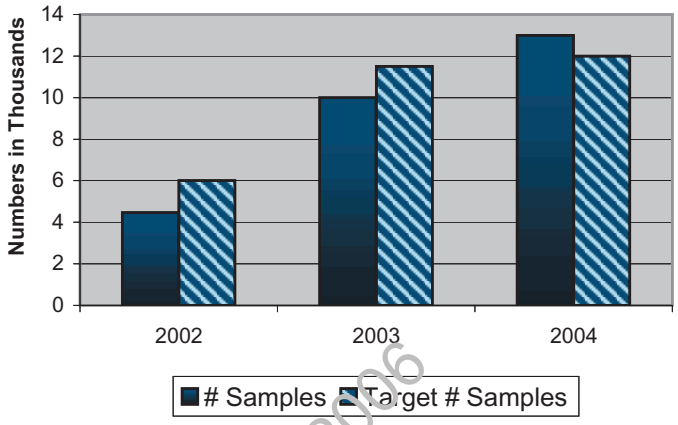
What is DNR doing?

Legislation has allowed us to take preventive steps to minimize the risk of CWD being brought into the state. For more than three years, DNR has been testing deer that are found sick or displaying symptoms consistent with CWD. In 2002 DNR began testing samples of hunter-harvested deer for the disease. DNR efforts now focus on monitoring for CWD in wild deer so we can quickly limit spread if it is detected.

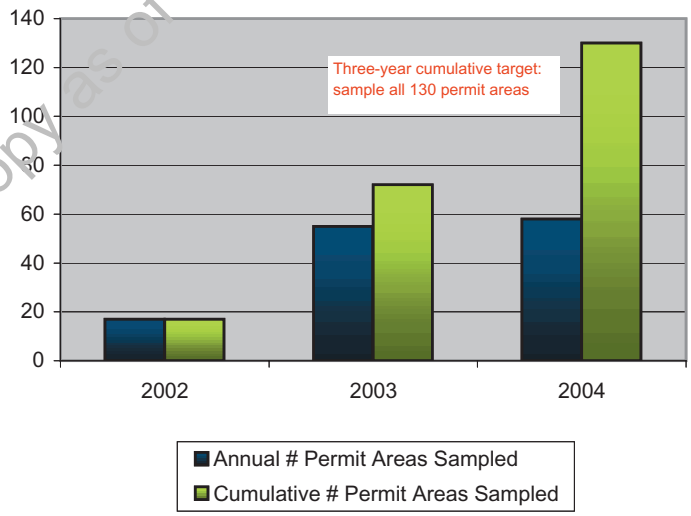
Target: DNR will maintain targeted surveillance of wild deer for CWD in the foreseeable future. Targeted surveillance involves testing sick deer or deer exhibiting abnormal behavior consistent with the symptoms of CWD.

DNR has already met its original target to complete cervid monitoring for CWD detection by 2004. Since 2001, DNR tested nearly 30,000 wild deer for CWD in all 130 permit areas. The disease has never been detected in the state's wild deer herd.

CWD Sampling of Harvested Deer by Sample Number



CWD Sampling of Harvested Deer by Permit Areas



CWD sampling of harvested deer. DNR monitors wild deer populations for chronic wasting disease (CWD) so management programs can be applied quickly to limit spread of the disease if it is found. During 2002-2004, DNR tested samples of hunter-harvested deer for the disease in all 130 permit areas. DNR tested 4,462 deer in 2002, 10,000 deer in 2003, and 13,000 deer in 2004. No positives were found in any of the tests.

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Learn more about:

- CWD and monitoring at: http://www.dnr.state.mn.us/mammals/deer/cwd/index.html

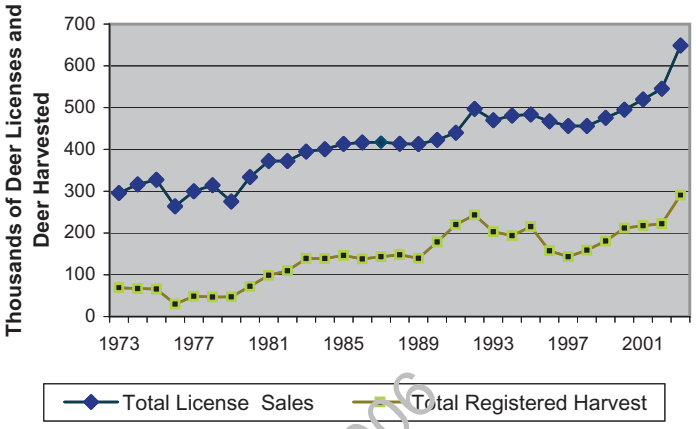
White-tailed Deer

Indicator: Percent of deer permit areas within goal range for harvest levels

Why is this indicator important?

Deer provide substantial recreational and economic benefits to Minnesota. However, high densities of deer may have a negative impact on forests, farms, and personal property. Hunters expect high deer densities and harvests, and represent a significant lobbying force for maintaining or expanding deer populations. At the same time, increases in negative deer-human interactions due to high deer populations have increased and broadened public interest in deer management.

Total Deer License Sales and Harvest Levels



Deer hunting permits and harvest levels. Deer license and permit sales have increased to over 600,000 per year. Deer harvest has more than doubled since the 1970s. DNR's target is to maintain populations within goal ranges in 75 percent of permit areas.

What is DNR doing?

DNR modified the process of distributing either-sex deer permits in the 2003 season to facilitate antlerless deer harvest and improve customer service. DNR will bring stakeholders together to redetermine deer population goals in 2004 and 2005.

Target: Maintain deer populations within goal ranges in at least 75 percent of deer permit areas. DNR will meet this target by providing quality deer habitat and aggressive harvest strategies. We will use DNR's Subsection Forest Resources Management Plan (SFRMP) process to maintain northern Minnesota's conifer cover, which is important to wintering deer. We will also make sure early successional habitats are distributed across the landscape. DNR will increase the use of regulated harvest to address deer overabundance. We will continue to target the harvest of antlerless deer. When appropriate, antlerless permits will be available for purchase over the counter, with no application necessary. We will continue to expand youth hunting opportunities to improve hunter recruitment.

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Learn more about:

- Deer hunting at: http://www.dnr.state.mn.us/hunting/deer/index.html
- Other hunting at: http://www.dnr.state.mn.us/hunting/index.html

Wild Turkeys

Indicators: Number of wild turkey hunting permits offered; harvest levels; range expansion

Why is this indicator important?

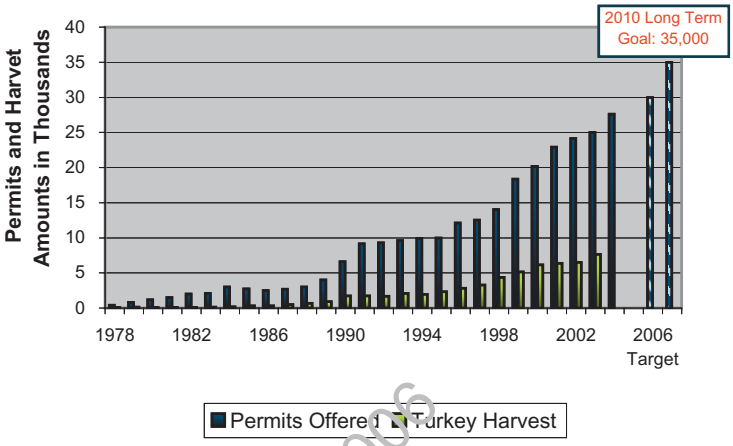
DNR's efforts beginning in the late 1960s to transplant wild turkeys to southeastern Minnesota have been hugely successful. Turkeys have spread to much of southern Minnesota and to the west and north. In 1978, the first spring turkey season was held with 10,720 people applying for 420 permits. Since then, wild turkeys have greatly increased in numbers and range. For spring 2005, DNR will offer 31,864 permits in 66 permit areas which will exceed the 2006 goal of 30,000 permits. Continued growth in wild turkey populations and well-managed hunting seasons are necessary to improve hunter satisfaction.

What is DNR doing?

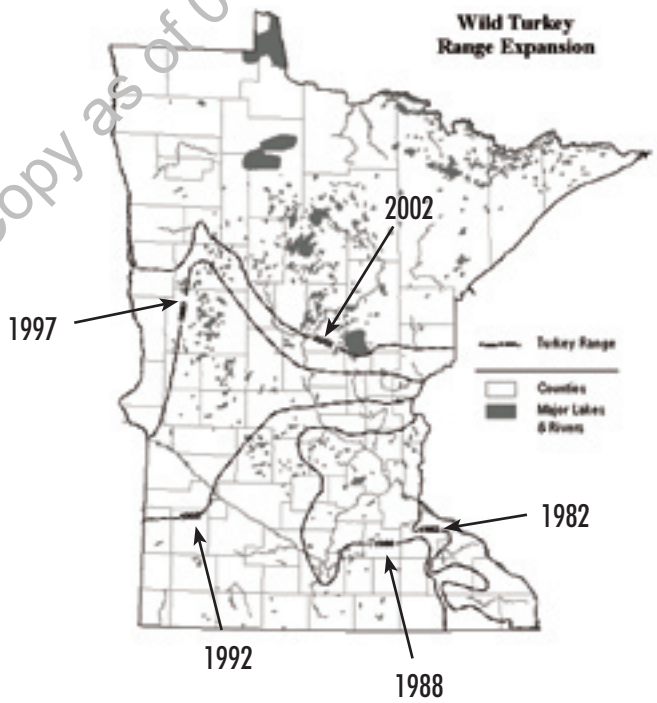
DNR traps wild birds from areas of high populations and releases them in areas of suitable habitat not already occupied by wild turkeys. DNR cooperates in research to evaluate impact of winter food on survival of wild turkeys at the northern portion of their range in Minnesota. DNR is currently developing a six-year plan to guide wild turkey management through 2009.

Target: Offer 30,000 permits by 2006 and 35,000 permits by 2010. In 2005, DNR will complete the six-year plan for wild turkey management and provide targets and strategies related to the number of wild turkey permit areas open to hunting and expansion of turkey geographic range. DNR will continue to improve turkey habitat on public and private lands and acquire land to protect critical wild turkey habitat.

Wild Turkey Hunting Opportunities



Wild turkey hunting opportunities. As wild turkeys increase their numbers and range, so do hunting opportunities. DNR sets permits to ensure healthy turkey populations and quality hunting experiences.



Following efforts in the late 1960's to transplant wild turkeys to southeastern Minnesota, the bird has spread to the west and north.

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Learn more about:

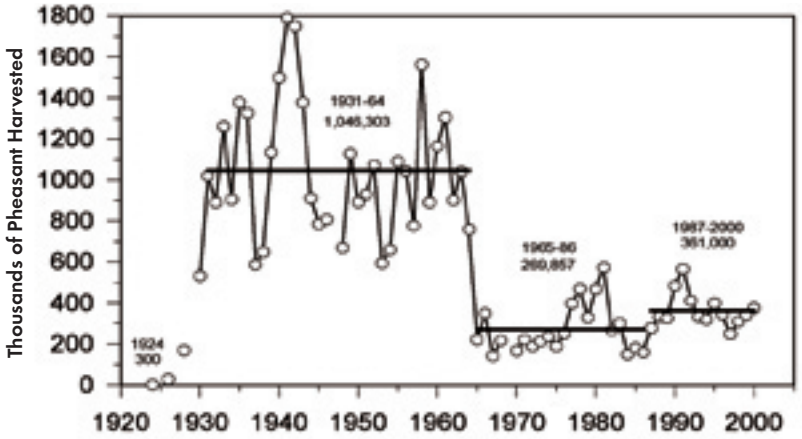
- Wild turkey hunting and success rates by permit area at: http://www.dnr.state.mn.us/hunting/turkey/index.html

Pheasants

Indicator: Pheasant harvest levels

Why is this indicator important?

The ring-necked pheasant is the most popular upland game species in Minnesota's agricultural region. High harvests indicate high populations, which in turn indicate a healthier agricultural ecosystem with prime farmlands under crop production and environmentally sensitive lands managed to conserve soil, water, and diverse game and nongame wildlife species. High populations also mean good hunting and corresponding economic benefits to agricultural regions. Populations were high until the "soil bank" long-term set-aside program ended in the mid-1960s and agriculture became more intensive and less diversified. Pheasant numbers have increased since long-term farm bill conservation programs resumed in the mid-1980s.



Pheasant harvest levels. Over the years agricultural practices have had a significant impact on pheasant populations. Harvest numbers reflect these trends. Recent increases correspond with successful farmland conservation.

What is DNR doing?

Pheasant populations depend largely on land-use practices on private farmland. The single largest influence on these land-use practices are U.S. Department of Agriculture policies and programs. Pheasant populations have fluctuated over the years in response to changes in farm policy. Since the mid-1980s, farm programs have become more long-term and conservation-oriented and pheasant populations have grown. DNR has completed a draft long-range plan to guide pheasant management in Minnesota through 2008 and provide a strategic vision through 2025.

Target: Achieve an annual average harvest of 450,000 pheasants by 2008 and 750,000 pheasants by 2025. To meet the target, we need a habitat base that can support an average fall population of 3 million pheasants, providing 175,000 hunters with more than a million days afield each year. DNR will work with other agencies and groups to fund technicians, to be located at county Soil and Water Conservation District offices, who will promote landowner enrollment in relevant 2002 federal Farm Bill programs. We will also accelerate land acquisition to protect critical pheasant habitat, direct farmland research toward better understanding pheasant winter habitat and other needs, and provide technical and cost-share assistance to private landowners for improving pheasant habitat.

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Learn more about:

- Pheasant hunting at: http://www.dnr.state.mn.us/hunting/pheasant/index.html

Ruffed Grouse

Indicator: Ruffed grouse harvest levels

Why is this indicator important?

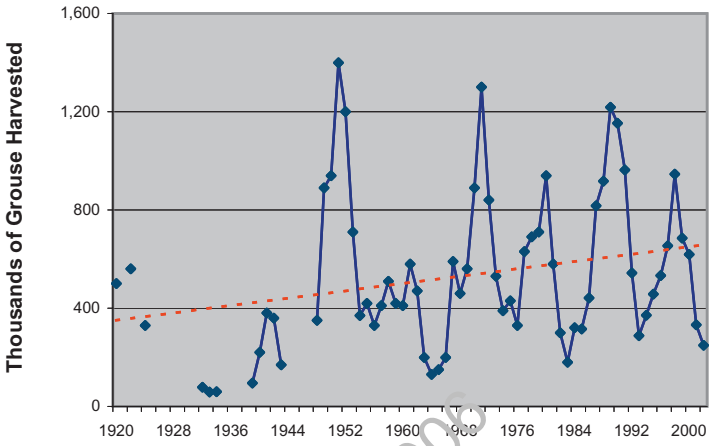
The ruffed grouse is Minnesota's most important game bird in the terms of harvest. Average annual harvest is 600,000, compared to (last 10 years) 200,000 for mallards, and 365,000 for pheasants. During the peak of the 10-year population cycle, annual harvest exceeds 1.2 million. Minnesota consistently ranks within the top three states, and frequently is the nation's top producer of ruffed grouse. High population and harvest levels mean high hunter satisfaction.

What is DNR doing?

DNR is hiring its first full-time grouse biologist. We are also actively managing our aspen resource (an important part of grouse habitat), with aspen and balsam poplar harvest rates at record levels. Wildlife managers actively participate in DNR's Subsection Forest Resource Management Plans (SFRMP) process, ensuring ruffed grouse management issues are addressed.

Target: Provide an average annual harvest of 650,000 ruffed grouse.
By promoting forest management practices that are ecologically sound and socially and economically beneficial to Minnesota citizens, DNR will provide abundant ruffed grouse habitat. DNR's SFRMP process will help ensure that early successional forest habitats used by ruffed grouse and other wildlife are adequately represented in appropriate landscapes (see Subsection Forest Resource Management Plan and Timber Sales indicators).

Ruffed Grouse Harvest Levels



Ruffed grouse harvest levels. DNR's target is to provide mean annual harvests of 650,000 ruffed grouse.

Ruffed grouse.

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Learn more about:

- Grouse hunting at: http://www.dnr.state.mn.us/hunting/grouse/index.html

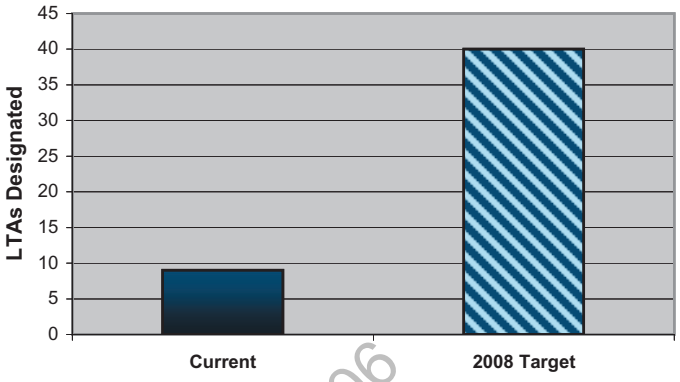
Brushland Habitat Conservation

Indicator: Number of landscapes designated as priority open landscape areas

Why is this indicator important?

Brushlands, which provide critical wildlife habitat, were once a conspicuous feature of Minnesota. At the time of European settlement, up to 11.3 million acres of the state's forest and transition areas were vegetated with brushy prairie, oak openings and barrens, jack pine barrens and openings, conifer bogs and swamps, and open muskeg. During settlement, agricultural and logging created additional brushland habitats. Since then, however, brushlands have declined in quantity and quality, and wildlife populations that depend on them have declined as well. For example, hunter harvest of sharp-tailed grouse decreased from more than 150,00 in 1949 to some 5,000 in 1995; in 1999, the Minnesota population of sharp-tailed grouse was 70 percent below 1980 levels.

Land Type Associations (LTAs) Designated as Open Landscapes



The once-thriving sharp-tailed grouse population has declined sharply in the last 50 years. The reason for this has been the loss of grassland and brushland habitats. Designating priority open landscape areas helps enhance brushland habitat conservation and wildlife populations.

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What is DNR doing?

DNR has completed a wildlife assessment of open landscapes in the transition and forested regions of northern and central Minnesota using the Ecological Classification System as a framework and land type associations (LTAs) as the unit for assessment. This assessment is now being used in our subsection forest resources management planning process. In the recently completed Mille Lacs Uplands subsection plan, nine LTAs were designated priority open landscape areas. We will focus brushland management and funding within these LTAs to maintain them as open landscape areas. We will also use forest management activities to enhance brushland within these areas.

Target: Designate 40 LTAs across the forest and transition zones of Minnesota as priority open landscape areas during DNR's subsection forest resources management planning process.

This target will help enhance conservation of brushland habitat and associated wildlife populations.

Learn more about:

- Subsection forest resource management planning at: http://www.dnr.state.mn.us/forestry/subsection/index.html
- Sharp-tailed grouse at: http://www.dnr.state.mn.us/snapshots/birds/sharptailedgrouse.html

Prairie Wetland Complexes

Indicator: Number of prairie wetland complexes

Why is this indicator important?

Prairie wetland complexes—native grasslands mixed with a range of wetland types and sizes—are important for many species, including waterfowl, shorebirds, amphibians, pheasants, and deer. To be of the most value to wildlife, such complexes should be at least four square miles and composed of a specific combination of temporary, seasonal, semipermanent, and permanent wetlands and grassland. At least 40 percent of the area should be in grassland, at least half as permanent grassland cover (e.g., easements and public land ownership) and the remaining as temporary cover (e.g., farming operations).

There are nearly 10,000 four-square-mile blocks in Minnesota's historical prairie area. Only about 130 (1.3 percent) retain the wetlands necessary to be a high-quality prairie wetland complex. About 77 (less than 1 percent), retain the minimum permanent grassland. Minnesota's prairie pothole region has only about 12 complexes with the highest quality mix of wetlands and grasslands.

Prairie wetland complexes, found in the historical prairie areas of Minnesota, are valuable waterfowl habitat when they cover at least four square miles and include a variety of wetland and grassland types.

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What is DNR doing?

DNR programs that benefit prairie wetland complexes include managing shallow lakes, enforcing wetland laws, and acquiring and managing prairie wetland sites through Wildlife Management Areas, State Parks, and Scientific and Natural Areas. DNR works with other agencies to enhance the impact of such programs. DNR and partners are improving coordination and beginning to focus significant new investments in areas with the best potential for improving healthy waterfowl populations. Major efforts are needed in the face of historic large-scale wetland losses.

Target: Increase the number of high-quality prairie wetland complexes through wetland and grassland restorations. DNR will work with other agencies and target its efforts toward areas with the best potential to become high-quality prairie wetland complexes.

Minnesota's prairie pothole region has just 12 high-quality prairie wetland complexes. The circled area contains 11 of these complexes. These remaining complexes have: 1) adequate wetlands to attract 30 or more pairs of ducks per square mile, and 2) adequate grasslands under permanent protection to promote nesting success.

Learn more about:

- Wetlands at: http://www.dnr.state.mn.us/wetlands/index.html
- Prairies at: http://www.dnr.state.mn.us/prairierestoration/index.html
- Waterfowl hunting and habitat at: http://www.dnr.state.mn.us/hunting/waterfowl/index.html

Wild Rice Lakes

Indicator: Number of wild rice lakes actively managed for waterfowl

Why is this indicator important?

Minnesota has more acres of natural wild rice than any other state in the country. Wild rice has been historically documented in 45 of Minnesota's counties. Wild rice lakes play an important social and cultural role in Minnesota's rural communities. They are also important habitat for wildlife—especially migrating waterfowl. Many wild rice lakes are traditional harvesting and waterfowl hunting areas.

What is DNR doing?

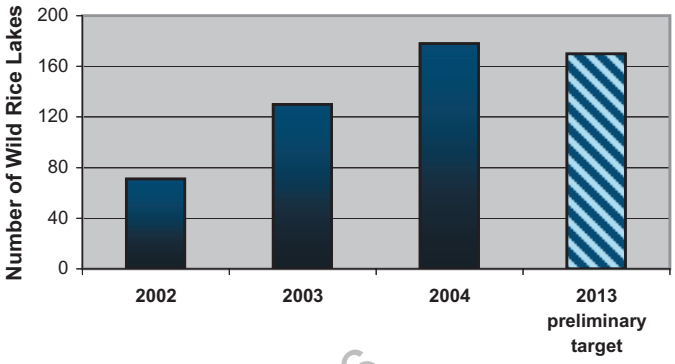
A DNR assessment found more than 700 lakes and impoundments in 31 counties that contain significant wild rice. DNR is working with partners to increase the number of wild rice lakes that are actively managed for waterfowl. Activities include monitoring and managing water levels on wild rice lakes, improving or maintaining outlets, and assessing habitat. Cooperative projects help improve the overall quality of wild rice lakes for waterfowl hunting.

Target: Working with partners such as Ducks Unlimited, increase the number of actively managed wild rice lakes to at least 170 in the next 10 years. Partnerships are critical to improving the quality of waterfowl habitat in areas throughout the state.

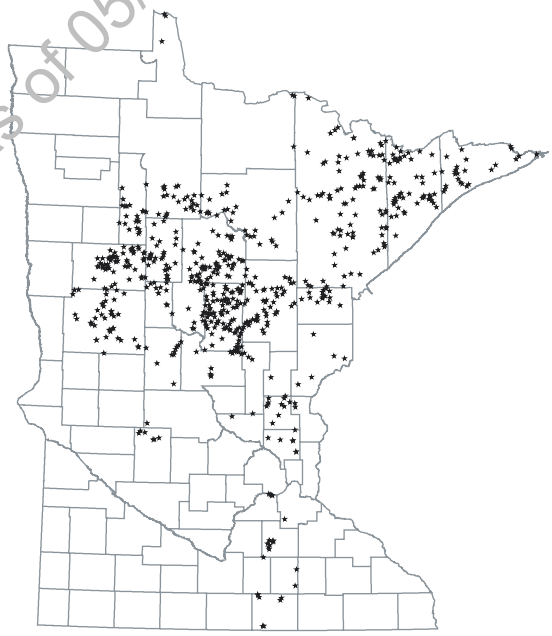
In addition to wild rice lakes in the forest region, DNR works to enhance prairie wetland complexes in the historical prairie areas of Minnesota (see Prairie Wetland complex indicator).

In 2004, DNR and Ducks Unlimited actively managed 178 wild rice lakes and impoundments. An additional 67 lakes and impoundments were monitored for habitat condition.

Number of Wild Rice Lakes Actively Managed for Waterfowl



Number of wild rice lakes actively managed for waterfowl. The DNR and partners such as Ducks Unlimited manage wild rice lakes to increase ideal waterfowl habitat.



Minnesota lakes with wild rice. DNR's target is to improve the quality of wild rice lakes, ideal waterfowl habitat, in the primarily forested regions of the state.

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Learn more about:

- Wild rice lake management at: http://www.dnr.state.mn.us/wildlife/shallowlakes/wildrice.html

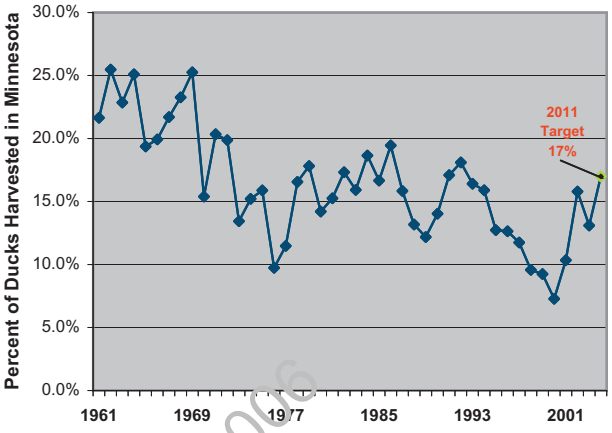
Mississippi River Flyway Duck Harvest

Indicator: Minnesota's share of the yearly Mississippi River Flyway duck harvest

Why is this indicator important?

Minnesota's share of the Mississippi Flyway duck harvest has declined from one-sixth of the total harvest during the 1970s to one-tenth in recent years. This decline has environmental, economic, and cultural significance. A good duck harvest is indicative of high-quality habitat. A good harvest contributes to the state's economy; waterfowl hunting and viewing contribute $100 million annually, and we are currently losing $20 million a year in expenditures because waterfowl hunters go to other states to hunt. A good harvest also contributes to the satisfaction of the state's many waterfowl enthusiasts, who comprise one of the largest populations of duck hunters in the nation.

Minnesota's Share (%) of the Yearly Mississippi River Flyway Duck Harvest



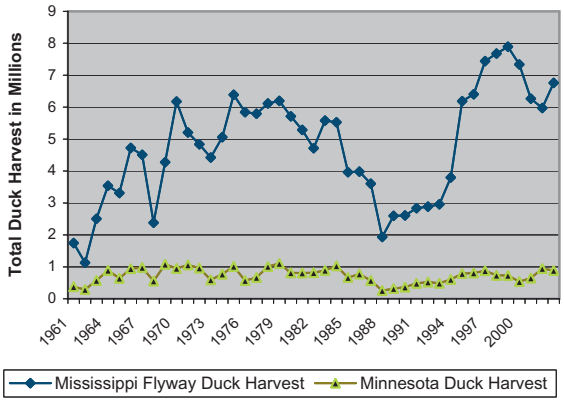
DNR's target is to increase Minnesota's share of the duck harvest to 1970's average levels of one duck in six (17%) by 2011. (Data based on mail surveys. 2002 data are preliminary due to a change in survey methods).

What is DNR doing?

To increase the duck harvest in Minnesota, DNR is committed to an action plan developed with stakeholders to: 1) increase local duck production by restoring wetland habitat complexes; 2) improve fall migration habitat by eliminating carp and managing water levels where possible in shallow lakes; and 3) reduce disturbances to migrating ducks by improving and enlarging refuges and resting areas. DNR relies on partnerships with local groups and government agencies to carry out habitat improvement activities.

Target: Increase Minnesota's share of the Mississippi River Flyway duck harvest to 1970's average levels of one duck in six by 2011. Because duck populations take time to respond to habitat restoration and protection, and because external factors (such as weather and other states' harvest levels) influence Minnesota's harvest success, we will measure this indicator yearly and will look at average results over at least three-year intervals before drawing conclusions about the effectiveness of our efforts.

Total Mississippi Flyway Duck Harvest and Total Minnesota Duck Harvest



Annual flyway duck harvest is affected by many factors including drought cycles. (Data based on mail surveys. 2002 data are preliminary due to a change in survey methods).

Note: This indicator may be difficult to interpret; it gives a limited view of waterfowl health, and consolidates many sources of information into just one measure. As a result, DNR will be re-evaluating this indicator to determine if we can develop a more suitable measure related to duck use or abundance. Future updates of the Conservation Agenda may include new indicators.

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Learn more about:

- Waterfowl hunting at: http://www.dnr.state.mn.us/hunting/waterfowl/index.html

Hunter Recruitment

Indicators: Number of youth license sales; number of participants in special youth hunts

Why is this indicator important?

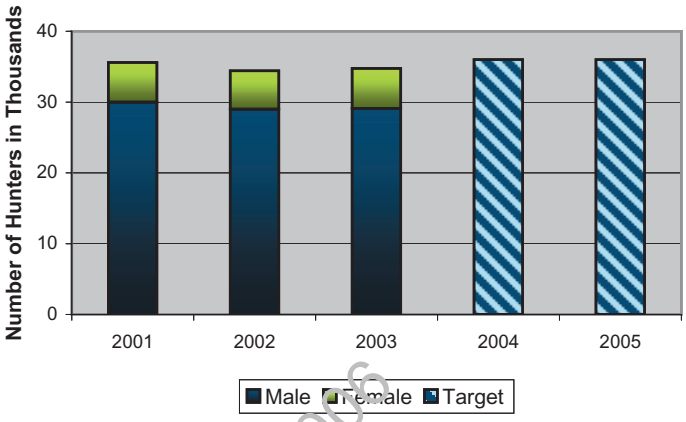
Hunting is an important part of Minnesota's outdoor heritage and culture. The right to hunt has been preserved in the state constitution. According to the U.S. Fish and Wildlife Service, in 2001 Minnesota was tied for fifth among states in hunter participation with 15 percent of Minnesotans participating. Hunting generates more than $664 million per year in economic activity in the state, according to the International Association of Fish and Wildlife Agencies. Hunters fund more than 90 percent of the DNR's wildlife management operating budget through license fees and federal excise taxes on hunting equipment.

What is DNR doing?

DNR has initiated a special effort to promote and sustain hunting by identifying barriers to participation and enacting programs and policies that reduce or remove them. DNR has reduced youth hunting license fees and initiated special youth hunts, and is working with hunting organizations to provide educational and introductory experiences. DNR is also developing marketing strategies to improve hunting's image.

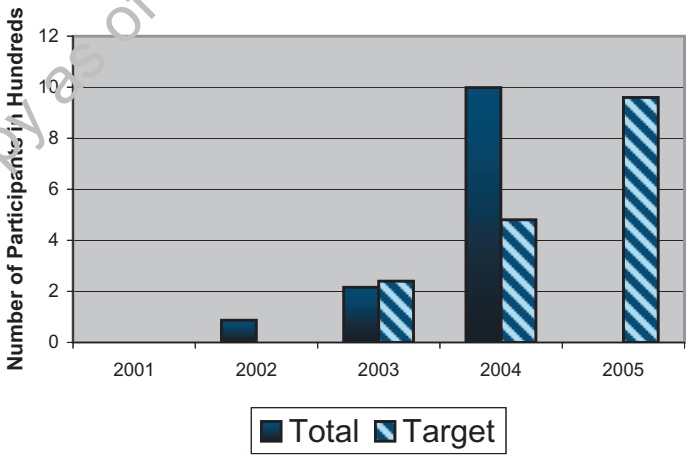
Target: Maintain youth hunter participation as measured by license sales and double participation in special youth hunts in 2004 and 2005. This target represents the beginnings of a systematic strategy to maintain and increase hunter participation rates. Using Electronic Licensing System (ELS) data, DNR can track how many hunters participate by age and sex. These data help DNR determine recruitment and retention rates and make decisions about resource allocation. License sales provide a valuable general indicator of interest, satisfaction, and participation trends. Other indicators, such as application levels for lottery hunts (e.g., bear and turkey) can also be used to measure hunter interest.

Firearms Deer Hunters Age 12-15 License Sales



Number of youth license sales. DNR's target is to maintain youth hunter participation.

DNR Special Youth Hunt Participation



Number of participants in special youth hunts. DNR's target is to double participation in special youth hunts in each of the next two years.

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Learn more about:

- DNR's hunter and angler recruitment and retention program at: http://www.dnr.state.mn.us/harr/index.html
- The International Hunter Education Association at: http://www.ihea.com/

Fisheries and Wildlife Enforcement

Indicator: Number of law enforcement hours by activity

Why is this indicator important?

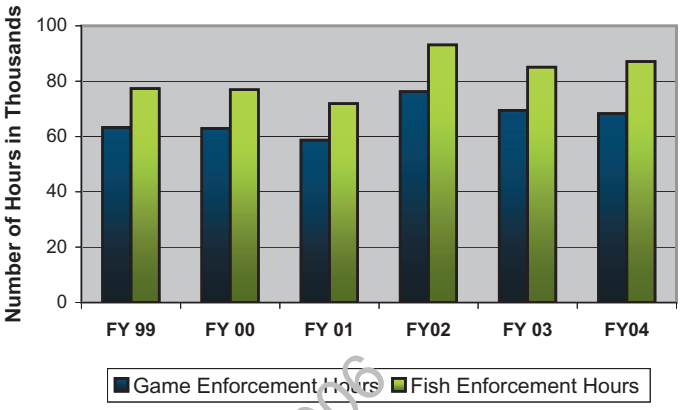
Protection of our wildlife resources and habitat is imperative if we are to enhance the benefit of DNR management efforts. Without adequate law enforcement and protection, the minority who violate can despoil the resources for the majority. The result is that our investments into sound wildlife management practices do not yield the expected results.

What is DNR doing?

Retirements within the ranks of conservation officers have reduced DNR's ability to put forth the needed hours in traditional law enforcement patrol activities. DNR is hiring replacements for retired officers. The new officers will be trained and strategically stationed so service is restored and adequate law enforcement coverage and educational programs are provided.

Target: Hire and train up to 36 new officers in the FY 2004 – FY 2005 biennium. This number of recruits will go a long way in bringing the conservation officer strength back to the historical level and increase law enforcement for fisheries and wildlife.

Number of Law Enforcement Hours by Activity



Number of law enforcement hours by activity. DNR seeks to increase law enforcement for fish and wildlife by hiring and training up to 36 new officers in FY 2004 and FY 2005

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Learn more about:

- Enforcement at: http://www.dnr.state.mn.us/enforcement/index.html

Law Enforcement on Special Regulation Waters

Indicator: Number of enforcement hours designated to work special regulation waters

Why is this indicator important?

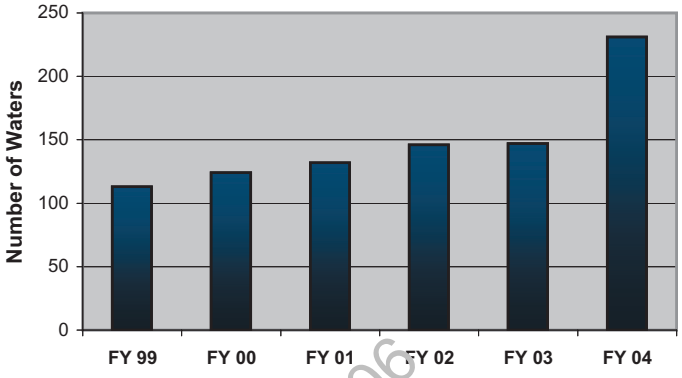
DNR has provided increased opportunities for anglers by intensively managing individual lakes and streams. This management strategy has produced good results in the proliferation of trophy fish and in maximizing the ability of some waters to produce more desirable numbers of popular species, thus increasing angler satisfaction. As little as a 10 percent noncompliance can affect the success of an experimental/special regulation, masking the potential positive effects of such regulations. Thus, our ability to both successfully implement and evaluate the success of programs to improve fishing success is directly related to our ability to enforce regulations.

What is DNR doing?

Retirements within the ranks of conservation officers have reduced DNR's ability to enforce fishing regulations. DNR is hiring more conservation officers and allocating approximately 55 percent of each officer's game and fish enforcement time to fisheries-related activities. Additionally, enforcement and fisheries staff are working together to determine where enforcement efforts should be deployed to best protect fish stocks and support the fisheries management program.

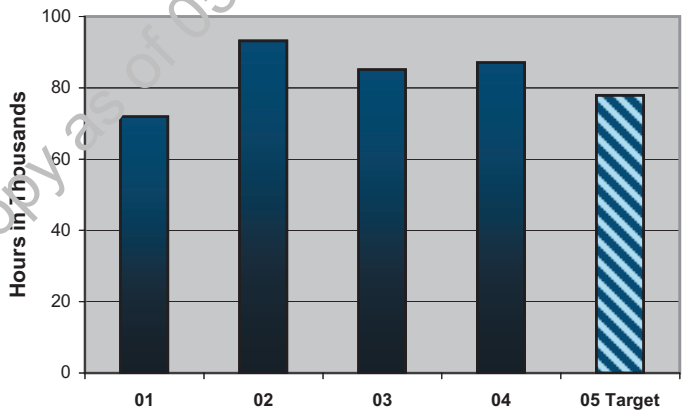
Target: Increase time spent in fisheries enforcement, particularly enforcing the regulations of experimental and special regulations waters, by 20 percent from FY 2003 to FY 2006. Achieving this target should make management more effective and increase satisfaction among anglers and resorters.

Minnesota Waters Designated with Special Regulations Since FY '99



Minnesota waters designated with special regulations since FY 99.

Fish Enforcement Hours



Hours of law enforcement support for fisheries will be increased in response to new experimental and special regulations waters.

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Learn more about:

- Enforcement at: http://www.dnr.state.mn.us/enforcement/index.html
- Fishing at: http://www.dnr.state.mn.us/fishing/index.html

Law Enforcement and Waterfowl Protection

Indicator: Number of enforcement hours designated for the Waterfowl Task Force

Why is this indicator important?

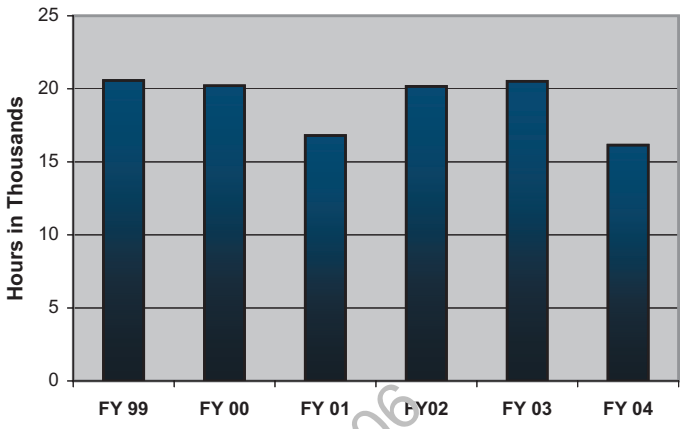
Over the past several years, constituents have voiced displeasure with the state's dwindling fall migrations of waterfowl, and the reduction of opportunities afforded for harvest. Constituents have especially voiced displeasure with the reduced number of ducks that use the state's feeding and resting areas during the fall. DNR has undertaken a number of projects to restore the traditional fall flights to Minnesota skies. Law enforcement is an integral part of these wildlife management efforts to improve waterfowl hunting.

What is DNR doing?

DNR has invested precious resources into restoration of the state's waterfowl breeding populations and other efforts to increase the numbers of waterfowl in the fall migrations. The DNR's Section of Wildlife has made waterfowl protection and the continued operation of the Waterfowl Task Force, a group of dedicated officers who specialize in waterfowl enforcement, its highest enforcement priorities.

Target: Increase efforts in waterfowl enforcement by 15 percent by FY 2006. To achieve this target, DNR will enhance the use of the Waterfowl Task Force. The officers that comprise this group are very knowledgeable in waterfowling techniques and practices, and respond at short notice to work anywhere within the state where, due to the dynamic and fluid nature of waterfowl migrations and hunting pressure, a law enforcement presence is required. These officers use the opportunity to try new equipment and develop new enforcement tactics. They also help train other conservation officers.

Waterfowl Enforcement Hours



Waterfowl enforcement is an integral part of efforts to improve waterfowl hunting.

Two swans poached in 2004 at Carlos Avery Wildlife Management Area.

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Learn more about:

- Waterfowl hunting at: http://www.dnr.state.mn.us/hunting/waterfowl/index.html
- Legal and safe hunting at: http://www.dnr.state.mn.us/hunting/tips/enforcement.html

Loon Abundance

Indicator: Loon population levels in six lake index areas

Why is this indicator important?

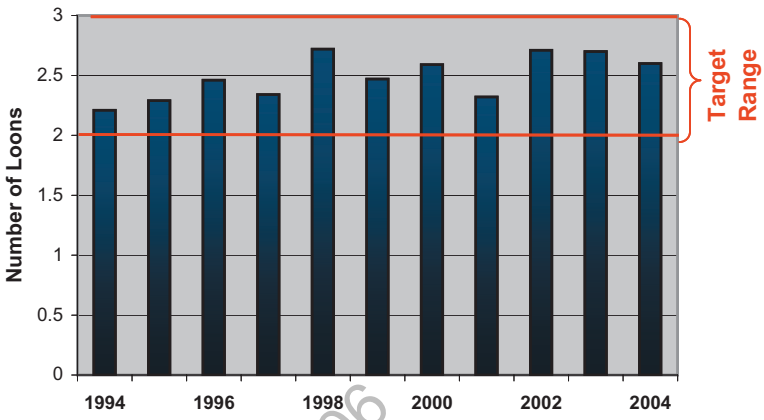
Minnesota is the summer home to approximately 12,000 adult loons—the largest population in the continental United States. Loons thrive in clear lakes that have healthy fish and undisturbed shorelines with plenty of natural vegetation. Loons reflect the overall quality of Minnesota's lakes.

What is DNR doing?

To assess the stability of loon populations over time, DNR's Minnesota Loon Monitoring Program relies on nearly 1,000 volunteers using standardized protocols to collect data on six 100-lake "index areas" in central and northern Minnesota. The Aitkin/Crow Wing index area (see graph) is of interest because the lakes are on predominantly private lands in a region of rapid population growth. Besides tracking loon populations, DNR promotes healthy shoreline habitat for loons and other wildlife. For example, DNR works with partners to support lakescaping workshops designed to meet landowner goals while sustaining native vegetation and shoreline habitat.

Target: Sustain a population of two to three adult loons per 100 acres of lake in the Aitkin/Crow Wing area. The target aims to maintain stable loon populations in the face of growing pressures. Loon populations are currently stable in all six index areas of the state. Because of natural variability, loon populations will fluctuate somewhat from year to year.

Adult Loons Per 100 Acres



Loon populations. The conservation target for viable loon populations is two to three adults per 100 acres of lake in the Aitkin/Crow Wing index area.

The common loon, Minnesota's state bird.

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Learn more about:

- The common loon at: http://www.dnr.state.mn.us/snapshots/birds/commonloon.html
- The Minnesota Loon Monitoring Project at: http://www.dnr.state.mn.us/ecological_services/nongame/projects/mlmp_state.html
- Volunteering for loon surveys at: http://www.dnr.state.mn.us/ecological_services/nongame/projects/loon_survey.html

Frogs and Toads

Indicator: Frog and toad species distribution

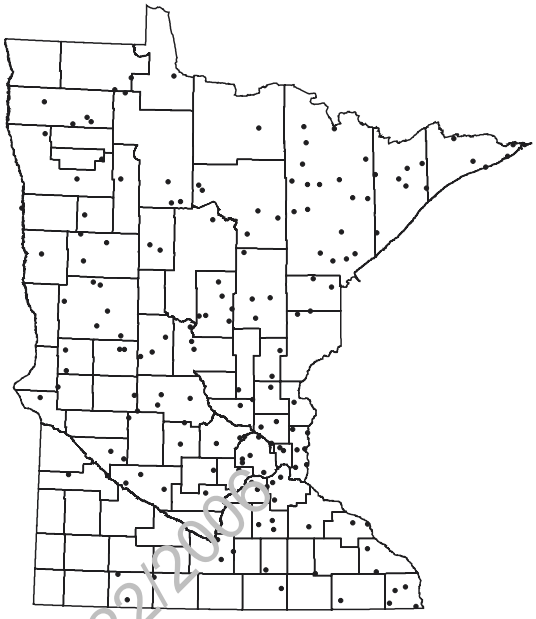
Why is this indicator important?

Biologists around the world have discovered that populations of frogs and toads are in decline. The causes of this disappearance are uncertain, but they likely include habitat loss and degradation, loss of atmospheric ozone, increased vulnerability to disease, and exposure to pollution and pesticides. With a life cycle that exposes them to aquatic habitats as tadpoles and terrestrial habitats as adults, and a semi-permeable skin that makes them sensitive to environmental contaminants, Minnesota's 14 frog and toad species are valuable indicators of air and water quality.

What is DNR doing?

Since 1996, DNR has been developing the Minnesota Frog and Toad Calling Survey, which is designed to detect trends in the state's frog and toad populations over time. In 2004, trained volunteers conducted three nighttime surveys on each of 167 routes distributed throughout the state, and reported on which of the state's 14 species of frogs and toads were heard singing. Data are analyzed to evaluate changes in the distribution and abundance of these species within the state. In the future DNR will have sufficient data to report on these actual trends. In addition, it is hoped that wetland conservation efforts will have a positive impact on frog and toad distribution.

Target: Maintain or increase frog and toad distribution. DNR will continue to strengthen the Minnesota Frog and Toad Calling Survey, and will use the data to evaluate changes in the distribution of the state's frogs and toads. Any decline in species distribution will trigger further investigations into the cause.



Location of Frog and Toad Calling Survey routes in 2004.

Spring peeper

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Learn more about:

- Minnesota's frogs and toads at: http://www.dnr.state.mn.us/reptiles_amphibians/frogs_toads/index.html
- The Minnesota Frog and Toad Calling Survey at: http://www.dnr.state.mn.us/volunteering/frogtoad_survey/index.html

Endangered Species

Indicator: Number of species on the Minnesota endangered species list

Group	Endangered	Threatened	Special Concern	TOTAL
Mammals	0	1	14	15
Birds	7	6	15	28
Amphibians & Reptiles	2	3	9	14
Fish	0	1	20	21
Mollusks	10	15	5	30
Arthropods	8	6	35	49
Vascular Plants	69	69	144	282
TOTAL	96	101	242	439

Species on state list by group.

Why is this indicator important?

Maintaining the full complement of native plants and animals in the state is important for a variety of reasons—biological, ecological, genetic, educational, and aesthetic. Animals such as the brown bear, bison, and passenger pigeon, and more than 50 species of plants, have been lost from Minnesota since European settlement. Habitat loss is the major cause of endangerment.

The western prairie fringed orchid, an endangered plant.

What is DNR doing?

Minnesota Statutes 84.0895 directs the commissioner to adopt rules under chapter 14 to designate wild animal or plant species as endangered, threatened, or species of special concern. It also directs the commissioner to undertake management programs and adopt rules necessary to improve the status of species formerly designated as endangered or threatened, and to reevaluate the designated species list every three years. Staff experts on native animals and plants inform public and private land managers about the needs of rare and endangered species. DNR acquires habitats crucial to the conservation of these species as state natural areas. Incentives for habitat enhancement on private lands are available through a variety state and federal programs.

Target: Fewer species moved to endangered status with each list revision. DNR is preparing a strategic assessment of the needs of at-risk species as part of its Comprehensive Wildlife Conservation Plan. The plan will also articulate key measures of success. Funding will be sought and allocated to carry out actions to implement the plan.

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Learn more about:

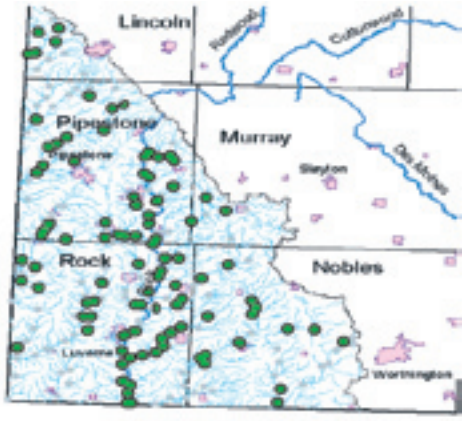
- Minnesota's list of endangered, threatened, and special concern species at: http://www.dnr.state.mn.us/ets/index.html

Topeka Shiner

Indicator: Percentage of stream reaches in the Missouri River watershed with Topeka shiner

Why is this indicator important?

The Topeka shiner *(Notropis topeka)* was once a common prairie stream fish throughout the central United States. It received federal endangered status designation in January 1999 due to its disappearance from 80 percent of its historic range. The species' decline is attributed to the impacts of intensive agriculture, stream channelization, dam construction, and bank erosion on its habitat. Recent studies conducted by the DNR have demonstrated that Topeka shiner preferred habitat consists of off-channel pools, oxbows, and backwaters found along naturally meandering low-order streams flanked by an undisturbed floodplain that can accommodate channel-cutting and meandering. Minnesota is now home to one of the healthiest remaining populations of this prairie stream fish, and its distribution is an indicator of the health of these rare streams.



Range of Topeka shiner in southwestern Minnesota (known locations shown as green dots outlined in black).

Topeka shiner, a prairie stream fish, is now rare throughout its range.

What is DNR doing?

DNR has conducted studies to determine the Topeka shiner's preferred habitat, food habits, demography, predators, and hydrologic requirements. Based upon this information, the DNR is now undertaking efforts to work with private landowners to protect and restore its habitat.

Target: Maintain or increase the percentage of stream reaches in the Missouri River watershed with Topeka shiner present. DNR hopes to conduct periodic surveys for the Topeka shiner to monitor its distribution in the state, and to insure that the species remains well-distributed throughout its range in Minnesota.

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Learn more about:

- DNR Topeka shiner surveys at: http://www.dnr.state.mn.us/ecological_services/nongame/projects/topeka_shiner.html
- Topeka shiner at: http://www.gen.umn.edu/research/fish/fishes/topeka_shiner.html

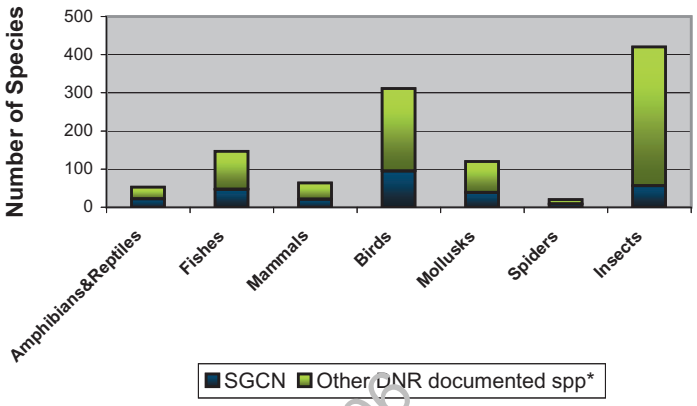
Comprehensive Wildlife Conservation Strategy

Indicator: Number of Species in Greatest Conservation Need

Why is this indicator important?

Congress has mandated that partnerships within states and territories develop Comprehensive Wildlife Conservation Strategy (CWCS) projects to manage their "species in greatest conservation need." The Minnesota CWCS project is our response to this mandate. About one-quarter (294) of Minnesota's more than 1,100 known wildlife species are being identified as species in greatest conservation need because they are rare, their populations are declining, or they face serious threats of decline.

Species in Greatest Conservation Need (SGCN) in Minnesota



What is DNR doing?

DNR is coordinating the Minnesota CWCS partnership with the U.S. Fish and Wildlife Service, The Nature Conservancy, Minnesota Audubon, the University of Minnesota, the U.S. Geological Survey, and many other conservation groups. This effort is using existing information to develop landscape-level habitat conservation actions as well as some species-specific conservation actions. Minnesota CWCS also will document research and information needs and identify monitoring systems necessary to keep us informed of habitat and species changes over time.

Bobolink

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Target: Complete the Minnesota CWCS document by October 2005; sustain or enhance Minnesota's set of species in greatest conservation need through habitat conservation, restoration, monitoring, research, and surveys.

Learn more about:

- Minnesota CWCS at: http://www.dnr.state.mn.us/cwcs/index.html

Wildlife Observation and Birding

Indicators: Number of participants in wildlife observation; number of local birding events

Why is this indicator important?

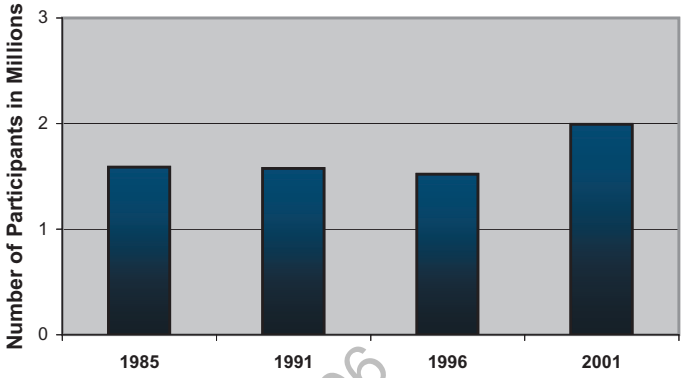
An increasing number of people are expressing their enjoyment of wildlife by bird watching, feeding birds, traveling to see birds and other wildlife, and photographing wildlife. Bird watching and nature tourism activities are harder to track than hunting, trapping, and fishing because licenses are not required for participation. Information on "non-consumptive" enjoyment of wildlife is important so participants can be included in the dialogue regarding conservation, legislative issues, and habitat-related wildlife initiatives.

What is DNR doing?

DNR has been working with the Minnesota Office of Tourism and with local chambers of commerce and convention and visitor bureaus as will as the Minnesota Ornithologists' Union to help support local birding and nature tourism initiatives such as Birding Trails and Birding Festivals. We published the *Traveler's Guide to Wildlife in Minnesota* to encourage wildlife tourism, and in 2002 the Nongame Wildlife Program cosponsored the national Watchable Wildlife Conference in St. Paul, which showcased a new curriculum for teaching nature tourism and how local communities can develop their wildlife tourism potential. In addition, state parks conducts bird inventories and checklists and uses these in 24 interpretive programs related to bird-watching or bird-feeding each year.

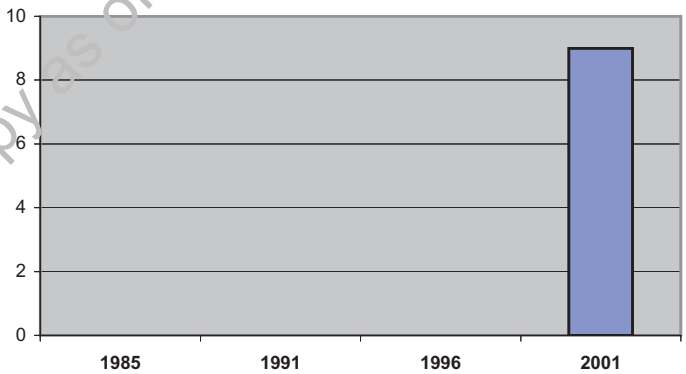
Target: Assist local communities with four birding trail/wildlife festival events or products per year. Acheiving this target will help serve the increasing numbers of wildlife observers.

Number of Minnesota Participants in Wildlife Observation



Number of Minnesota participants in wildlife observation.

Number of Birding Trails and Festivals in the State



Number of local birding events in Minnesota.

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Nearly 2 million Minnesotans actively watch, feed, or photograph wildlife—a 54% participation rate. Minnesota ranks No. 2 in the nation.

Learn more about:

- Wildlife observation and birding at: http://www.dnr.state.mn.us/nature_viewing/index.html

Fisheries and Wildlife Key Indicator Gaps

Indicator Gaps:

Although the indicators in this report have data of sufficient quality and coverage to support trend reporting, we recognize gaps in our ability to report on important natural resources trends. The following is a preliminary list of important indicators that require either additional data or new monitoring efforts. When baseline and trend data for new indicators are available, cooperative efforts will be needed to establish conservation targets.

A preliminary list of indicator gaps include:

Indicators to measure compliance with special regulations as a result of education and enforcement.
Indicators to measure rate of shoreline development and loss of shoreline habitat.
Indicators to measure demographic trends in recreation, as tracked in DNR's Electronic Licensing System.
Indicator to measure trends in access to public and private lands for hunting, fishing, and wildlife observation.
Indicator to measure trends in the distribution and abundance of turtles and other nongame species.
Indicators to measure the viability of populations of rare, threatened, and endangered species.

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Section Three: Waters and Watersheds

Minnesota's Water Resources and Watersheds Will Be Conserved

Water resources permeate every part of our lives. Ground and surface reservoirs provide for drinking, household, and industrial use. Waterways support a diversity of life. Lakes, rivers, and wetlands enrich us with recreation, relaxation, and beauty.

DNR conserves Minnesota's water resources in all forms—lakes, rivers, streams, wetlands, and groundwater. In doing so, we seek to meet people's current needs while also ensuring a future in which Minnesota's waterways and watersheds forever remain an abundant source of clean water, enjoyable recreation, and trademark beauty for all citizens.

A Vision for the Future

When we look to that future, we see **clean water** and plenty of it. We envision aquatic ecosystems that are healthy and sustainable. Fish and wildlife populations and natural communities that depend on them will be balanced and self-sustaining. Management will respect the interrelationships among lands and waters.

We envision waterways that have **integrity.** Natural characteristics of shorelines, groundwater aquifers, and wetlands will be protected. Stream flow that has been disrupted will be restored whenever possible to meet environmental and economic benefits. Storm water will be managed in ways to protect downstream resources. Point and nonpoint source pollution will be minimized. Harmful, invasive species will be reduced and no new invaders will be introduced.

We envision water resources that are appropriately **conserved.** Groundwater and other water resources will be used in a way that does not degrade them for future generations. They will be shared fairly among recreation, residential, and commercial uses while

DNR – What We Do

- Collect water data and coordinate technical analysis for Minnesota's groundwater and surface water
- Regulate activities that affect the state's waters, such as water use and shoreland alterations
- Provide technical assistance to local units of government on water management and safety issues, e.g., related to flooding
- Assist local watershed planning through information and education, e.g., related to storm water management

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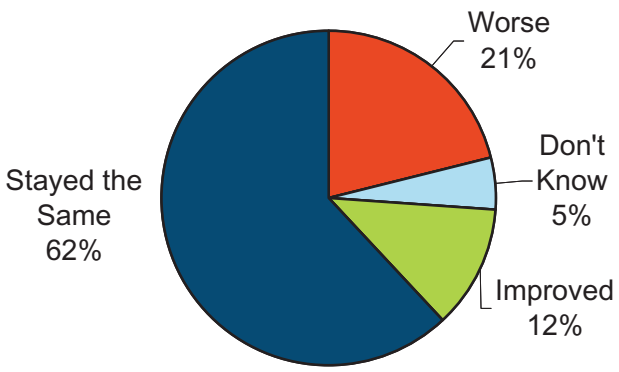
Perceptions of Lake Quality



Perceptions of lake quality. About one in five Minnesota lake users responding to a 1998 statewide survey perceived the lake they used most to be in a state of decline. About three in five thought it was remaining the same, and about one in 10 thought it was improving.

DNR partners with citizens and local groups to restore shoreline habitat and promote water quality.

protecting their ability to sustain natural systems. Sensitive and rare aquatic communities, such as trout streams and calcareous fens, will be protected.

As we work to turn this vision to reality, we need to consider a number of trends that affect water resources. Some are positive, while others work against our efforts to achieve our envisioned future.

Critical Trends

Shoreline development is a major factor in maintaining and improving lakes and rivers for natural habitat and recreation. The median number of homes per lakeshore mile in Minnesota has grown from fewer than three in 1950 to more than 16 today. Along with homes come septic systems, recreational impacts, introduction of invasive species, and changes in shorelines and near-shore vegetation. As baby boomers retire, we expect shoreline development to become even more intensive. Small, single lot changes to the shore can add up to a huge negative impact on the environment and all life that depends on it.

DNR provides water resources information to citizens and local governments. Here, a DNR hydrogeologist discusses ground water chemistry with a farmer in Otter Tail County.

Trends in **water use** are a sobering reminder of the need to think and act creatively and strategically to meet the needs of an increasing—and increasingly demanding—population within the constraints of a finite resource. From 1990 to 2000, Minnesota's population grew 12.4 percent while public water use grew at a rate close to double that. Further impacts to water use could be substantial as our population grows another 11 percent by 2010.

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Local governments use water resources information to guide local water planning efforts. Here, DNR staff train county staff to use County Geologic Atlas data.

Continued **wetland loss** will be a significant impediment to efforts to renew and sustain Minnesota's water resource. Wetlands provide habitat and protect water quality in lakes and streams. Nearly half of Minnesota's wetland acres have been drained or filled. High-quality prairie wetland complexes, important for healthy waterfowl populations, are in short supply. Drain tiling continues to remove water off the landscape. Although the Wetland Conservation Act of 1991 has slowed wetland loss, we are still losing wetlands. Efforts to measure specific trends are underway and will help guide decision making.

Trends in **stream management** have the potential to affect water resources in positive ways. Local community interest in restoring natural stream flows and removing many of the state's unsafe and unsound dams bodes well for water resources and efforts to expand fisheries habitat, improve water quality, and benefit river recreation and public safety.

To make progress we can no longer treat water issues as isolated problems. We must manage our wetlands, surface waters, and ground water as interdependent systems. Although we clearly face an uphill battle against the forces that threaten water quality, we have many allies in the form of individuals, nongovernmental organizations, and public agencies committed to protecting Minnesota's valuable and vulnerable water resources. DNR's work to advance the Governor's Clean Water Vision will create local projects in key regions: Red River Basin, Central Lakes Area, the Metro Area of the Mississippi, and Southeastern Minnesota. This shared commitment is indispensable as we work to realize our envisioned future. The indicators and targets that follow illustrate just some parts of this broader picture.

Water Resources Indicators & Targets

Indicator	Target	
Managed and protected water supplies		**Page**
Gallons of public water use	No target set	59
Number of counties with a County Geologic Atlas or a Regional Hydrogeological Assessment	Produce one additional atlas in 2005	60
Number of abandoned wells sealed on state lands	Finish sealing nearly all unused wells on state lands in FY 2005	61
Number of hydrologic monitoring networks	Increase geographic coverage of hydrologic monitoring networks	62

Flood damage reduction		**Page**
Number of homes removed from flood plains to prevent flood damages	Maintain or increase efforts to remove homes from flood plains with available funding and through other cooperative efforts	63

River and stream conservation		**Page**
Number of miles under Adopt-A-River stewardship	Clean up 600 miles of shoreline each year in FY 2004 and FY 2005	64
Number of unsafe or unsound dams removed or modified	Remove additional unsafe or unsound dams where possible with partners	65
Number of river and stream restoration projects	Complete coordinated Stream Restoration Priority List with partners	66
Number of streams with current mussel data	Complete mussel surveys of highest-priority streams by 2006	67
For river education indicator see section on Natural Resources Stewardship Eduction		105

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Water Resources Indicators & Targets

Indicator	Target	
Lakes conservation (Note: see Fisheries and Wildlife for additional lake indicators.)		Page
Number of shoreline alteration permits requested and approved for rip rap and retaining walls	Decrease the number of shoreline alteration permits issued for riprap and retaining walls	68
Fish contaminant levels in important fishing waters	Resample major lakes and rivers for fish contamination on an approximate five-year cycle; work with PCA for mercury sampling on a two to five year cycle	69
Number of mine pit lakes and associated watersheds restored	Restore pit lakes and associated watersheds in the Mesabi Range by 2009	70

Wetlands conservation (Note: see Fisheries and Wildlife for additional wetland indicators.)		Page
Ability to monitor "no net loss" of wetlands; net change in wetland acres	Develop a comprehensive monitoring program to monitor 'no net loss' statewide by 2006	71
Number of enforcement hours on the Wetlands Conservation Act (WCA)	Increase time spent on WCA cases by 15 percent by FY 2006	72

Limited spread of harmful, invasive exotic species		Page
Number of water bodies infested with Eurasian watermilfoil and zebra mussels	Maintain high levels of awareness among boaters, limit the rate of spread of Eurasian watermilfoil to no more than 10 new lakes per year, and prevent further spread of zebra mussels	73

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Water Use

Indicator: Gallons of public water use

Why is this indicator important?

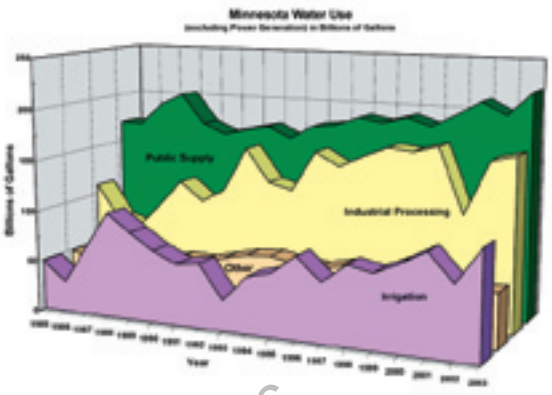
In Minnesota, growth in demand for water resources is outstripping population growth rates. To protect water-related resources and help prevent water shortages, we need to plan water supply. Tracking water use helps us maintain the integrity of Minnesota's lakes, rivers, and groundwater.

What is DNR doing?

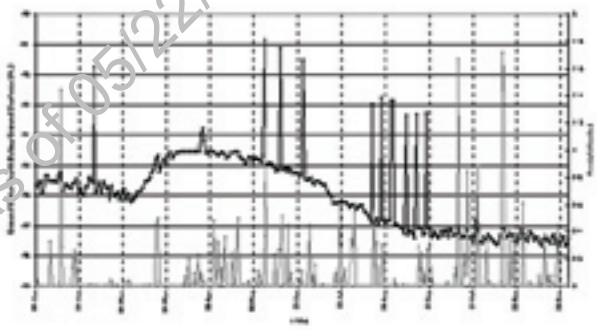
DNR administers Minnesota's water appropriation program, which was established in 1937 to develop and manage water resources to assure adequate supplies for domestic, municipal, industrial, agricultural, fish and wildlife, recreational, power, navigation, and quality-control purposes. The program resolves water-use conflicts and well interferences caused by competing demands, and helps municipalities and others with long-term water supply planning.

Users that exceed 10,000 gallons per day or 1 million gallons per year must obtain permits and submit annual water use reports. There are currently 6,741 active permits. The program uses report data to identify impacts of water withdrawals on resources.

Protecting water supplies for high-priority uses requires reducing waste. In 1988, 11 billion gallons of groundwater were used for once-through heating and air conditioning. DNR is working to help phase out such use by 2010.



Minnesota water use (excluding power generation), 1985 thru 2003.



Example hydrograph. DNR monitors groundwater levels and makes this information available to local governments for wise water use planning.

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Target: None. Water use is related to a number of factors, including climate, population changes, and economic conditions, so it is difficult to set annual targets. However, general information on water use will help DNR and local communities maintain sustainable water resources. Developing water-use protection thresholds is another activity that will help communities and other users with long-term water supply planning.

Learn more about:

- Water supply data from the DNR: http://www.dnr.state.mn.us/waters/data/index.html
- Water quality data from the PCA: http://www.pca.state.mn.us/water/groundwater/index.html

Water Resources Data

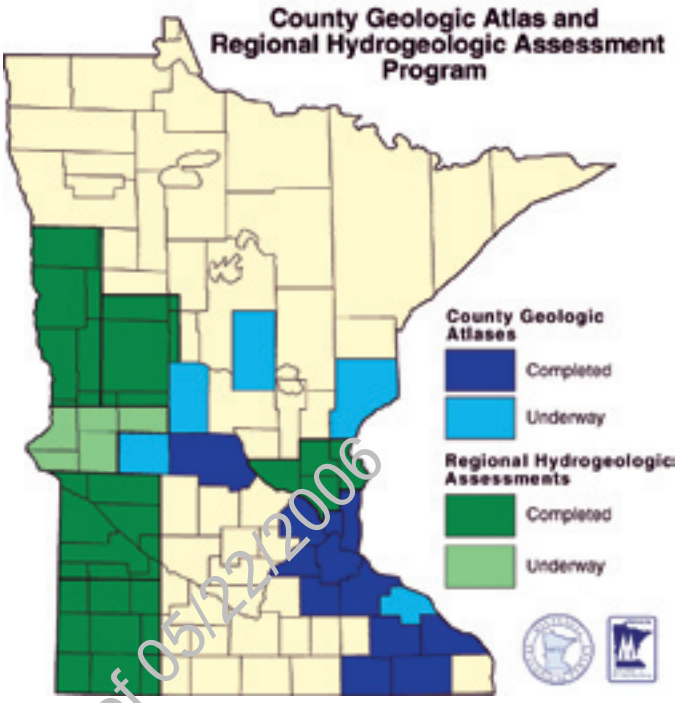
Indicator: Number of counties with a County Geologic Atlas or a Regional Hydrogeological Assessment

Why is this indicator important?

Hydrogeologic information helps communities find reliable sources of water and manage water and land in a way that sustains high-quality water resources. Without water supply planning, shortages may occur. Surface waters (wetlands, lakes, rivers, and unique resources such as trout streams and fens) can be degraded from groundwater pumping or land-use changes.

What is DNR doing?

DNR works with the Minnesota Geological Survey to develop County Geologic Atlases and Regional Hydrogeological Assessments. These provide information on geology and groundwater for individual counties and regions. DNR generates maps and reports describing groundwater and its sensitivity to pollution. Communities provide some funding, help guide project planning, and help train staff to use the information.



Information for local communities. DNR and the Minnesota Geological Survey help communities manage water resources by working together to provide hydrogeologic information.

Communities use these resources in many ways. Planners might use them to help site environmentally sensitive facilities, guide agricultural practices, manage geologic resources, evaluate water supply issues, identify and protect critical water resources, and help prepare wellhead protection plans for public wells. For well drillers, consultants, and landowners, they provide a common framework within which to evaluate site-specific hydrogeologic data. State agency personnel use the information to assist local units of government, facilitate grants for water projects, and guide permitting for wells, waste disposal facilities, and feedlots.

DNR hydrogeologists collect data and develop useful information and maps for citizens and local governments.

Target: Produce one additional atlas in 2005. Thirteen atlases and five assessments have been completed. covering areas that include 75 percent of the state's population and 37 percent of the state's area. At current funding levels, development of the information and production of reports will be limited to completing one more atlas in 2005.

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Learn more about:

- Atlases and assessments at: http://www.dnr.state.mn.us/waters/groundwater_section/mapping/index.html
- County maps at: http://www.dnr.state.mn.us/waters/groundwater_section/mapping/status.html
- The Minnesota Geologic Survey at: http://www.geo.umn.edu/mgs/index.html

Abandoned Wells

Indicator: Number of abandoned wells sealed on state lands

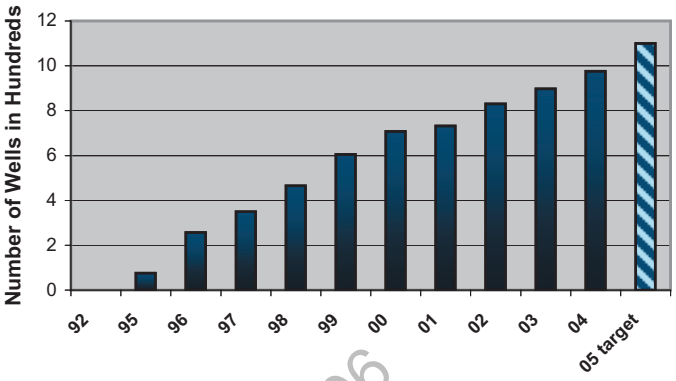
Why is this indicator important?

Unused wells should be sealed so they don't carry contamination to groundwater or pose a falling risk to people and animals. Until all unused wells on state-administered lands are sealed, the state will not be in compliance with the law and may be liable for costs of cleaning up contamination entering these wells. Minnesota law requires DNR to inventory wells on state-administered lands and prepare a plan and appropriation request to seal inactive wells.

What is DNR doing?

A total of $2.522 million ($1.494 million bonding and $1.028 million general fund) has been made available for the well-sealing program. Through June 30, 2004, we searched for wells on 2,026 sites where wells were likely to be found and sealed 976 unused wells. The program has completed its work in 82 counties.

Number of Abandoned Wells Sealed on State Lands



Number of abandoned wells sealed on state lands to eliminate potential groundwater contamination

Target: Finish sealing nearly all unused wells on state lands in FY 2005. All site searches in the remaining counties will be done, and most of the expected 75 unused wells still existing on state-administered lands will be sealed.

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Learn more about:

- Minnesota's water resources at: http://www.dnr.state.mn.us/waters/index.html
- DNR's water programs at: http://www.dnr.state.mn.us/waters/programs.html
- Links to other state water programs at: http://www.dnr.state.mn.us/waters/links.html

Hydrologic Monitoring Network

Indicator: Number of hydrologic monitoring networks

Why is this indicator important?

DNR and partners measure precipitation, lake levels, stream flow, and well-water levels around the state.

Water constantly moves among air, lakes, streams, soil, and ground. Natural changes in this cycle, such as flood or drought, affect other parts and can harm humans and the environment. Human changes to the landscape also affect the cycle, resulting in problems such as rapid runoff, high lake levels, altered subsurface water levels, and changes in water supply. Information about how the system responds to stress is essential to making good management decisions.

What is DNR doing?

Working with volunteers and other agencies, DNR measures precipitation, lake levels, stream flow, and ground water levels around the state. These data are used to assess the condition of water resources.

In cooperation with others, DNR staff periodically examine particular situations in detail to evaluate effects of human activity. We have looked at the impacts of pumping ground water on water levels in surface waters such as calcareous fens, rivers, and trout streams, and in other wells. Other issues relate to impacts of drought and flooding.

DNR regulates human alterations of surface and ground water to minimize adverse effects. Hydrologists examine proposals to determine likely impacts on the water resource. DNR staff or the proposer may perform technical studies to assess likely impacts. Regulatory criteria create a preference for the alternative with the fewest environmental consequences.

Target: Increase geographic coverage of hydrologic monitoring networks. Specific targets still need to be established. DNR will continue to make measurements, perform technical studies, and evaluate proposals to meet the target. All monitoring networks would benefit from expansion. More regular examination of trends and impacts of human activities would benefit water supply development and planning.

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Learn more about:

- DNR water monitoring programs at: http://www.dnr.state.mn.us/waters/programs.html
- Minnesota's water resources at: http://www.dnr.state.mn.us/waters/index.html

Preventing Flood Damage

Indicators: Number of homes removed from flood plains to prevent flood damage

Why is this indicator important?

Flooding is a natural part of river systems, but flood extremes can harm people and property. While some causes of flooding—climate and precipitation—are beyond our control, we can reduce flood damage by protecting healthy watersheds and preparing for floods when they do occur.

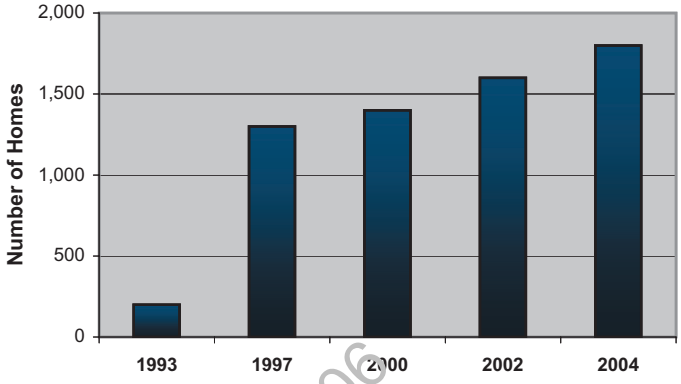
What is DNR doing?

DNR monitors 38 stream gauges around the state to provide data for flood forecasting and promotes sound land use in flood plains. DNR helps local governments plan, carry out, and pay for flood damage reduction measures.

Since 1987, DNR has provided funds to communities to build flood-control structures, define flood hazard areas, and buy and remove flood-prone buildings. Austin, for example, spent $13 million of federal. state, and local funds to acquire flood-prone homes. When major flooding occurred there in 2000, cost savings due to removal of flood-prone buildings approached the cost of acquiring the structures.

Target: Maintain or increase efforts to remove homes from flood plains with available funding and through other cooperative efforts. DNR also supports local flood-plain management zoning and regional flood-control efforts, such as those in the Red River Valley. DNR will work with the Governor's Initiative in the Red River Valley to develop indicators and targets related to minimize flood damage.

Number of Homes Removed From Floodplains



Number of homes removed from flood plains. By removing homes from flood plains, DNR and communities saves the expense and danger of protecting them when floods occur.

Oslo, Minnesota, during the devastating Red River flood of 1997. This event spurred efforts for greater coordination of flood protection throughout the Red River valley.

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Learn more about:

- Flood damage reduction programs at: http://www.dnr.state.mn.us/waters/watermgmt_section/flood_damage/index.html
- Floodplain management at: http://www.dnr.state.mn.us/waters/watermgmt_section/floodplain/index.html

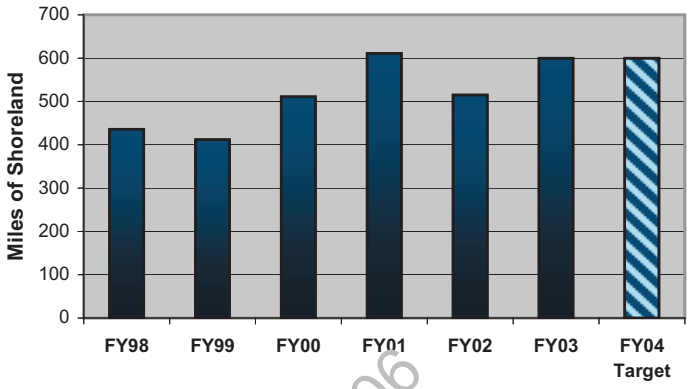
Adopt-A-River Program

Indicator: Number of miles under Adopt-A-River stewardship

Why is this indicator important?

Rubbish enters public waters from littering and illegal dumping. It may be carried in by storm water in the streets, eroded from dumpsites or construction sites, or blown in by the wind. Rubbish can have negative health and other consequences for people and injure wildlife with cuts, entanglements, strangulations, suffocations, and digestive disorders. Much of the nation depends upon public waters for drinking water. The quality of public waters is therefore linked directly with public health.

Adopt-A-River Miles of Shoreland Cleaned



DNR's Adopt-A-River Program aims to spearhead volunteer cleanups of 600 miles of shoreline in each of the next two years.

What is DNR doing?

DNR supports volunteer efforts to improve Minnesota's surface waters, including river and shoreline restoration projects. One such program, the Adopt-a-River program, encourages volunteers to carry out annual cleanups on a section of a lake, river, wetland, or ravine. Between 1989 and 2002, some 53,000 volunteers completed more than 1,600 cleanups. They removed over 3.9 million pounds of rubbish from public waters. In 2002 alone, 144 cleanup efforts covered 515 miles of shoreline.

Target: Clean up 600 miles of shoreline each year in FY 2004 and FY 2005. As of December 2003, 231 groups were registered as "active" with the Adopt-A-River program. In addition, many community and business/corporate cleanups have been completed and supporting, corporate partnerships have been maintained.

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Learn more about:

- Rivers and streams at: http://www.dnr.state.mn.us/rivers_streams/index.html
- Lakes at: http://www.dnr.state.mn.us/lakes/index.html
- Wetlands at: http://www.dnr.state.mn.us/wetlands/index.html
- Adopt-a-River Program at: http://www.dnr.state.mn.us/adoptriver/index.html

River Dams

Indicator: Number of unsafe or unsound dams removed or modified

Why is this indicator important?

Low-head dams on rivers can act as drowning machines, prevent fish migration, degrade water quality, block canoe passage, and be a legal liability for the owner. Most of the remaining river dams are more than 50 years old, in poor structural condition, and no longer serve their original purpose. Removal of river dams can eliminate public safety hazards, expand fisheries habitat, improve water quality, benefit river recreation, and eliminate an ongoing financial liability.

What is DNR doing?

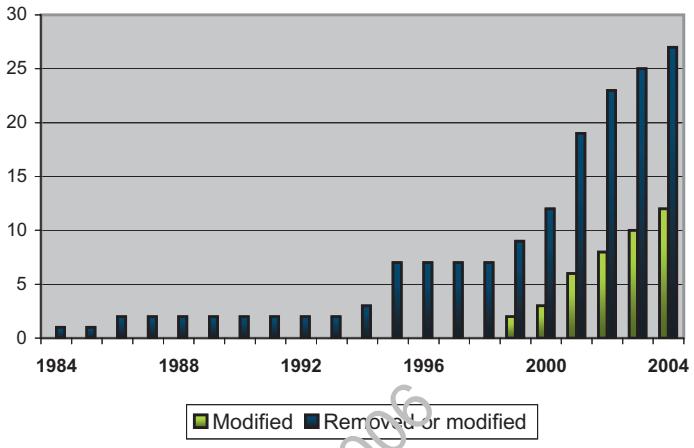
DNR encourages removal or modification of certain river dams by providing information and funding assistance to dam owners and communities. DNR participates in community meetings and provides information about the impacts of dams on river safety, ecology, and recreation. It also provides information on the state dam safety program, which can provide financial assistance for removing or modifying dams. DNR provide grants of up to 100 percent of the costs of dam removal and 50 percent of the costs of dam modification. Since 1984, DNR has helped remove or modify 27 obsolete river dams that posed public safety hazards or degraded fisheries habitat.

Target: Remove additional unsafe or unsound dams where possible with partners. DNR will seek opportunities to partner with dam owners and communities on dam removal and modification projects. DNR will seek capital budget investments in the dam safety program at a base level of at least $1 million per year to fund priority dam projects.

Learn more about:

- Dam safety at: http://www.dnr.state.mn.us/waters/surfacewater_section/damsafety/index.html
- River dam management at: http://www.dnr.state.mn.us/waters/surfacewater_section/damsafety/dam_policy.html

Number of Dams Removed or Modified



Number of river dams removed or modified. Many of Minnesota's river dams are aging, unsafe, or bad for the river environment. DNR provides financial assistance to help communities remove or modify obsolete river dams.

Mezeppa dam site: before and after dam removal. Dam removals can help restore fish passage, improve water quality, and benefit river recreation.

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Stream Restoration

Indicator: Number of river and stream restoration projects

Why is this indicator important?

Rivers are among the most greatly impacted ecosystems in Minnesota. When rivers are degraded, water quality, biological condition, erosion, sediment movement, hydrology, and aquatic habitat are all affected. Restoration of rivers will improve property values, fish and wildlife habitat, water quality, and water availability, while reducing erosion and downstream flooding. Restoration also reflects our commitment to change our environment for the better, to return degraded systems to health.

Stream restoration on the Pomme de Terre River in Appleton. About 30 percent of Minnesota streams historically have been channelized. Local communities and DNR are now partnering to restore stream channels to natural meandering shapes that benefit fish and wildlife, diminish erosion, and improve water quality.

What is DNR doing?

Restoration means returning a river to a condition where its channel dimensions, pattern, and profile are matched with the water and sediment provided by its watershed, so the channel neither accumulates nor removes too much sediment. To plan a restoration, we make close, quantified observations of the natural, stable channel form. DNR has designed and implemented five types of river restoration projects: 1) channel restoration; 2) dam removal and channel restoration; 3) dam conversion; 4) bank stabilization; and 5) fish passage restoration. DNR is in the process of establishing a Stream Restoration Priority List to ensure coordination with related DNR and other agency efforts. DNR also developed an educational CD-ROM titled "Healthy Rivers: A Water Course" to help resource managers and the public make informed decisions that promote stream restoration.

Target: Complete coordinated Stream Restoration Priority List with partners. DNR will pursue capital bonding for restoration projects that have local support and are considered a priority from a natural resources standpoint. We continue to monitor stream geomorphology and establish an information base to assist with designs and ensure successful restorations.

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Learn more about:

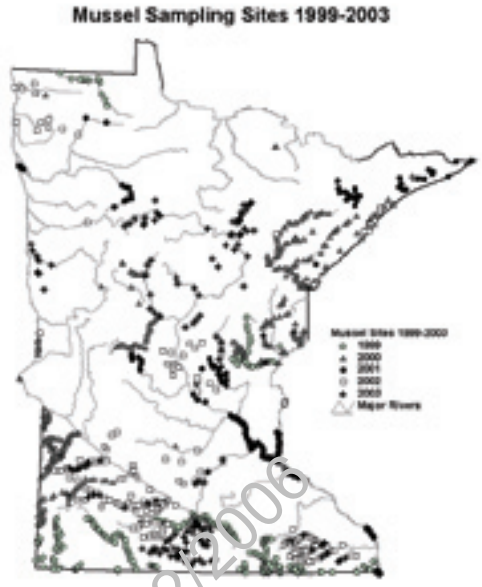
- River and stream habitat protection and restoration at: http://www.dnr.state.mn.us/ecological_services/streamhab/index.html

Freshwater Mussels

Indicator: Number of streams with current mussel data

Why is this indicator important?

Freshwater mussels are among the most imperiled organisms in North America. Of Minnesota's 46 native species, 25 are listed as either endangered, threatened or of special concern under the state endangered species law; two species that occurred in Minnesota historically are gone from the state. Freshwater mussels thrive in clear, unpolluted streams with stable bottoms. For this reason they are excellent indicators of water quality. The health of Minnesota's freshwater habitats is threatened by physical and chemical changes from many causes, including runoff, water appropriation, and channelization. Clean water is important to a myriad of other aquatic organisms, to water-based recreation, and to the economy.

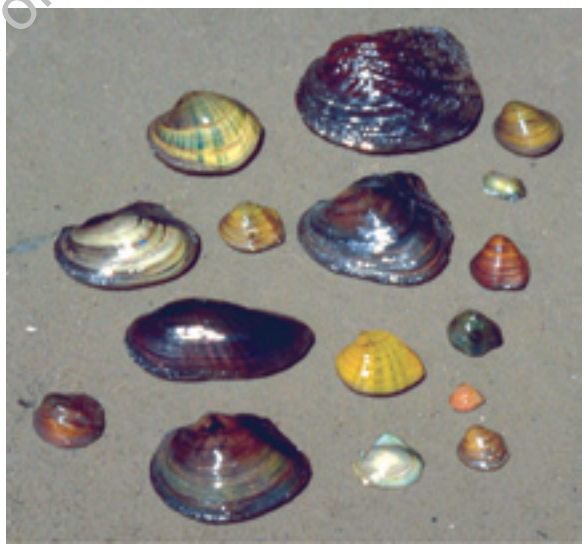


Status of Statewide Mussel Survey. Native mussels are indicators of river health. Despite some water quality improvements in recent decades, surveys in southern Minnesota reveal that native mussels are still on the decline.

What is DNR doing?

In 1999, DNR sought funding through the LCMR to initiate a statewide survey of freshwater mussels. At that time the status of mussels was known in only about one-third of Minnesota's river systems. A state wildlife grant provided funding to continue the surveys for 2002–04. Since the inception of the statewide survey project, 1,368 sites in all of Minnesota's major drainages have been surveyed. To support this effort and summarize what is known to date, the DNR produced a "Field Guide to Freshwater Mussels of Minnesota" which is available to the public through the Minnesota Book Store.

Target: Complete mussel surveys of highest-priority streams by 2006. Priorities are determined before each field season. Field crew members wade, snorkel, and scuba dive to obtain data on species composition and general abundance of mussel populations at selected sites. They conduct quantitative surveys at a subset of sites with high mussel density. Quantitative surveys provide data on mussel density or abundance, species diversity, and size structure within species (an indicator of reproductive success).



Examples of Minnesota's mussel diversity. Minnesota has 46 native mussel species. 25 are listed as either endangered, threatened, or of special concern under the state endangered species law.

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Learn more about:

- Minnesota mussels and surveys at: http://www.dnr.state.mn.us/ecological_services/nhnrp/mussel_survey/index.html

Shoreline Alterations

Indicator: Number of shoreline alteration permits issued for riprap and retaining walls

Why is this indicator important?

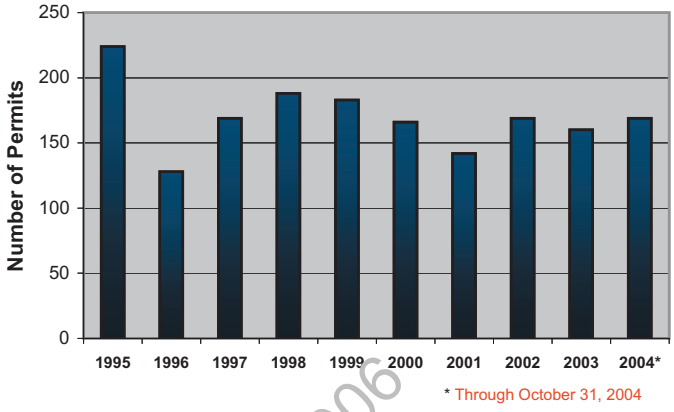
In the mid 1970's it was common for lakeshore property owners to consider erosion control measures such as retaining walls, used rail road ties, used tires or even broken concrete rubble as a means to control shoreline erosion. In many cases such use was inappropriate and detrimental to the water resource. A reduction in the number of permits issued indicates less alteration of the shoreline using better alternatives.

What is DNR doing?

In the 1970's the DNR made a concerted effort, through rule change, discouraging the above methods of erosion control and encouraging, as a better alternative, the placement of rock riprap. In that respect the DNR made progress.

Since then there has been a reduction of permits issued but it was found that rock riprap was being over used on many shorelines. As a result the DNR has revised its rules in 1993, regarding the permitting of rock riprap, by making it clearer there first must be a "demonstrated need to prevent erosion." The rule reference is: DNR Public Waters Work Permit Program Rules Chapter 6115.0215 Subp. 4. E. DNR also updated its public information brochures clarifying the use of rock riprap and encouraging other means of erosion control measures such as lakescaping.

Number of Shoreline Alteration Permits Issued for Riprap and Retaining Walls



Number of shoreline alteration permits issued for riprap and retaining walls. DNR's target is to decrease the number of permits issued for riprap and retaining walls and encourage natural shoreline management approaches.

Natural shoreline vegetation supports good water quality, native plants and animals, and scenic views.

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Target: Decrease the number of shoreline alteration permits issued for rip rap and retaining walls. DNR will continue to track annual permits requested and issued. Education and technical assistance will be used to promote natural shoreline management approaches and help reduce the number of shoreline alteration permits for riprap and retaining walls. Climate variability and fluctuating water levels, however, can also affect permit trends.

Learn more about:

- Shoreline alteration brochures at: http://www.dnr.state.mn.us/waters/index.html
- Shoreland Management Program at: http://www.dnr.state.mn.us/waters/watermgmt_section/shoreland/index.html

Fish Contamination

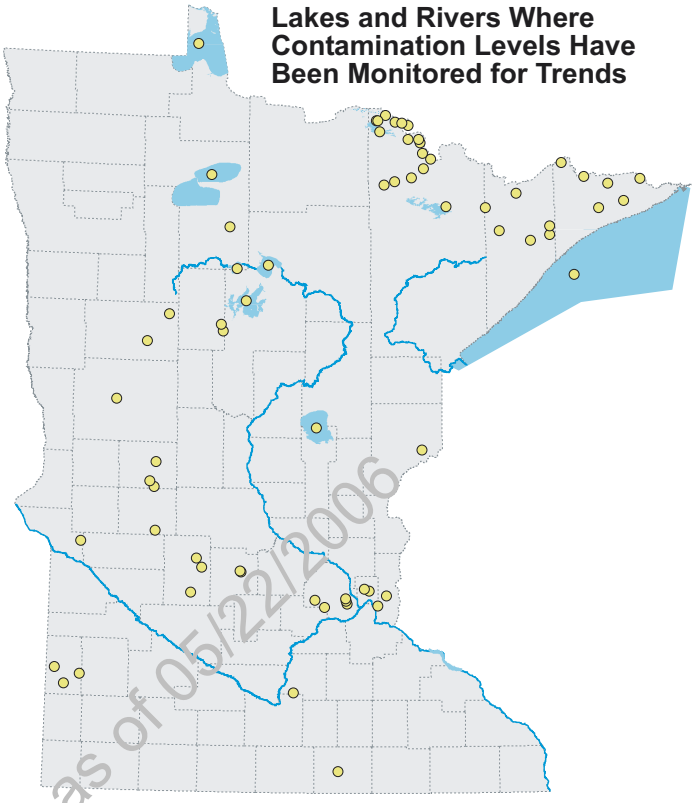
Indicator: Fish contaminant levels in important fishing waters

Why is this indicator important?

Many outdoor recreationists enjoy fishing and eating the fish they catch. Unfortunately, much of the fishery is contaminated with chemicals, primarily mercury. This has resulted in the issuance of numerous consumption advisories. Fish contamination data provide the basis for advisories. They also provide some measure of the threat to other fish-consuming species, including mink, otter, and loons. In addition, the measurement of mercury levels in fish provides an important indicator of progress in attempts to decrease the release of additional mercury into the environment.

What is DNR doing?

Since 1990, DNR has managed the Minnesota Fish Contaminant Monitoring Program (FCMP), and has collaborated closely with other agencies to identify appropriate monitoring goals and to gather and disseminate fish contamination data. As of 2004, over 1,000 lakes (out of 6,000 fishable lakes) and more than 90 river reaches had been sampled, including all the state's 11 large lakes, all major rivers, and certain more highly-contaminated waters. The FCMP has a plan for resampling the state's 11 major lakes and six rivers approximately every five years. DNR also is resampling selected trend lakes for Minnesota Pollution Control Agency (PCA) studies on a cycle of two to five years.



Minnesota waters monitored for trends in fish contaminant levels. DNR works with the Minnesota Pollution Control Agency and the Minnesota departments of Health and Agriculture to monitor important fishing waters, analyze trends, and report on fish consumption advisories to Minnesota citizens.

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Targets: Resample major lakes and rivers for fish contamination on an approximate five-year cycle; work with PCA for mercury sampling on a two- to five-year cycle. DNR will continue to coordinate with other agencies to plan sampling strategies. As more contaminant data are acquired, a more complete picture of the trends will be summarized and made available for the public.

Learn more about:

- Minnesota lakes at: http://www.dnr.state.mn.us/lakes/index.html
- Lake water quality at: http://www.pca.state.mn.us/water/lake.html
- Fish consumption advisories at: http://www.dnr.state.mn.us/lakefind/fca/index.html

Mine Pit Watershed Restoration

Indicator: Number of mine pit lakes and associated watersheds restored

View of the Hull-Rust Mine near Hibbing, Minnesota.

Why is this indicator important?

Mining on the Mesabi Iron Range is resulting in formation of new lakes in depleted open pit mines. Some pits are more than five miles long and a mile wide; one future lake will exceed 15 miles in length and be up to two miles wide. Depths can exceed 300 feet.

In some new lakes, rising water levels pose safety concerns. In other areas, the pit lakes represent enormous potential for recreation, water storage, and development. Planning for the management of these lakes is a growing concern.

What is DNR doing?

The Mineland Reclamation Rules and Waters Law require watershed restoration based on sound hydrologic principles. This creates a need for information on stream flows, groundwater levels, bedrock topography, permeability of overburden, and historic pumping and discharge. Restoration plans are incorporated into mining permits. Mining companies then carry out watershed restoration activities concurrently with mining.

Target: Restore pit lakes and associated watersheds in the Mesabi Range by 2009. DNR and industry are developing hydrological models for selected areas. At the Canisteo Pit near Bovey, a restoration plan has been developed and we are working to solve a safety concern. This pit was deactivated before reclamation rules were promulgated, so DNR is working with various government entities to secure funding.

At the Dunka Pit near Babbit and Pit 6 near Aurora, DNR has completed data collection and modeling. The mining company is planning to implement restoration plans.

By 2009 we aim to restore the Canisteo Pit (4,536 acres); the Dunka Pit (1,073 acres); and Pit 6 (786 acres).

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Learn more about:

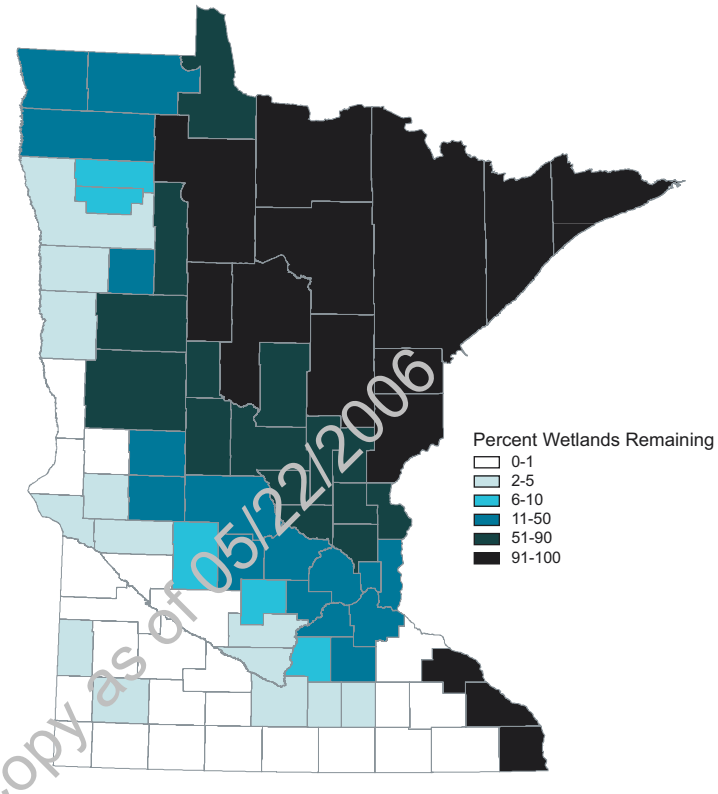
- Mineland educational resources at: http://www.dnr.state.mn.us/lands_minerals/pubs.html

Wetlands Quantity, Quality, and Biological Diversity

Indicators: Ability to monitor "no net loss" of wetlands; net change in wetland acres

Why is this indicator important?

Minnesota Statutes 103A.201 notes: "The legislature finds that the wetlands of Minnesota provide public value by conserving surface waters, maintaining and improving water quality, preserving wildlife habitat, providing recreational opportunities, reducing runoff, providing for floodwater retention, reducing stream sedimentation, contributing to improved subsurface moisture, helping moderate climatic change, and enhancing the natural beauty of the landscape, and are important to comprehensive water management, and that it is in the public interest to: 1) achieve no net loss in the quantity, quality, and biological diversity of Minnesota's existing wetlands; 2) increase the quantity, quality, and biological diversity of Minnesota's wetlands by restoring or enhancing diminished or drained wetlands."



Remaining wetlands in Minnesota. Wetlands are distributed unevenly across the state. Many southern and western parts of the state have less than 10 percent of presettlement wetlands remaining. The northern region, with its extensive peatlands, has retained the majority of presettlement wetlands.

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What is DNR doing?

DNR influences impacts to wetlands through the Public Waters Permit Program and by providing technical information and onsite reviews for other regulatory programs. DNR acquires and restores wetlands on state lands. DNR staff help develop regulations and policies affecting wetlands.

Minnesota is currently lacking the necessary data to assess overall progress toward the state's "no net loss" wetlands policy. DNR is cooperating with other agencies to develop a strategy to monitor wetland quantity and quality to provide accurate information on wetland gains and losses and link trends to specific programs. This strategy will be completed in FY 2005 and efforts will then turn toward getting funding for implementation.

Target: Develop a comprehensive monitoring program to monitor no net loss statewide by 2006. Achieve no net loss of Minnesota wetlands. Because we have no direct influence over most of the state's wetlands, DNR by itself will not be able to achieve the overall no-net-loss goal. However, DNR will follow our own no-net-loss policy, which is stricter than state or federal wetlands laws, on DNR-owned land. We will diligently apply no-net-loss standards and seek to achieve gains in wetland quantity, quality, and biological diversity where possible.

Learn more about:

- Minnesota wetlands at: http://www.dnr.state.mn.us/wetlands/index.html

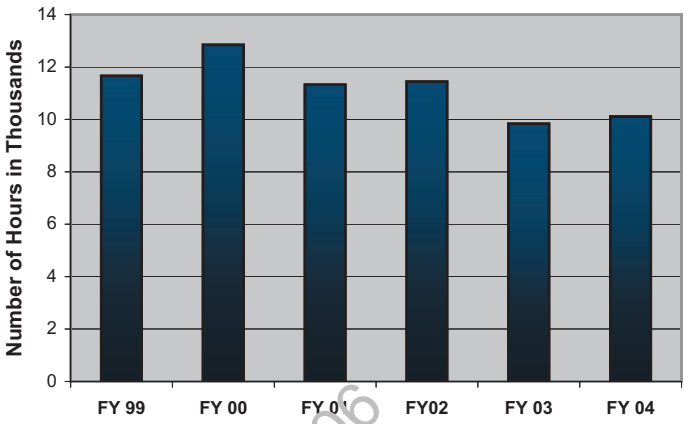
Enforcement of the Wetlands Conservation Act

Indicator: Number of enforcement hours on the Wetlands Conservation Act (WCA)

Why is this indicator important?

Wetlands are extremely important for sustaining fish, wildlife, and other living organisms. They are also important to human health because they absorb, filter, and clean polluted surface water before it enters lakes, rivers and underground drinking water supplies. Wetlands serve as holding areas for water, reducing flood damage and soil erosion downstream. Wetlands are also important in the development of commercial activities such as vegetable farming, peat mining, sod farming, and minnow and timber harvesting. Wetlands are a key resource that will enable DNR to protect and preserve wildlife populations, clean water, and other industries in the state. It is imperative that DNR work to preserve remaining wetlands and restore lost wetland acreage.

WCA Enforcement Hours

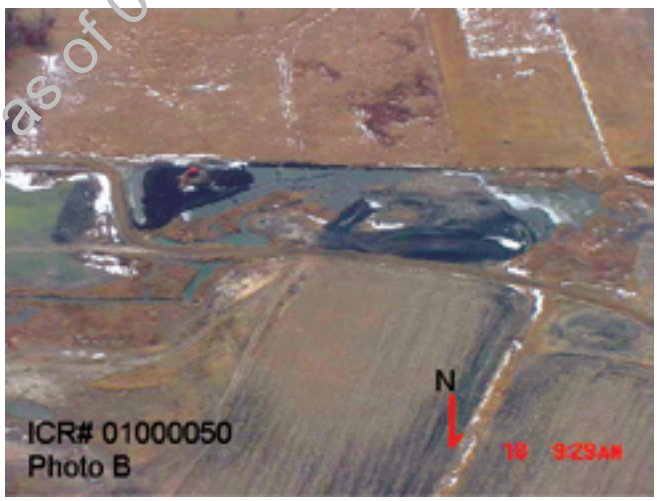


Law enforcement hours on the Wetlands Conservation Act

What is DNR doing?

DNR uses conservation officers and Wetland Enforcement Officers (WEO) to enforce the provisions of the Wetlands Conservation Act (WCA). Because WCA cases can be very complex and involve multiple jurisdictions, WEOs have intensive training and expertise in water resources and related issues. WEOs work with landowners, private business professionals such as real estate agents, and various local, state, and federal agencies to ensure the integrity of WCA. Over the past decade, countless wetlands have been protected or restored thanks to conservation officers and WEOs.

Target: Increase time spent on WCA cases by 15 percent by FY 2006.



Wetlands drainage case

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Learn more about:

- DNR enforcement at: http://www.dnr.state.mn.us/enforcement/index.html
- Helping wetlands at: http://www.dnr.state.mn.us/wetlands/helping.html

Aquatic Invasive Species

Indicator: Number of water bodies infested with Eurasian watermilfoil and zebra mussels

Why are these indicators important?

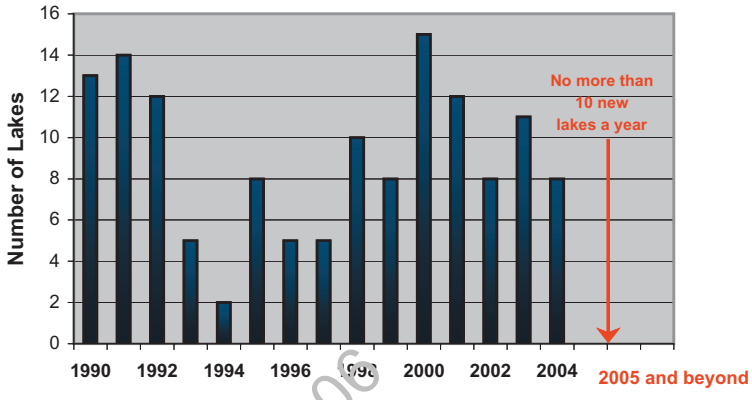
Eurasian watermilfoil and zebra mussels are invasive species that harm Minnesota waterways. Eurasian watermilfoil can displace native plants, degrade habitat for fish and wildlife, and limit lake recreation. Zebra mussels can block industrial water intakes, alter aquatic food webs increasing operating costs; and eliminate populations of native mussels. Unintentional transport on trailered watercraft and equipment is believed to be the primary means of spread for such harmful invasive species.

What is DNR doing?

DNR stations some 40 seasonal watercraft inspectors each year at public water accesses, primarily on infested water bodies, where they inspect boats and inform owners about invasive species and actions they can take to prevent spread. Numbers of water bodies with Eurasian watermilfoil and zebra mussels likely are much lower than they would have been without these efforts. DNR surveys Minnesota boaters and monitors the distribution of exotics to evaluate containment efforts. Ninety percent of Minnesota boaters responding to a question in a 2000-2001 survey said they took action to avoid spreading aquatic invasive species, an increase over a similar survey in 1994 when 70 percent of Minnesota boaters said they took action.

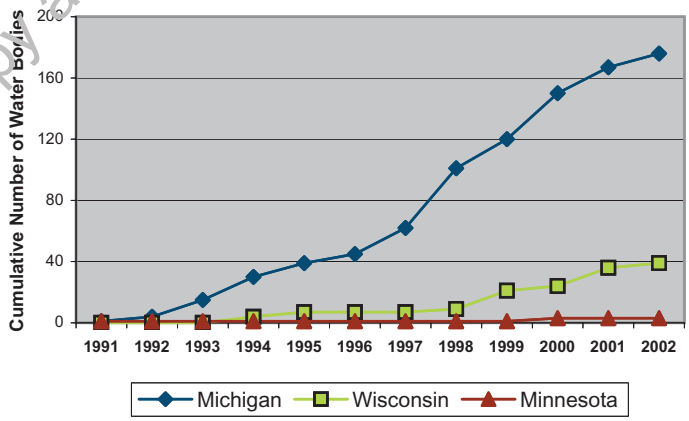
Target: Limit the rate of spread of Eurasian watermilfoil to no more than 10 new lakes per year, and prevent further spread of zebra mussels. The best way to manage a harmful exotic is to prevent its establishment. DNR is working to prevent introductions of new invasive species such as Asian carp.

Number of Lakes or Rivers Where Eurasian Watermilfoil in Known to Occur



DNR control efforts have helped keep Eurasian watermilfoil from spreading to additional water bodies at a rate higher than the current 12 new lakes per year.

Number of Water Bodies with Zebra Mussels in the Upper Great Lakes States



Minnesota populations of zebra mussels are relatively low—and DNR aims to keep them that way.

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Learn more about:

- Other harmful invasive species at: http://www.dnr.state.mn.us/exotics/index.html

Indicator Gaps:

Although the indicators in this report have data of sufficient quality and coverage to support trend reporting, we recognize gaps in our ability to report on important natural resources trends. The following is a preliminary list of important indicators that require either additional data or new monitoring efforts. When baseline and trend data for new indicators are available, cooperative efforts will be needed to establish conservation targets.

A preliminary list of indicator gaps include:

Indicator to measure water storage capacity and flood damage reduction in the Red River Valley.
Indicators to track shoreline development and habitat loss trends (see Fisheries and Wildlife).
Indicators to measure of lake quality and pressures, e.g., related to septic systems, development, etc.
Indicators to measure non-point source pollution.
Indicators to measure the state's drainage infrastructure; trends in tile line construction; and consequences for flooding, habitat conservation, and water quality.

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Section Four: Forests

Minnesota's Forests Will Be Managed for a Full Range of Forest Values

A place to hunt and hike. Raw material for a thriving industry. Habitat for songbirds. Everyone has a vision of what Minnesota's forests should be.

The DNR has a vision, too. We know that forests are important to people and integral to Minnesota's environmental and economic health. They provide clean water, wood products, fish and wildlife habitat, biodiversity, recreational opportunities, and more.
When we look to the future we envision for our forests, we see interconnected expanses of healthy forest land . . . a diversity of species and ecosystems that produce a variety of benefits . . . a strong, sustainable natural resource that meets current needs while remaining healthy and productive for future generations.

DNR – What We Do

- Protect people, property, natural resources from wildfire harm
- Manage 4.5 million acres of forestland for multiple values
- Help landowners and communities manage forest resources
- Produce native tree seedlings for conservation planting
- Implement policies of the Sustainable Forest Resources Act

A Vision for the Future

We envision a forest resource that is **substantial** and **protected.** We want this future forest to be as big as, or bigger than, our forests today. With incentives, private landowners will protect existing forest and manage forests where tree cover has been removed. Corridors will link tracts of forestland and provide wildlife the extensive habitat it needs to thrive.

We envision a forest that is **healthy** and **resilient.** Damage from invasive insects and diseases will be minimal. Young-, middle-, and old-aged forests will all have a place in the picture. Uncommon and rare habitats will be protected and restored. Fire will be a part of the forest ecosystem, but we will remain committed to protecting people and property from harm, including reducing the risk of wildfire in and adjacent to communities.

We envision a forest that is **sustainably managed** to provide a **diversity of benefits**—ecological, economic, and recreational–for current and future generations. Improved forest science "tools" and diversification of forest management practices will help keep the forest-based industry vibrant while maintaining forest health and our ability to meet nontimber needs. In this ideal future forest, recreational opportunities will be many and varied. This includes both motorized and nonmotorized trail use, and the management needed to reduce conflicts and natural resource damage as people have fun in the forest.

To move vision toward reality, we must address a series of trends that are shaping our forests today. Some, such as partnerships across forest ownerships, help us move in the direction of our vision. Others present formidable challenges to conservation progress.

Critical Trends

Certain kinds of **development** impede Minnesota from achieving this desired future for our forests. In recent years forestland has been converted to other uses—primarily residential—at a rate of 3,600 acres per year. Private forestlands are being divided into smaller and smaller tracts. The distribution of this parcelization increases risk of wildfire, reduces forest quality and public access, and makes forestlands harder to manage.

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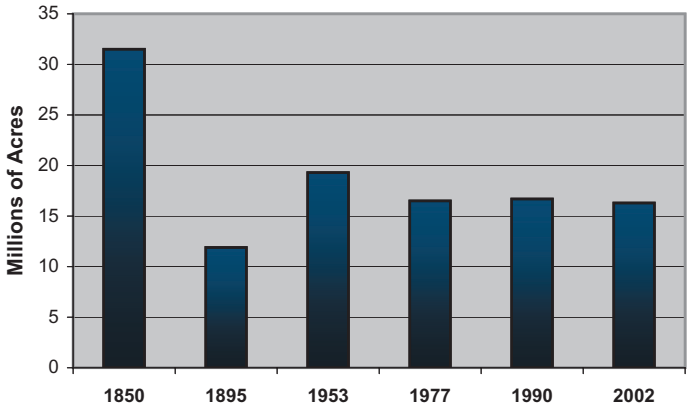
Threats to forest **ecosystem health** also work against us. Fragmentation of large tracts of forest reduces habitat for certain wildlife species. Changing forest age classes, increasing introduction of invasive species, and climate change all contribute to greater threat from disease and destructive wildfires. Animal damage, disease, and unique habitat requirements challenge our ability to regenerate certain types of forests.

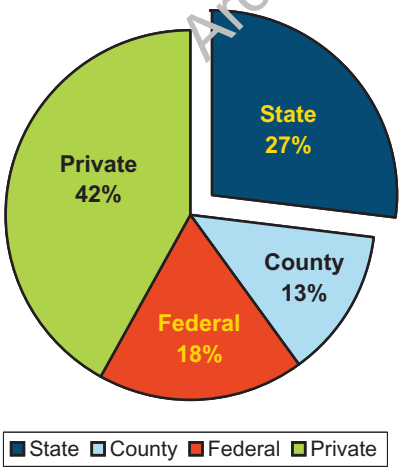
Minnesota Forestland



Minnesota's forested acreage dropped dramatically in the late 1800s. Currently, nearly one-third of the state is forested.

Source: 1953 – 2002, U.S. Forest Service - FIA; 1850, GEIS Maintaining Productivity Tech.

Minnesota Forest Land Ownership



About one-quarter of Minnesota forestland is state-managed.

Source: 2002 U.S. Forest Service - FIA

Encouraging trends include increased interest in **forest certification,** application of new **science-based tools,** and **public awareness.** These hold much promise for our forests' future as consumers increasingly demand—and producers increasingly supply—wood products that have been produced in a sustainable manner.

Changes in **forest-based economics and recreation** call for creative approaches to meeting multiple demands. The fate of our forests is being influenced by increasing global competition in the forest products industry, changes in the species and size of timber used by forest industries, continued interest in wood for biomass, changing forestland ownership, shrinking access to forestland for public recreational use, and growth in demand for off-highway vehicle recreation opportunities.

Our vision paints the picture of a desired future. Trends affect the path we must take to achieve it. DNR's task today—and it is a big one—is to work within the context of these trends to turn vision into reality. The targets and indicators that follow are signposts along the path by which we plan to do so. Each paired indicator and target delineates one part of the path. Together they will move us toward achieving a healthy, sustainable future for Minnesota's forests.

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Forest Indicators & Targets

Indicator	Target	
State forest land management		**Page**
Acres of state-administered lands approved for forest certification	Certify 4.5 million acres of state-administered forestlands by the end of 2005	78
Number of cords of wood offered for sale on DNR lands	Offer 770,000-850,000 cords of timber for sale from DNR lands in FY 2005	79
Acres of protected old-growth forest protected on DNR lands	Maintain a 40,000-acre network of designated DNR old-growth forest sites	80
Percentage of extended rotation forest (ERF) maintained on DNR lands	Target to be established at the landscape level	81
Early successional forest maintained on DNR lands	Target to be established at the landscape level	82
Wood fiber productivity	Significantly improve forest productivity on DNR forestlands by 2010	83
Acres of DNR forest lands re-inventoried	Re-inventory 105,000 acres of DNR forestland in FY 2005	84

Fire management		**Page**
Number and acres of wildfires suppressed by DNR	No target set	85

State-of-the-art technology and science		**Page**
Number of DNR staff trained in use of the Ecological Classification System (ECS)	Provide introductory ECS training to all DNR Forestry field staff by 2006	86
Number of Subsection Forest Resources Management Plans (SFRMP's) completed	Complete all SFRMP's by 2007	87

Private forest stewardship		**Page**
Acres of private forestlands with forest stewardship plans	Complete 50,000 acres of Forest Stewardship Plans in FY 2005 with 20,000 acres completed by DNR staff and the remainder by the private sector.	88
For forest education indicator see section on Natural Resources Stewardship Education		105

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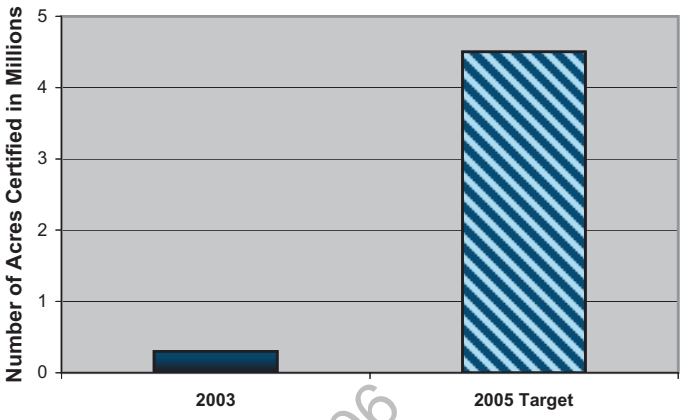
Forest Certification

Indicator: Acres of state-administered lands approved for forest certification

Why is this indicator important?

Forest certification (specifically, third-party audited certification) is a credible system to evaluate and verify sustainable forest management practices. It is becoming a common benchmark for forest management organizations. Certification will help DNR further improve its forest management practices, ensuring a sustainable supply of forest resource products and services within diverse, healthy, and productive forests. In addition, Minnesota's forest market competitiveness can be improved with increased certification.



Forest certification. DNR plans to complete certification of 4.5 million acres of DNR forestlands in 2005. In 2006, annual audits will be initiated to verify and maintain certification.

What is DNR doing?

In 1998, DNR and Aitkin County Land Department received third-party certification of state- and county-administered forestlands in Aitkin County. These were the first public forestlands to be certified in the United States. DNR used this pilot project to better understand the costs and benefits of forest certification. Since then, forest certification has become a more pressing consideration for forest managers worldwide. In response to anticipated increases in market demand and to the Governor's Task Force Report on the Competitiveness of Minnesota's Primary Forest Products Industry, DNR committed to completing third-party certification on 4.5 million acres of state-administered forestlands.

Currently, 378,000 acres of state forestlands are certified in Aitkin County.

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Target: Certify 4.5 million acres of state-administered forestlands by the end of 2005.

Achieving this ambitious target will require significant interdisciplinary cooperation and investments in time and resources. Currently 378,000 acres of state lands are certified in the Aitkin county pilot project. Statewide, under this expanded initiative, about 4.5 million acres of state lands will be candidates for certification. This is 100% of lands administered by the DNR Division of Forestry and Section of Wildlife in forested parts of the state. Certification will require the investment of approximately $250,000 for third-party audits and $300,000 in staff time. The other indicators in this section reflect key criteria used by forest certifications systems to evaluate and verify sustainable forest practices.

Learn more about:

- Forest certification process at: http://www.dnr.state.mn.us/areas/forestry/aitkin/certproc.html
- Forest certification partners at: http://www.dnr.state.mn.us/volunteer/marapr03/fnpartners.html
- Aitkin County certification at: http://www.dnr.state.mn.us/areas/forestry/aitkin/swcertaitco.html

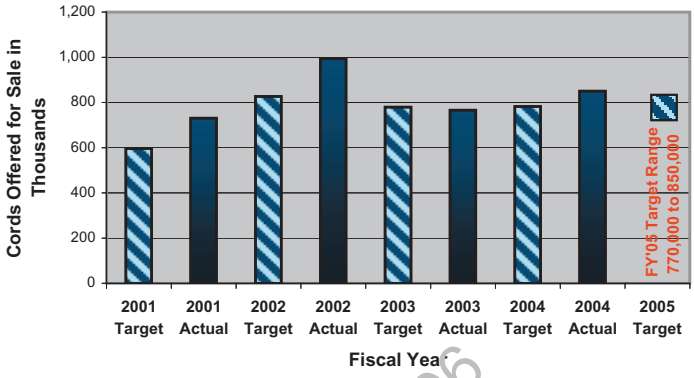
DNR Timber Sales

Indicator: Number of cords of wood offered for sale on DNR lands

Why is this indicator important?

DNR sets targets to ensure a predictable, sustainable supply of quality wood from DNR-administered lands. With 27 percent of the state's timberland, DNR is a significant source of raw materials for forest products industries. Sales from DNR lands generate funds for schools and public services. Also, harvests create habitat for many kinds of wildlife.

Number of Cords Offered for Sale on DNR Lands



Number of cords of wood offered for sale on DNR lands. DNR has met or exceeded its timber-production targets in most recent years.

What is DNR doing?

With citizen and legislative guidance, DNR balances timber production with other goals such as wildlife, recreation, water quality, and biodiversity. The amount of timber for sale on DNR lands is determined through the Subsection Forest Resource Management Planning (SFRMP) process. This process determines sustainable harvests on state lands over the near term (currently seven to 10 years) with projections over 10 to 50 years. DNR also promotes sustainable forest management by private landowners.

DNR lands are a major source of wood and fiber for Minnesota's forest products industry.

Target: Offer 770,000-850,000 cords of timber for sale from DNR lands in FY 2005. DNR has met or exceeded targets in most recent years. Targets in FY 2001–03 were higher than in previous years due to a legislative initiative to offer for sale timber that was to have been offered in previous years. Selling 750,000 to 800,000 cords would create $20 million in direct revenue and 40,000 acres of habitat. Long-term projections will be possible once Forest Subsection Plans are complete (see SFRMP indicator).

Total annual harvest (all forestlands, all ownerships) is about 3.6 million cords. The 1994 Minnesota Generic Environmental Impact Statement on timber harvesting (GEIS) concluded that a harvest of up to 4.9 million cords appears sustainable, "providing recommended mitigation strategies are implemented within the next few years." (See Old-Growth Forest and Extended Rotation Forest indicators for examples of mitigation.)

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Learn more about:

- Timber harvesting on state lands at: http://www.dnr.state.mn.us/forestry/harvesting/index.html
- Forest mitigations and the GEIS at: http://www.frc.state.mn.us/
- Statewide timber harvest at: http://www.mnplan.state.mn.us/mm/goal.html

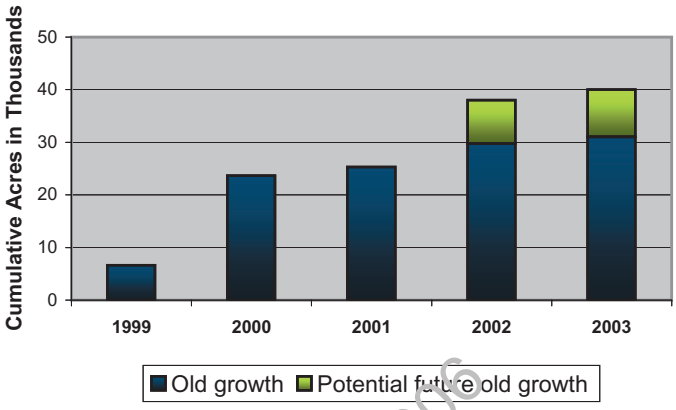
Old-Growth Forest

Indicator: Acres of protected old-growth forest on DNR lands

Why is this indicator important?

Old-growth forests are a rare type of old forest (typically more than 120 years old) that provide special habitat for plants and wildlife, serve as scientific benchmarks, and have aesthetic appeal. Before European settlement, about half of Minnesota's forests were old growth. Today that figure is less than 4 percent. As part of our goal of forest sustainability, DNR has set targets to ensure that older forests remain part of Minnesota's forestland.

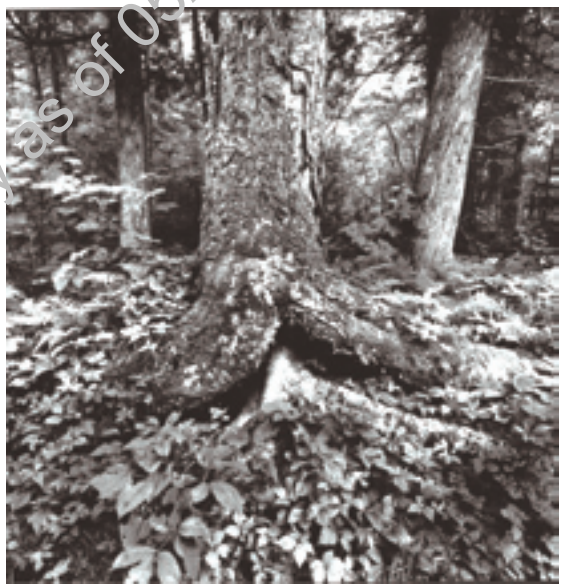
Acres of Protected Old-Growth Forest on DNR Lands



Old-growth forest acres on DNR lands. DNR will maintain a 40,000-acre network of old-growth forest sites.

What is DNR doing?

In 1994 DNR, forest industry representatives, and environmental interests set a goal to "identify and protect the highest quality remaining natural old-growth forest communities." After establishing preliminary targets, DNR in 1998 initiated a statewide inventory and evaluation of candidate old-growth forest sites. DNR then began designating the highest quality sites for protection and in 2003 completed its work by establishing an approximately 40,000-acre network of old-growth forest sites. Designated sites are managed to maintain old-growth characteristics and are reserved from timber harvest.



STEVE SCHNEIDER

This old-growth yellow birch/white cedar forest at Crosby Manitou State Park provides valuable habitat, scientific information, and beauty.

Target: Maintain a 40,000-acre network of designated DNR old-growth forest sites. DNR's goal is to maintain the network of designated old-growth forest sites and create connected landscapes of mature forest where appropriate using corridors of extended rotation forests (see Extended Rotation Forest indicator) to link patches of old-growth sites. This will meet one of the mitigation strategies recommended in the 1994 Generic Environmental Impact Statement (GEIS) on timber harvesting. Achieving this target will involve creating and maintaining a master old-growth forest data file along with customized systems for implementing and tracking sustainable forest activities.

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Learn more about:

- DNR old-growth forests at http://www.dnr.state.mn.us/forests/oldgrowth/index.html

Extended Rotation Forest

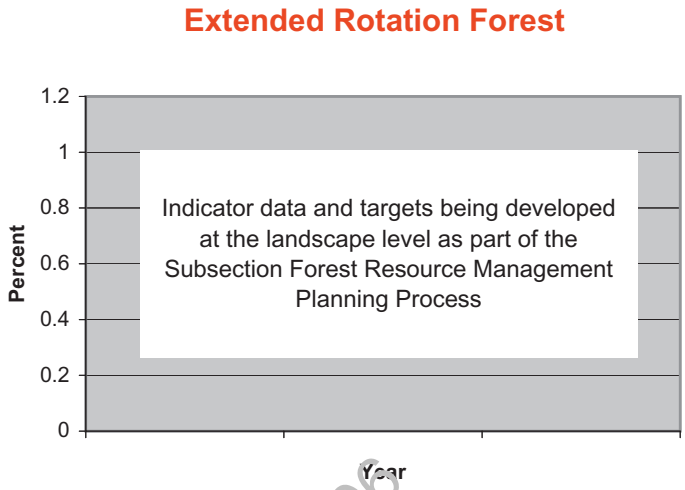
Indicator: Percent of extended rotation forest (ERF) maintained on DNR lands

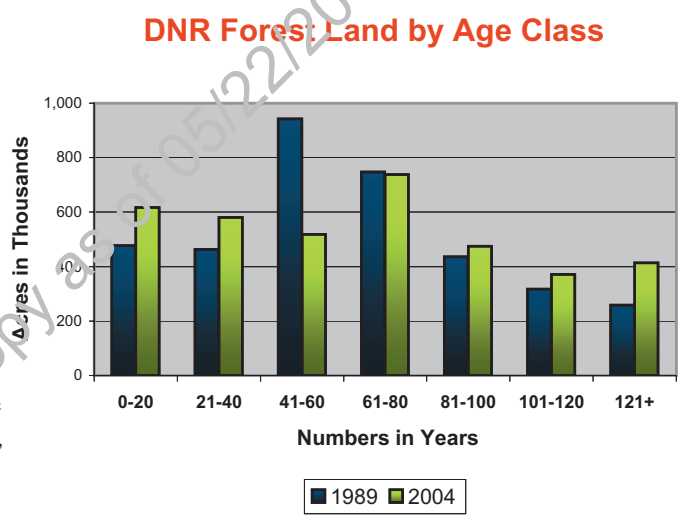
Why is this indicator important?

Extended rotation forests (ERF) are DNR timberlands that are maintained beyond traditional harvest ages to provide old forest conditions important for a wide array of forest values, including habitat for plants and wildlife, aesthetics, and sawtimber production. As such, ERF complements DNR old-growth forests as a way to maintain all age classes of forest on Minnesota landscapes.

What is DNR doing?

Recognizing that older forests of some cover types, especially aspen, birch, and jack pine, although currently common, would become increasingly uncommon as timber harvest levels increased in the future, DNR adopted the Extended Rotation Forestry (ERF) Guideline in 1994. Since then, DNR has been identifying the amount and location of DNR timberlands to be managed as ERF through its forest land management planning process. Factors considered in determining the amount of ERF include balancing old and young forest habitat needs, historic levels of old forest in particular landscapes, the effects of ERF on timber production (quality and quantity) and the appropriate placement of ERF within a landscape (e.g., adjacent to or connecting old-growth forest, within riparian areas, along travel corridors).





Over the past 15 years, younger age-class forest on DNR lands has increased due primarily to timber harvesting. Older age-class forest has also increased.

Target: Target to be established at the landscape level. DNR's ERF Guideline establishes 10 percent as the minimum percent of DNR timberlands within Ecological Classification System subsections that will be managed as ERF. However, the guideline does not establish a maximum percentage of ERF. Interdisciplinary DNR teams have been charged with determining the appropriate level of ERF within each planning subsection as part of the Subsection Forest Resource Management Planning (SFRMP) process. Given the varied conditions and characteristics of landscapes, the amount of ERF designated will vary across the state (see Subsection Forest Resource Management Planning indicator). ERF is one of the mitigation strategies recommended in the 1994 Generic Environmental Impact Statement on Timber Harvesting and Forest Management in Minnesota (GEIS). The GEIS analysis assumed that 20% of state and federal timberlands would be managed as ERF. The GEIS did not establish 20% as a target, but rather as a realistic estimate given DNR and Forest Service policies at the time.

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Learn more about

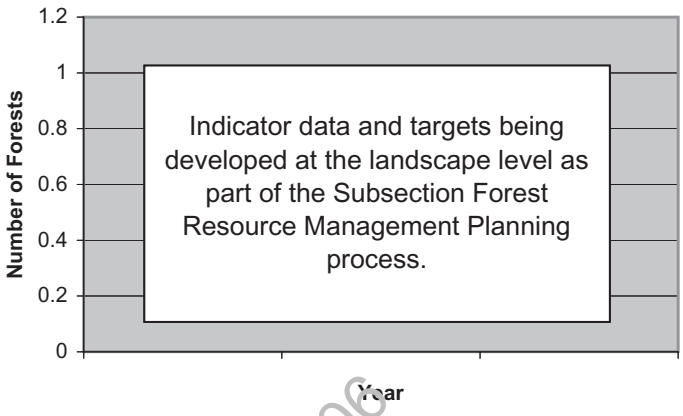
- DNR's Subsection Forest Management Plans at: http://www.dnr.state.mn.us/forestry/subsection/index.html

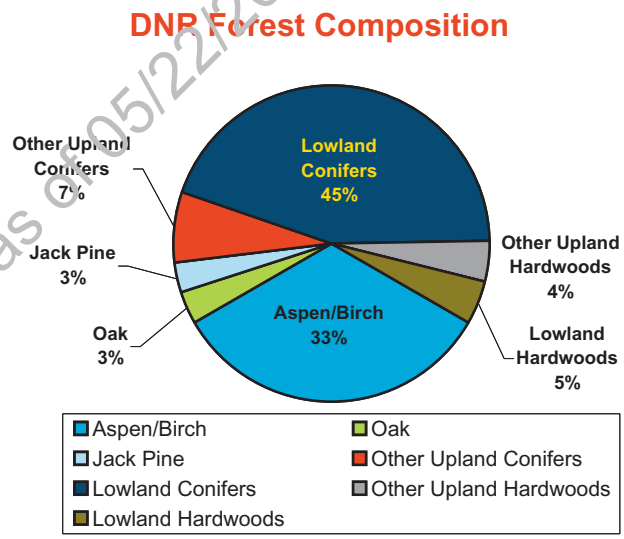
Early Successional Forest

Indicator: Early successional forest maintained on DNR lands

Why is this indicator important?

Early successional forests commonly depend on and develop first following disturbance (e.g., fire, timber harvesting, wind storms). They include major forest types such as aspen, jack pine and birch. Another dimension of early successional forest is how much of the forest is in younger age-classes. Early successional forest types and young age-classes provide forest conditions important for a wide array of forest values, including habitat for plants and wildlife, wood production (both quantity and quality), forest health, and aesthetics. As such, early successional forests complement DNR old-growth and extended rotation forests in efforts to maintain all forest age classes on Minnesota landscapes.





Aspen, birch, oak, and jack pine (the primary early successional forest types) currently comprise nearly 40 percent of DNR forestlands. These types make up over 50 percent of all forestland in Minnesota.

What is DNR doing?

DNR is determining the desired amount of early successional forest on DNR lands through its interdisciplinary Subsection Forest Resource Management Planning (SFRMP) process. SFRMP teams determine the desired amount of short- and long-term conversion to (and from) early successional types and the amount of these types that will be returned to younger age-classes (primarily through timber harvest).

Target: Target to be established at the landscape level. SFRMP teams will determine desired levels of early successional forest types (see Subsection Forest Resource Management Planning indicator). Target levels are based on direction from MN Forest Resource Council landscape committees, estimates of historic conditions, landscape capabilities, effects on timber production, and wildlife habitat needs. Achieving landscape targets for maintaining desired levels of younger age-class forests depends on timber harvest and availability of markets for timber (see DNR Timber Sales indicator). Ensuring early successional forests are adequately represented in appropriate landscapes will help meet targets for important wildlife species (see Ruffed Grouse indicator).

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Learn more about

- DNR's Subsection Forest Management Plans at: http://www.dnr.state.mn.us/forestry/subsection/index.html
- Aspen at: http://www.dnr.state.mn.us/volunteer/sepoct00/aspen.html
- Jack pine at: http://www.dnr.state.mn.us/trees_shrubs/conifers/jackpine.html
- Paper birch at: http://www.dnr.state.mn.us/trees_shrubs/deciduous/paperbirch.html

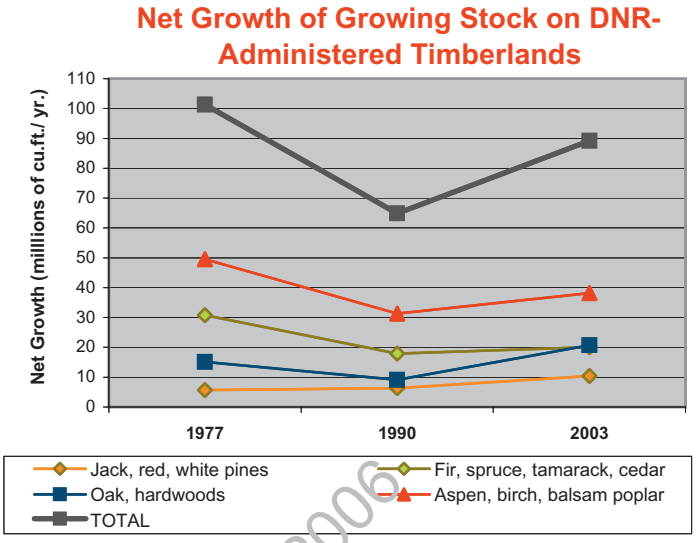
Wood Fiber Productivity

Indicator: Net Annual Growth of growing stock on DNR-administered lands

Why is this indicator important?

The 1994 Generic Environmental Impact Statement on Timber Harvesting and Forest Management in Minnesota recommended increasing the wood fiber productivity of timberlands to help mitigate the potential effects of current and increased harvest levels. The 2003 Governor's Task Force on the Competitiveness of Minnesota's Primary Forest Products Industry also listed as a priority increasing wood fiber productivity while conserving Minnesota's forestlands.

Managing forests to improve tree growth and wood fiber production can help increase timber supply, build resistance to disease and insects, accelerate the development of old forest characteristics, and reduce fire danger.



While there are a number of ways to assess wood fiber production, one of the more reliable methods is average net annual growth of growing stock.

What is DNR doing?

DNR increases wood fiber production by regenerating vigorous young forest stands through harvest (see Timber Sales indicator); planting and seeding harvested and damaged sites; thinning overcrowded stands to improve vigor and reduce competition; monitoring and reducing the impact of harmful insects, diseases, and exotic species; and matching tree species and management techniques to individual sites though its Ecological Classification System (see ECS indicator). Just as timber growth rates today are the result of management activities and natural events that occurred long ago, it may take years for the effects of current actions to become evident.

Target: Significantly improve forest productivity on DNR forestlands by 2010. Minnesota Forest Inventory and Analysis (FIA) data will indicate whether growth rates are improving. The FIA updates enough of the data each year so that all data are updated every 5 years. This approach provides a rolling average that minimizes the influences of factors we can't control (e.g., weather). And although FIA data collection and analysis methods have changed over time, statewide net growth data are useful in assessing long-term trends.

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Learn more about:

- The Governor's Advisory Task Force Report at: http://www.dnr.state.mn.us/forestry/index.html
- The 1994 Generic Environmental Impact Statement at: http://www.frc.state.mn.us/SFRA/GEIS.htm

Forest Inventory

Indicator: Acres of DNR forest lands re-inventoried

Why is this indicator important?

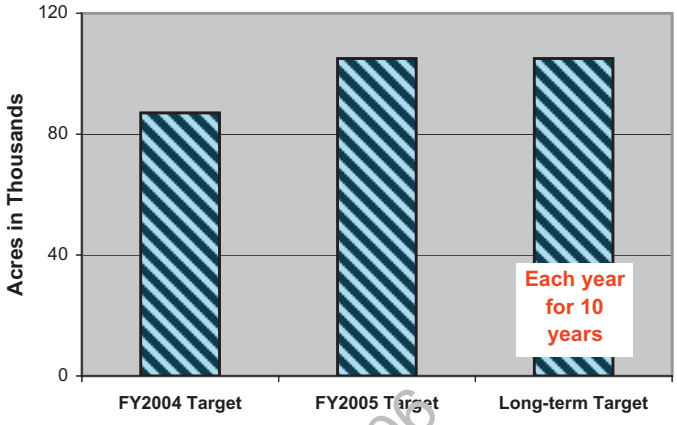
Forests are constantly changing due to growth and aging, succession, fire, windstorms, insects and diseases, and other factors. DNR needs reliable information about the forestlands it manages in order to make the best strategic and operational forest management decisions. As such, it is vitally important that management-level forest information is periodically and regularly updated, primarily through field re-inventory.

What is DNR doing?

The primary source for information about DNR forestlands is the cooperative stand assessment (CSA). The CSA is a stand- level forest inventory that captures essential information about every forest stand on more than four million acres of DNR forestland. It is the basic data set from which decisions are made about if, when, where, and in what manner DNR forest stands will be treated. Information gathered includes overstory and understory tree species, stand age, timber volumes, site productivity, shrub and ground species, insects and diseases, and other specific site conditions.

Target: Re-inventory 105,000 acres of DNR forestland in FY 2005. The target is 100 percent of the long-term annual re-inventory target determined to be necessary by the DNR to continuously update and improve the CSA inventory. The long-term target is intended to provide a complete re-inventory cycle every 10 years.

Acres of DNR Forest Lands Re-inventoried



Acres of DNR forest lands re-inventoried. The target for FY 2005 is 100 percent of the long-term annual re-inventory target.

Good forest management rests on the foundation of accurate and regularly updated forest information.

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Learn more about:

- DNR's Cooperative Stand Assessment inventory at: http://www.ra.dnr.state.mn.us/forestview and http://www.ra.dnr.state.mn.us/forestview/csa_doc.html

Wildfire

Indicator: Number and acres of wildfires suppressed by DNR

Why is this indicator important?

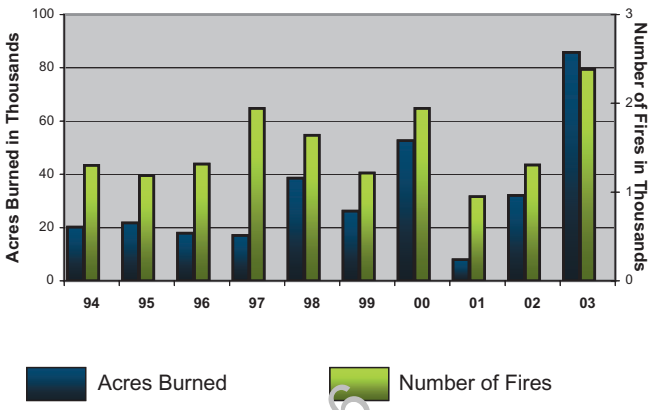
DNR is charged by statute with preventing and suppressing wildfires on 45.5 million acres of public and private land in Minnesota. Wildfire control efforts under state authority originated in the early 1900's after a series of devastating wildfires that destroyed Hinckley, Baudette, Chisolm, and Cloquet. Expanding residential and seasonal home development in forested areas is increasing the need to protect life, property, and natural resources from wildfires.

What is DNR doing?

DNR fulfills its charge through three main categories of activities:

- Prevention, including: education (e.g., Smokey Bear, fire prevention week, school visits); and enforcement of state wildfire and open burning statutes (M.S. chapter 88).
- Pre-suppression, including: training firefighters and support personnel; developing and maintaining partnerships with other fire protection agencies; operating the Minnesota Interagency Fire Center; maintaining a national interagency fire equipment cache; contracting for heavy ground and aerial suppression equipment; maintaining a radio communications network; and developing mobilization and dispatch plans.
- Suppression accomplished by a balanced force of firefighters, support personnel, and aerial and ground equipment.
- Implementing wildfire risk mitigation practices and principles (i.e., fuel reduction) via Firewise Structures and Communities' activities.

Wildfires Suppressed



The number and severity of wildfires vary considerably from year to year based on ground moisture and weather conditions. DNR must respond to wildfires that occur. However, the severity of a wildfire season can and does affect DNR's ability to achieve other priority forest targets.

DNR's wildfire prevention and suppression efforts protect public safety, property, and natural resources.

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DNR recognizes that forest fuel loads (and wildfire risk) are influenced by the type, amount, and location of certain forest management practices, such as timber harvesting, thinning, and prescribed burning. Other related Conservation Agenda indicators include DNR Timber Sales and Forest Productivity (under development).

Target: No target set. Wildfires are not predictable and vary widely from year to year due primarily to weather. DNR must respond to wildfires regardless of how many occur in any particular year. As such, the number and size of wildfires suppressed is not an indicator suited to the setting of targets. However, the number and severity of wildfires can have dramatic effects on DNR's ability to achieve other key indicator targets since DNR must divert whatever resources are needed to suppress wildfires.

Learn more about:

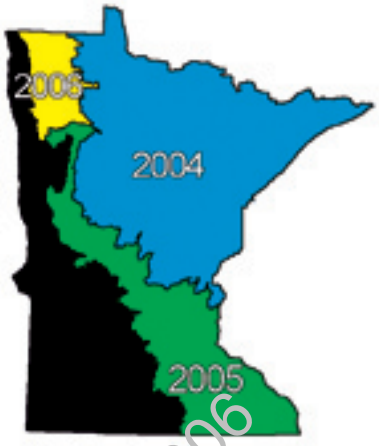
- Wildfire at: http://www.dnr.state.mn.us/forestry/fire/index.html
- Prevention at: http://www.dnr.state.mn.us/firewise/index.html

Ecological Classification System

Indicators: Number of DNR staff trained in use of the Ecological Classification System

Why is this indicator important?

An Ecological Classification System (ECS) consists of maps, databases, and field guides that provide a scientific framework for managing natural resources. ECS products help us understand forests' full potential to produce timber and wildlife and protect water and soil. They are essential for interdisciplinary communication and forest resource assessment. They are the link between landscape-level goals and what a forester chooses to do on a 20-acre timber sale. ECS supports other indicators of sustainable forest management. For example, ECS products are required for some third-party forest certification systems (see Forest Certification indicator), and they help match appropriate silvicultural approaches to forest sites to achieve desired outcomes.



Field Guide Training Schedule

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What is DNR doing?

DNR is publishing ECS maps, field guides, and management guidelines. These products mark the culmination of nearly 15 years of research and data acquisition by DNR and cooperating agencies. The task now is to deliver these products and train foresters, wildlife managers, park managers, and inventory staff to use them.

Target: Provide introductory ECS training to all DNR Forestry field staff by 2006. DNR began its ECS field staff training in 2004 and aims to complete introductory training in 2006. A regularly updated ECS manager's handbook will address the full commercial and ecological potential of forest sites identified in the field guides. Components of the field guide are under development. The handbook will include site potential information for commercial forest products, appropriate silvicultural approaches, and interpretations for game and non-game wildlife, soil management, water resources, and conservation needs. Experts within and outside DNR will be invited to write sections for the various forest ecosystem sites.

Field Guide to one of the ECS Provinces.

Learn more about:

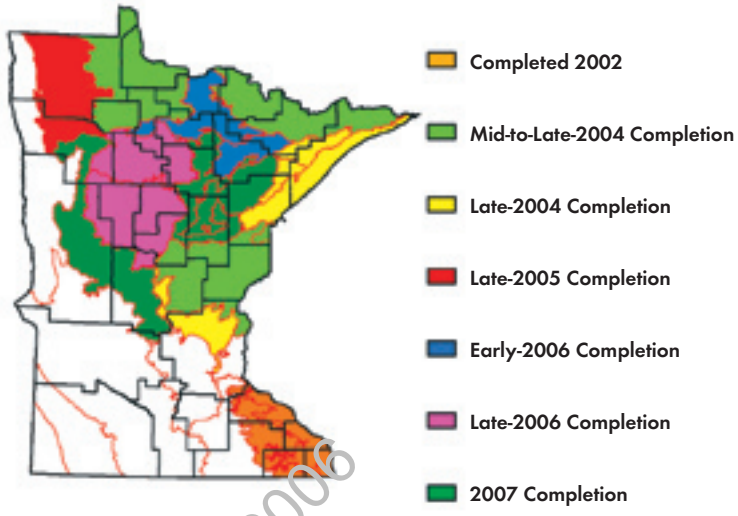
- The Ecological Classification System at: http://www.dnr.state.mn.us/ecological_services/ecs/index.html

Subsection Forest Resource Management Plans

Indicator: Number of Subsection Forest Resource Management Plans (SFRMPs) completed

Why is this indicator important?

DNR manages approximately 4.5 million acres of forestland, about one-quarter of all forestland in the state. DNR plans long-term (50-plus years) and short-term (10-year) vegetation management on these lands through Subsection Forest Resource Management Plans (SFRMPs). SFRMPs, which are based on ecological classification system (ECS) subsections rather than administrative boundaries, are the primary tool for determining the mix of values and products (e.g., wildlife habitat, rare features, timber) that will be provided and sustained through vegetation management on DNR-administered forestlands.



Subsection Forest Resource Plan projected completion dates. Forest planning by ecological subsection provides a comprehensive, landscape-level approach to sustaining forest resources.

What is DNR doing?

DNR began preparing SFRMPs in 2000. DNR is preparing SFRMPs for the 17 ECS subsections that are considered forested. To date, one SFRMP is complete, three are in the last step of the process, and another four should be complete by the end of 2005. Local interdisciplinary DNR teams produce the three primary components of the plans: Assessment and Issues, Strategic Direction, and 10-Year List of Forest Stands to be Treated. Each component is made available for public review and comment.

Target: Complete all SFRMPs by 2007. DNR plans on undertaking two or three SFRMPs at a time. We will continue to evaluate and revise the SFRMP process to increase the efficiency, consistency, and quality of the resulting plans. To increase efficiency, a single team may conduct the process for more than one subsection at a time.

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Learn more about:

- SFRMPs at: http://www.dnr.state.mn.us/forestry/subsection/index.html

Private Forest Stewardship

Indicator: Acres of private forestlands with forest stewardship plans

Why is this indicator important?

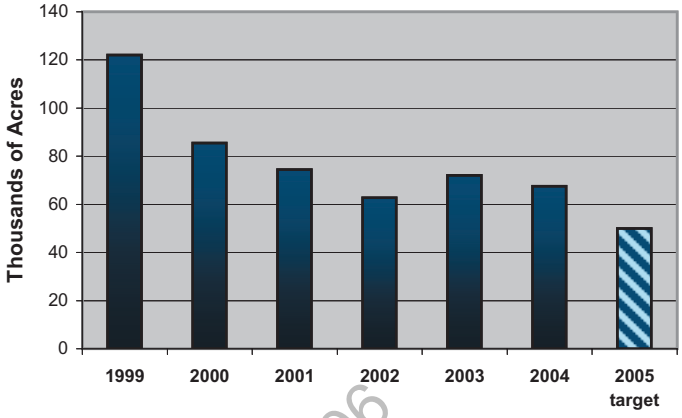
Some 147,000 individuals and organizations (excluding industry) own 40 percent of Minnesota's forestland. This land, much of which is in small woodlots, faces increasing development pressure. The Forest Stewardship Program offers management expertise and cost sharing for tree planting and other activities to private landowners who develop plans for sustainable forest management. Participating landowners pursue sustainable forestry goals, including improving wildlife, maintaining water quality, and applying sustainable timber harvesting.

What is DNR doing?

Minnesota is a national leader in Forest Stewardship enrollment: we have the highest percentage of available acreage under Forest Stewardship among the 20 states in our region. We recently celebrated the enrollment of the one-millionth acre under a Stewardship Plan.

Target: Complete 50,000 acres of Forest Stewardship Plans in FY 2005 with 20,000 acres completed by DNR staff and the remainder by the private sector. DNR's longer-term target is to have 50 percent (2.5 million acres) of non-industrial private forestland (with parcels over 20 acres) under stewardship plans. Demand from landowners is higher than the availability of natural resource professionals to prepare plans.

Forest Stewardship Plans Completed



Forest Stewardship Plans Completed. More than 1 million acres have been enrolled in forest stewardship plans.

Stewardship plans promote sustainable management of private forestlands.

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Learn more about:

- Forest Stewardship Program at: http://www.dnr.state.mn.us/fad/forestmgmt/stewardship.html
- National stewardship programs and trends at: http://www.foresteward.org/
- Application forms at: http://www.na.fs.fed.us/spfo/forms/wdstew_form.html

Forest Key Indicator Gaps

Indicator Gaps:

Although the indicators in this report have data of sufficient quality and coverage to support trend reporting, we recognize gaps in our ability to report on important natural resources trends. The following is a preliminary list of important indicators that require either additional data or new monitoring efforts. When baseline and trend data for new indicators are available, cooperative efforts will be needed to establish conservation targets.

A preliminary list of indicator gaps include:

Indicator to measure forest productivity trends standardized across forest ownerships.
Indicator to measure status and change in the extent, composition, and spatial patterns of forest habitats.
Indicators to measure status and trends in type, extent, and damage from forest insects and diseases.
Indicators to measure status and trends in forest-based recreation.

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Section Five: Outdoor Recreation

Minnesota Will Have a High-Quality and Diverse Outdoor Recreation System

Outdoor recreation provides countless benefits to both people and natural resources. It improves our health and well-being and enhances our connections to nature. It gives us a chance to connect with each other and with the world around us. It benefits the resort and tourism industry, boosts businesses and communities, and increases workforce productivity. It strengthens our environmental ethic, enhances our commitment to protect natural resources, and encourages citizen involvement in conservation issues.

DNR – What We Do

Manage an outdoor recreation system established by the Minnesota Legislature:

- state parks
- state recreation areas
- state trails
- state scientific and natural areas
- state wilderness areas
- state forests
- state wild and scenic rivers
- state water access sites
- state wildlife management areas
- state aquatic management areas
- other units, including safe harbors

A Vision for the Future

In the years ahead, we envision Minnesota's natural resources continuing to provide a variety of **high-quality outdoor recreation opportunities** for our state's residents and visitors. Outdoor enthusiasts will have access to public lands and waters. Lakes and rivers will be fishable and swimmable, and natural habitats will be conserved.

We envision an environment in which natural resources support a **diverse, sustainable range** of outdoor recreation opportunities. Our recreation landscapes will span the spectrum from primitive areas to heavily used trails and spaces in and near urban areas. Whatever the setting, recreation will not compromise the long-term health of the resource base. Natural features, vistas, and recreational waterways will be identified and protected. Populations of fish, wildlife, and plants will be conserved.

We envision a comprehensive outdoor recreation system that serves all Minnesotans. People of all abilities, backgrounds, cultures, and interests will have access to recreation opportunities and to the information and assistance needed to take advantage of and appreciate them. Motorized and non-motorized recreation enthusiasts will all have high-quality recreation opportunities. Outdoor recreation will be available near population centers as well as less populated parts of the state. Opportunities will be coordinated across ownerships.

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Gooseberry Falls State Park, along the Lake Superior shoreline, is known for its spectacular waterfalls and scenic views, north woods wildlife, and historic Civilian Conservation Corps structures. The visitor center is a popular attraction all year round.

We envision people enjoying outdoor recreation in a safe way. Educational programs will promote appropriate behaviors.

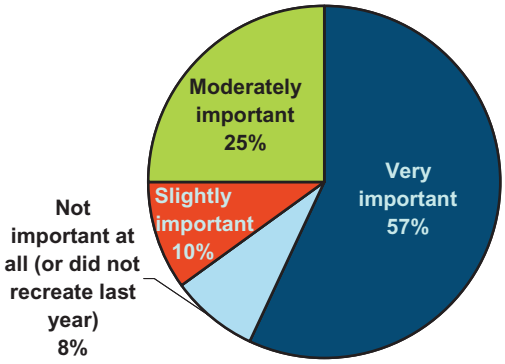
Facilities and recreation settings will be maintained for high-quality visitor experiences. Displays, programs, signage, and other resources will help users understand and enjoy natural resources, and be aware of and satisfied with the outdoor recreation opportunities we provide.

Outdoor recreation today is experiencing a number of trends that will affect our ability to turn this vision into reality.

Critical Trends

First is a **change in participation** in certain traditional activities. The percentage of Minnesotans who participated in fishing, hunting, and wildlife watching declined between 1991 and 2001, particularly among young and urban residents. However, expenditures by people participating in fishing, hunting, and wildlife have grown. For example, expenditures in bird watching, wildlife tourism, bird feeding, and wildlife photography in Minnesota grew 36.6 percent from 1996 to 2001. Boat registration increased 16 percent per year in the 1990s—the same rate of increase as population aged 16 and older.

Personal Importance in Regards to Outdoor Recreation



Emerging types of recreational uses will also affect future needs and the strategies we develop to manage them. For example, all-terrain vehicle use is growing, with 12,235 ATVs registered in 1984 and 222,594 registered in 2004.

As demand for various recreational opportunities changes and diversifies, so must DNR efforts to provide recreational opportunities while conserving the quality of Minnesota's lands and water.

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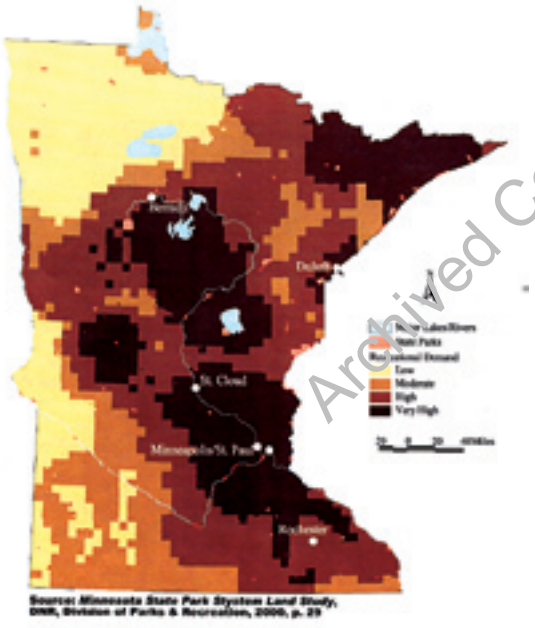

Source: Minnesota State Park System Land Study, DNR, Division of Parks & Recreation, 2000, p. 29

Projected Outdoor Recreation Demand for 2025. As demand grows and diversifies, so must DNR efforts to provide recreational opportunities while conserving the quality of Minnesota's lands and waters.

DNR works with partners to develop recreation opportunities throughout all regions of the state. For example, new "birding trails" are being promoted in areas with historically lower recreational demand. A variety of opportunities help meet outdoor recreation demands.

Note: This map is based on population projections and citizen surveys on recreation destinations.

Through our various planning efforts we aim to proactively provide the recreational opportunities Minnesotans seek while ensuring that their activities sustain and enhance the natural resources that support them.

Outdoor Recreation Indicators & Targets

Indicator	Target	
Trails		**Page**
Number and acres of state forests with a completed forest road and trail inventory; number of miles and location of OHV trails designated and closed	DNR completed its target to inventory all forest roads and trails on more than 4 million acres of forestlands by October 31, 2004. Designate forest roads and trails as open or closed to motorized use and reclassify "managed" forests as "limited" or "closed" by December 31, 2008	94
Acres of natural vegetation restored and managed within trail rights-of-way	Maintain existing restorations through appropriate management (e.g., prescribed burns); produce plant community inventories for five additional rail trails totaling 120 miles	95
Number of state trail miles acquired; number of state trail miles developed	Acquire 43 new state trail miles by the end of FY 2007; develop 132 miles of new state trails by the end of FY 2007	96
Number of state trail miles rehabilitated	Rehabilitate approximately 30 miles every two years until 2009	97

Water access		Page
Number of access points acquired and/or developed along high-priority lakes and rivers	Acquire 10 new access sites statewide in FY 2006–2007, with special emphasis on the Mississippi River and lakes over 5,000 acres	98
Number of small craft harbors and protected accesses developed along Lake Superior	Develop one new site by 2006	99

Recreation enforcement		Page
Number of students completing safety training classes; number of fatalities per 100,000 registrations (watercraft, ATV, snowmobile)	Train 24,000 students in the firearm safety program, 5,600 students in the adult hunter education program, 950 in the all-terrain vehicle program; and 14,900 in the snowmobile safety program.	100

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Outdoor Recreation Indicators & Targets

Indicator	Target	
State Parks		**Page**
Percentage satisfied with visit to a Minnesota state park	Maintain a 95 percent or higher satisfaction rating	101
Acres of natural vegetation actively maintained or restored in the state park system	Have 5,400 acres in active restoration and carry out prescribed burns on 7,100 acres each year	102
Maintenance and restoration of historic buildings, structures, and districts within state parks	Direct 10 percent of overall capital maintenance projects for state parks in each biennium to National Register buildings, structures, and districts within state parks and state recreation areas	103
For parks education indicator see section on Natural Resources Stewardship Education		105

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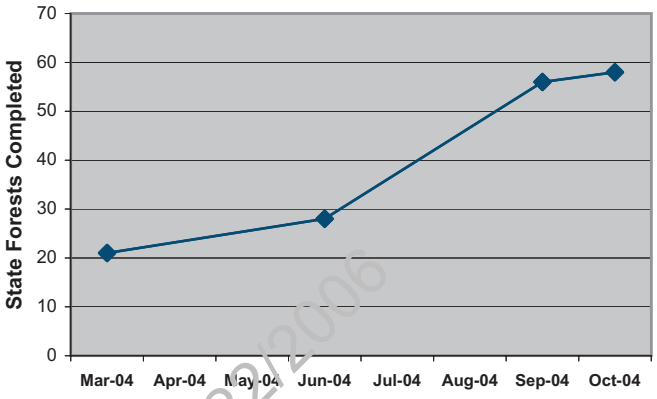
State Forest Road and Trail Inventory, OHV Trail Designation, and Forest Reclassification

Indicators: Number and acres of state forests with a completed forest road and trail inventory; number of miles and location of OHV trails designated and closed (future indicator)

Why is this indicator important?

Motorized use of state lands has increased substantially in recent years. In addition to street-legal vehicles, 2004 registration data show 222,594 all-terrain vehicles (ATVs), 12,163 off-highway motorcycles (OHMs), and 5,497 off-road vehicles (ORVs) licensed for off-road use in Minnesota. This has resulted in overuse and resource damage in some areas, especially those with few designated trails and limited maintenance. The Legislature has directed DNR to provide for off-highway vehicle (OHV) use. The challenge is to accommodate OHV activity safely, responsibly, and without displacing other forest users.

Number of State Forests with Completed Forest Road and Trail Inventory



DNR completed its comprehensive statewide forest road and trail inventory in 2004.

What is DNR doing?

In 2003, the Legislature directed DNR to inventory forest access routes, designate routes for OHV use, and reclassify "managed" state forests as either "limited" or "closed" to OHV use. In response, DNR mounted its first-ever comprehensive statewide forest road and trail inventory, encompassing some 4.5 million acres inside and outside Minnesota's 58 state forests.

Target: Designate forest roads and trails as open or closed to motorized use and reclassify "managed" forests as "limited" or "closed" by December 31, 2008. DNR* has completed *the target to inventory all forest roads and trails on more than 4 million acres of forestlands by October 31, 2004.

DNR will produce and present a study of OHV trails to the Legislature in early 2005. This report will address current and future availability of opportunities for motorized and nonmotorized recreation, recommend legislative and policy changes, and detail revenue sources and projected expenditures. Public meetings started in early 2004 to discuss trail designation and closure proposals. Progress can be tracked on the DNR website at www.dnr.state.mn.us.

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Learn more about:

- OHV riding at: http://www.dnr.state.mn.us/ohv/index.html

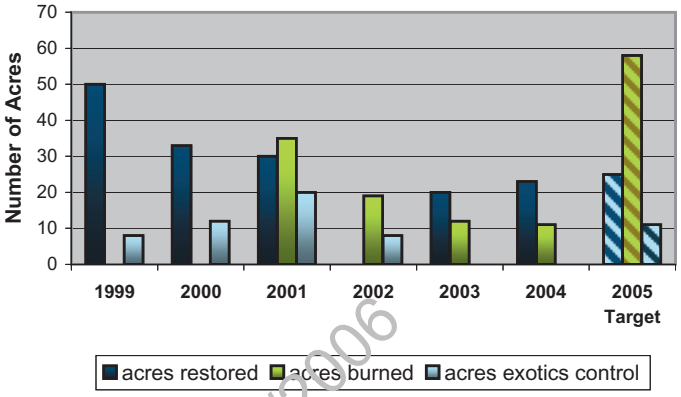
Trail Natural Community Restoration and Management

Indicator: Acres of natural vegetation restored and managed within trail rights-of-way

Why is this indicator important?

Minnesota statutes mandate that state trails be managed with minimum disturbance of the natural environment. Trails can enhance the ecological value of land by allowing us to restore the right-of-way to natural plant communities; protect and manage native plant communities; partner with adjacent land managers on natural communities management; and educate users about natural resources.

Number of Acres Restored and Managed Within Trail Right-of-ways



Number of acres restored and managed within trail-rights-of-way. Successful restorations require periodic maintenance through prescribed burns and invasive control.

What is DNR doing?

With the help of a 1999 Legislative Commission on Minnesota Resources (LCMR) grant, DNR began restoring sites acquired or donated in conjunction with various trail projects. We published a statewide management guide in 2000 to help field staff understand the importance of natural landscape integrity, and to assist with project implementation. We have completed identification and quality rating of native plant communities on six rail- trails totaling 490 miles. This information is useful in crafting future work plans and priorities.

In 2001, DNR published a plant identification guide for field resource managers featuring 37 invasive non-native terrestrial plants and appropriate control methods. Since 1998, all new trail development has begun with an assessment of natural plant communities followed by appropriate restoration efforts. DNR will continue to restore new sites when possible and monitor and manage established sites. DNR will also continue educating field staff in natural vegetation management techniques.

1999 restoration along the Harmony-Preston Valley Trail

Target: Maintain existing restorations through appropriate management (e.g., prescribed burns); produce plant community inventories for five additional rail trails totaling 120 miles. DNR is currently working on the Bluffland Trail in Southeast Minnesota. DNR aims to increase native species diversity, diminish the occurrence of invasive exotic species, and develop new trail alignments that are consistent with regional landscape management goals. DNR will continue to develop natural vegetation management priorities for each trail and cultivate partnerships with adjacent public and private land managers.

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Learn more about:

- Minnesota's state trails at: http://www.dnr.state.mn.us/state_trails/index.html

State Trail Acquisition and Development

Indicators: Number of state trail miles acquired; number of state trail miles developed

Why is this indicator important?

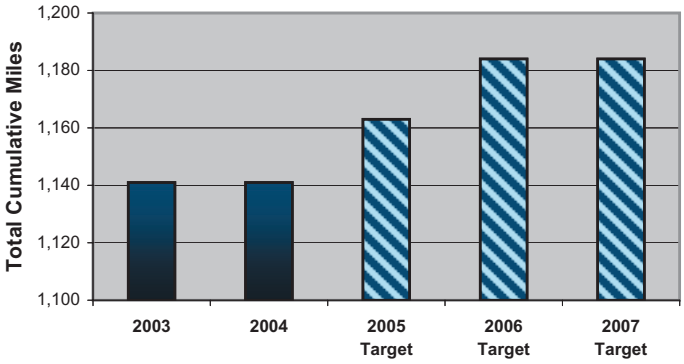
State trails provide numerous and diverse benefits. They offer recreation opportunities for bicyclists, hikers, in-line skaters, horseback riders, cross-country skiers, and snowmobilers. State trails are located throughout Minnesota in urban and rural areas. They are a key element to improving the health of Minnesotans because they provide convenient and inexpensive places to exercise. They provide economic benefits to communities and enhance tourism. They serve as transportation corridors.

What is DNR doing?

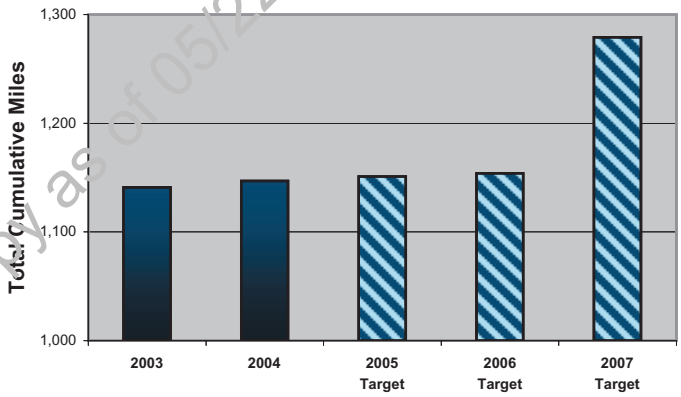
DNR works with local trail associations, trail user groups, and communities to plan, acquire, develop, and manage the state trail system. Some trails in the system have an asphalt surface for bicycling and in-line skating. Other trails have a natural surface and are used predominately for snowmobiling in the winter and hiking in the summer. Some trails have a parallel treadway for other uses such as horseback riding.

Target: Acquire 43 new state trail miles by the end of FY 2007, totaling 1,190 miles; develop 132 miles of state trails by the end of FY 2007, totaling 1,279 miles. These targets will be adjusted as new opportunities arise for trail acquisition and development. Trail stakeholders are currently working to secure funds for acquisition and development of state trails. There are two reasons the target for miles developed by 2007 exceeds that for miles acquired. First, some trail miles will be developed on public land such as in a state or county park or road right-of-way so there are no associated acquisition costs. Second, some miles have already been acquired and are awaiting development.

Number of State Trail Miles Acquired



Number of State Trail Miles Developed



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DNR works with partners to acquire and develop state trails.

Learn more about:

- State trails at: http://www.dnr.state.mn.us/state_trails/index.html

State Trail Rehabilitation

Indicator: Number of state trail miles rehabilitated

Why is this indicator important?

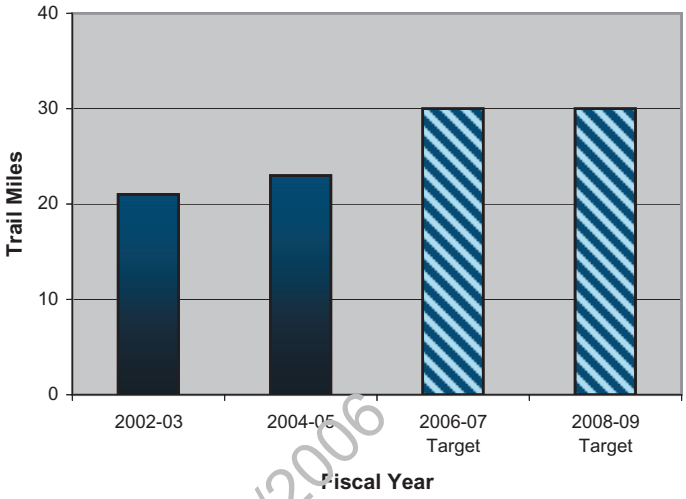
A well-maintained trail provides a safe and satisfactory experience. Rehabilitation extends the life of the trail and reduces future maintenance costs. Currently there are 1,147 miles of state trails. Of these, 415 are paved, 379 with asphalt and 36 with crushed aggregate. Trails that were developed early in the history of the state trail program need rehabilitation.

What is DNR doing?

DNR performs routine maintenance such as crack repair, tree and shrub pruning, drainage control, mowing, and fence repair. Circumstances such as washouts, floods, erosion, or normal aging create a need for major trail rehabilitation. Rehabilitation projects include culvert replacement, subgrade stabilization, erosion control, resurfacing, and rehabilitation of bridges, which are essential to the continuity of all state trails.

Target: Rehabilitate approximately 30 miles every two years until 2009. The Governor's capital budget proposal for FY 2006 includes recommendations for rehabilitation of segments of five state trails.

Number of State Trail Miles Rehabilitated



Number of state trail miles rehabilitated. Trail rehabilitation promotes safe and satisfactory recreation experiences. It also extends the life of the trail and reduces future maintenance costs.

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Learn more about:

- State trails at: http://www.dnr.state.mn.us/state_trails/index.html

Public Access to Lakes and Rivers

Indicator: Number of access points acquired and/or developed along high-priority lakes and rivers

Why is this indicator important?

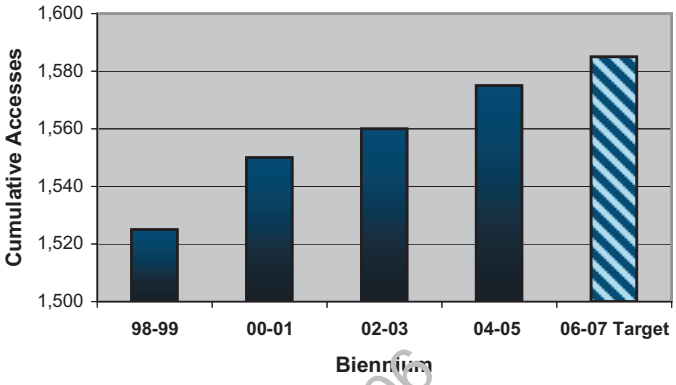
Minnesota ranks fourth in the nation in number of licensed boats (834,000) and first in boats per capita, with one for every six people. Several hundred lakes and rivers in the state have inadequate public access. Accesses are used by lakeshore owners with large boats and motors. They also make it possible for other citizens to use public waterways. This is important because the cost of lake property is escalating rapidly and opportunities to purchase land are becoming rarer.

What is DNR doing?

DNR is increasing its emphasis on acquiring access sites.

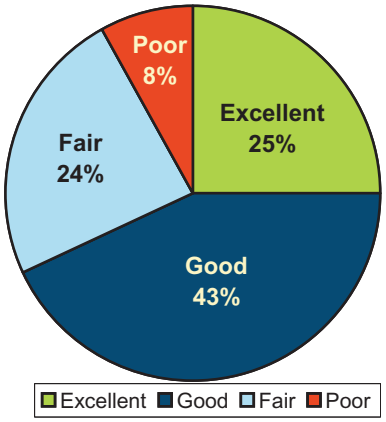
Target: Acquire 10 new access sites statewide in FY 2006–07, with special emphasis on the Mississippi River and lakes over 5,000 acres. Throughout the state, DNR field managers are actively seeking to acquire land. We are making contacts with realtors, lake associations, angling clubs, government bodies, and others with the intent of purchasing new access sites.

Number of Accesses Acquired or Developed Along Lakes or Rivers



Number of accesses acquired or developed along lakes and rivers. DNR acquires, develops, and maintains public accesses. Fifteen new access sites will be acquired on lakes and rivers statewide with special emphasis to acquire and develop five on the Mississippi River and large lakes over 5,000 acres.

Minnesota Boater Satisfaction Levels with Water Access Facilities



Minnesota boater satisfaction levels with public access facilities. DNR uses periodic surveys to measure satisfaction levels with facilities and services.

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Learn more about:

- Public water access at: http://www.dnr.state.mn.us/water_access/index.html

Lake Superior Small Craft Harbors and Protected Accesses

Indicator: Number of small craft harbors and protected accesses developed along Lake Superior

Why is this indicator important?

Increased interest in boating and fishing Lake Superior has spurred communities and DNR to provide new and better boat access to the lake. Because the lake is so large, sudden storms can occur and boaters need a safe harbor for shelter and as a place to retrieve their boats safely. The U.S. Army Corps of Engineers has responsibility for providing safe harbors for boats in cooperation with DNR and local communities. Communities recognize the benefits to providing lake-oriented facilities such as marinas, and DNR cooperates in these ventures.

DNR works with local units of government to develop small craft harbors and protected accesses according to the North Shore Harbors Plan of 1991. The target is to develop one new site along Lake Superior by 2006.

What is DNR doing?

Legislation passed in the 1990s identified five locations for safe harbors, marinas, and boat accesses. In addition DNR identified several protected boat access locations that would have safe launch and retrieval for boats but no marina facilities. Currently DNR operates Knife River Harbor and Marina, and Silver Bay Harbor and Marina in cooperation with the city of Silver Bay. DNR also operates several protected accesses at Twin Points, Taconite Harbor, and Horseshoe Bay. DNR is working with local groups and communities to plan future safe harbors and accesses at Knife River, Two Harbors, Grand Marais, and Grand Portage. The U.S. Army Corps of Engineers is a partner in these planning processes.

Target: Develop one new site by 2006. The McQuade Road project at the city limits of Duluth will be constructed in 2004 and 2005 in cooperation with the U.S. Army Corps of Engineers.

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Learn more about:

- Lake Superior small craft harbors and protected accesses at: http://www.dnr.state.mn.us/water_access/safeharbors/index.html

Recreational Safety and Enforcement

Indicators: Number of students completing safety training classes; number of fatalities per 100,000 registrations (watercraft, ATV, snowmobile)

Why is this indicator important?

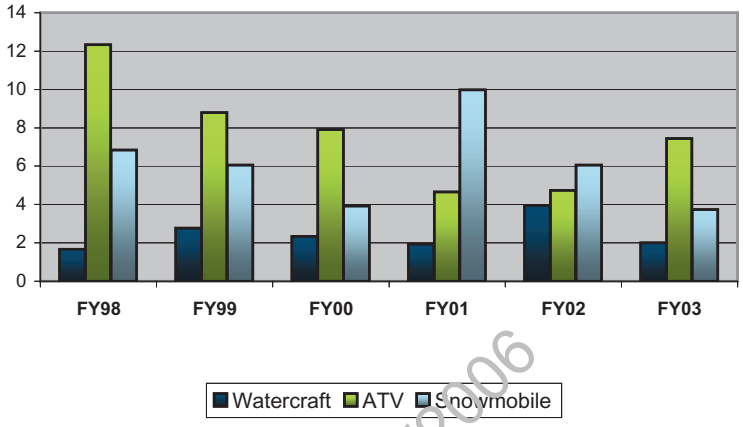
Recreational use of Minnesota's natural resources must be safe and responsible if we are to continue to offer opportunities for future generations. Government has a role in assuring public health and safety, as well as protecting property.

What is DNR doing?

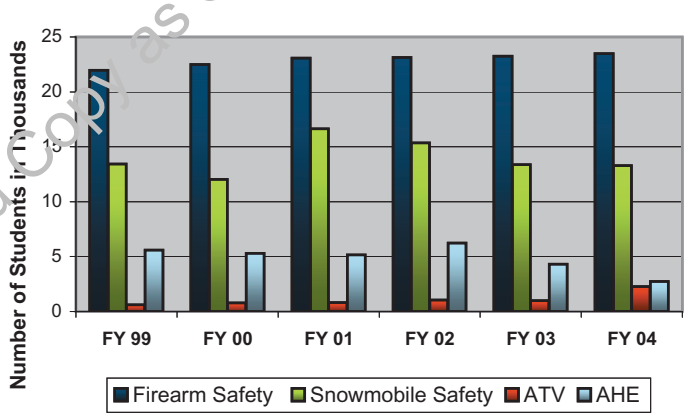
DNR is encouraging the safe use of Minnesota's natural resources by providing educational programs and law enforcement services for the protection of resources, property, and public safety. These programs and services are designed to introduce new users to recreational opportunities and to limit or prevent personal injury accidents and fatalities while encouraging the safe and responsible use of Minnesota's resources.

Target: DNR will annually train 24,000 students in the firearm safety program; 5,600 in the adult hunter education program; 950 in the all-terrain vehicle program; and 14,900 in the snowmobile safety program. Though factors such as weather and personal behavior greatly influence accidents, through educational programs and law enforcement efforts, DNR will work to reduce fatal accident rates below the long-term average in the following areas: snowmobiling (7.53/100,000 registered snowmobiles); ATV use (8.26/100,000 registered ATVs); and boating (2.43/100,000 registered watercraft).

Recreational Fatalities per 100,000 Registrations



Number of Students Completing Safety Training Classes



Number of students completing safety training classes.

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Learn more about:

- Enforcement at: http://www.dnr.state.mn.us/enforcement/index.html
- Hunter safety at: http://www.dnr.state.mn.us/safety/index.html
- Boat and water safety at: http://www.dnr.state.mn.us/safety/boatwater/index.html
- Recreational vehicle safety at: http://www.dnr.state.mn.us/safety/vehicle/index.html

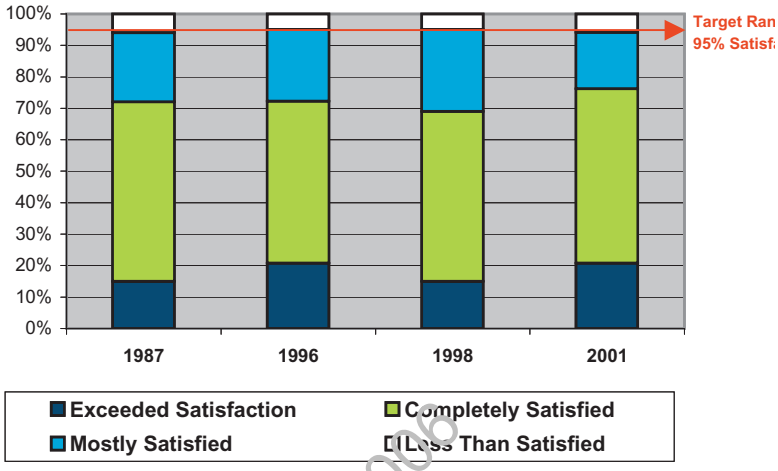
State Park Visitor Satisfaction

Indicator: Percentage satisfied with a visit to a Minnesota state park

Why is this indicator important?

State parks are an integral part of Minnesota's high quality of life. They are key to the state's tourism industry, attracting state, national, and international visitors. State park visitors enjoy unique natural and cultural resource treasures and unparalleled nature-based recreational opportunities. Each year over 8 million visitors enjoy Minnesota's 66 state parks and 6 recreation areas. State park visitors spend $200 million annually during their visits. Out-of-state visitors to state parks generate $25 million in income for Minnesota residents. Maintaining high visitor satisfaction benefits visitors, communities, and economies.

Satisfaction with Visit to a State Park



Satisfaction with visit to a state park. In recent years 95 percent of visitors have expressed satisfaction with Minnesota state parks.

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What is DNR doing?

The state parks mission is to "work with the people of Minnesota to provide a state park system which preserves and manages Minnesota's natural, scenic, and cultural resources for present and future generations while providing appropriate recreational and educational opportunities." This requires managing unique natural and cultural resources, acquiring lands, providing educational and interpretive services, supporting diverse recreation activities, keeping parks and services open to the public, maintaining facilities, and providing a friendly and comfortable atmosphere for visitors. For example, state parks maintain picnic sites, campsites, trails, public accesses, fishing piers, historic landmarks, and visitor centers. Periodic surveys monitor customer expectations and satisfaction.

Ten of the top 35 Minnesota tourism attractions are in state parks.

Target: Maintain a 95 percent or higher satisfaction rating. Park visitors consistently express high satisfaction with Minnesota state parks; in recent years, 95 percent of park visitors have expressed positive satisfaction ratings. DNR will continue to work to maintain at least a 95 percent satisfaction rate for park visitors. Periodic surveys will track park visitor satisfaction levels and document which features promote and detract from high satisfaction.

Learn more about:

- Minnesota state parks at: http://www.dnr.state.mn.us/state_parks/index.html
- State park facts at: http://www.dnr.state.mn.us/state_parks/facts.html
- How state park fees are spent at: http://www.dnr.state.mn.us/state_parks/budget.html

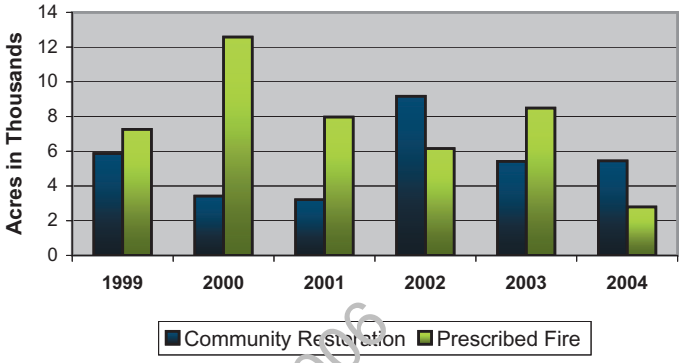
Natural Vegetation in State Parks

Indicator: Acres of natural vegetation actively maintained or restored in the state park system

Why is this indicator important?

State law mandates that state parks managers protect and manage presettlement natural features; protect and manage other significant natural, scenic, scientific, or historic features; and reestablish missing plants and animals. This ensures that state parks help protect the state's biodiversity. Over 235 federal or state endangered, threatened, or special concern species occur at more than 1,000 locations in state parks. More than 30 percent of all protected old-growth forests on DNR lands and more than 80 types of important native plant communities are in state parks. A 2001 visitor survey found that the experiences most important to our visitors included enjoyment of natural scenery and the smells and sounds of nature.

Acres of Habitat with Prescribed Fire and Active Restoration in the State Park System



Acres of habitat with prescribed fire and active restoration in the state park system.

What is DNR doing?

State parks use planting, prescribed burning, control of exotic plant species, seed collection, and other activities to preserve and restore prairies, savannas, forests, and wetlands. The process can take years, even decades. Some communities also require periodic management, such as prescribed fire. State parks also conducts 24 interpretive programs annually dealing with natural resource management, some of which provide "hands-on" learning opportunities.

Prescribed burn to restore pine forest at Lake Bemidji State Park

Target: Have 5,400 acres in active restoration and carry out prescribed burns on 7,100 acres each year.

DNR's long-term goal is to restore, to natural communities, all areas in the state park system not developed, planned for development, or managed for cultural resource significance. Ideally, our long-term indicator for this goal will be the number of natural community acres in the park system of good ecological quality.

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Learn more about:

- Minnesota state parks at: http://www.dnr.state.mn.us/state_parks/index.html

State Parks Historic Features

Indicator: Maintenance and restoration of historic buildings, structures, and districts within state parks

Why is this indicator important?

State parks contain 620 designated historic buildings, structures, and objects; 34 National Register Historic Districts; and five National Historic Landmarks. Many are rustic-style log and stone structures built by the Civilian Conservation Corps and Works Progress Administration and treasured by visitors. Historic features require extensive maintenance, and in some cases, significant restoration to preserve them and to keep them safe for public use and enjoyment.

DNR has a statutory responsibility to protect historic properties listed on the National Register and State Register. State law requires state parks to preserve, perpetuate and interpret historic features, such as historic state park buildings, structures, and districts.

Douglas Lodge, Itasca State Park. Minnesota state parks preserve, perpetuate and interpret historic features. Successful historic building restorations have been completed in recent years at St. Croix State Park, Itasca State Park, Scenic State Park, and Tettegouche State Park.

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What is DNR doing?

DNR regularly reviews the condition of state park buildings and structures to make sure they are safe. DNR consults frequently with the State Historic Preservation Office of the Minnesota Historical Society to ensure proper treatment of the historic buildings and structures. Successful historic building restorations have been completed in recent years at St. Croix State Park, Itasca State Park, Scenic State Park, and Tettegouche State Park. Twenty-four, or more, interpretive programs are provided to visitors each year, emphasizing the value of historic features and building public support for their continued care.

Target: Direct 10 percent of the overall capital maintenance projects for state parks in each biennium to National Register buildings, structures, and districts within state parks and state recreation areas. To meet the goal for preservation and effective use of historic buildings, structures, and districts in state parks, DNR will require strong support for 1) continued assessment of the condition of historic buildings and structures; 2) enhanced effort for maintaining the large number of historic buildings, structures, and districts; and 3) restoration of selected historic buildings, structures, and districts.

Learn more about:

- Minnesota state parks at: http://www.dnr.state.mn.us/state_parks/index.html
- State park history at: http://www.dnr.state.mn.us/state_parks/logstonebook.html

Outdoor Recreation Key Indicator Gaps

Indicator Gaps:

Although the indicators in this report have data of sufficient quality and coverage to support trend reporting, we recognize gaps in our ability to report on important natural resource and outdoor recreation trends. The following is a preliminary list of important indicators that require either additional data or new monitoring efforts. When baseline and trend data for new indicators are available, cooperative efforts will be needed to establish conservation targets.

A preliminary list of indicator gaps include:

Indicator to track the diversity of population using trails.
Indicators to measure satisfaction of multiple recreation user groups (surveys).
Indicators to measure trail density and distribution in state forests.
Indicators to track trends in new forms of recreation and tourism.
Indicator to measure recruitment and retention for multiple forms of recreation.

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Section Six: Natural Resources Stewardship Education

Citizens will have high-quality natural resources stewardship education

No matter what you call it - conservation education, environmental education, or simply outdoor education - we are talking about enhancing the understanding, appreciation, participation, and sense of stewardship for our natural resources.

State law requires natural resources and environmental education. DNR education and outreach programs support state goals, such as those outlined in this agenda and the GreenPrint education plan for Minnesota. Natural resources education is interdisciplinary and can also support K-12 academic goals, like for science, language arts, and social studies. DNR programs provide materials and train educators, students, and the general citizenry on Minnesota's natural resources heritage, management, and long-term stewardship.

DNR education programs are broad, from wildlife, fishing, rocks and minerals, trees and water, archery, snowmobiling, ATV and hunter safety, to supporting landowner and local government efforts on natural resource management. Support to landowners and communities include prairie restorations and forest plans to shoreland management.

DNR education activities include making the most of the myriad "teachable moments" that occur in our everyday encounters with the public at state parks, forests, and through other venues. DNR seeks to provide Minnesotans with the knowledge they need to be good stewards of our state's natural resources.

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A vision for the future

When we look to the future we see Minnesotans developing a **lifelong stewardship ethic.** Natural resources education programs support this stewardship ethic.

We see natural resources education and **safety and stewardship** training opportunities growing.

We envision a future in which **natural resources education** is part of every student's curriculum as well as being available outside of the school. We see teacher training to share new research and best management practices to improve delivery and effectiveness of education programs.

We envision **collaborative partnerships** to efficiently deliver effective natural resources education programs.

DNR – What We Do

Education program examples and **ANNUAL** accomplishments include:

- Project WET, WILD, and Learning Tree training reaches 800 educators of more than 50,000 students
- School Forest (outdoor classroom) programs at 100 schools reach 1,150 teachers and 24,000 students.
- State park educational services reach 1.5 million people
- Safety education programs (hunter, recreational vehicle, boat, and water) reach more than 70,000 people
- Water education programs (general, fishing, and aquatic) reach more than 55,000 people
- Volunteers donate more than 444,000 hours
- DNR Information Center assists 182,000 people
- Minnesota Conservation Volunteer magazine reaches 500,000 readers
- DNR Web pages register more than 30 million visits
- Project NEMO (Nonpoint Education for Municipal Officials) reaches 2,000 people

We see **DNR and informed citizens and local leaders working together** to care for Minnesota's natural resources. Citizens and local leaders are better prepared to make **informed natural resources decisions,** thanks to proactive efforts to spread the message of why and how we must care for Minnesota's resources.

We see a future in which **DNR provides natural resources stewardship education within the broader picture** of environmental education in Minnesota. We will invest in natural resources education and coordinate and collaborate with other educators—public, private, formal, and nonformal. We will strengthen education links with all constituents, such as educators, students, landowners, business people, local government officials, and recreation users.

Target audiences for natural resources stewardship education:

- Producers / landowners of both forested and agricultural land
- Local government officials and boards
- Recreational users
- The business community
- Pre-K-12 students and teachers
- Other "Greenprint for Minnesota" audiences

Critical trends

As we work to achieve this desired future, we do so within the context of a number of trends that affect natural resources stewardship education, such as more non-outdoor activities that compete for people's time.

A key trend is the growing **physical disconnect** between people and natural resources. Currently 75 percent of Minnesotans live in metropolitan areas, while only 5 percent of natural resources are found there. This growing disconnect demands increasing emphasis on education so citizens learn to appreciate and care for resources they might not encounter every day, and understand how their decisions and actions affect natural resources.

These Hastings High School students are monitoring the quality of the Vermillion River and learning about trout streams.

Growth in Minnesota's **cultural diversity** and demographic changes demand from us an increasingly diverse approach to outreach and education. There is a growing **need to involve all Minnesotans** in natural resources stewardship.

An encouraging trend is the **growth in natural resources education** by nonprofit organizations. This provides abundant opportunities for collaboration. It also creates a need to help ensure that conservation messages are balanced and accurate.

Minnesotans are strong supporters of environmental education; 90% of adults support providing environmental education in schools. At the national level there is growing support for planning and funding conservation education efforts.

More than anything, these trends point out the powerful need for good, effective natural resources education. The indicators and targets that follow are playing an important role in our efforts to provide that much-needed education so that our vision of a bright future for Minnesota's natural resources might be realized.

Because stewardship is woven through all aspects of DNR's work, education and outreach components are also found throughout this document (see also: Natural Lands, Fisheries and Wildlife, Waters and Watersheds, Forests, and Outdoor Recreation).

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Natural Resources Stewardship Education

Indicators & Targets

Indicator	Target	Page
Participation in DNR natural resources education programs		
Number of participants involved in MinnAqua fisheries aquatic education program	Maintain at least 60,000 participants per year in the MinnAqua program	108
Number of individuals educated about river and stream systems	Reach key audiences and continue to increase ecological literacy around river systems	109
Public involvement in DNR forestry education programs	Maintain involvement in DNR forestry education initiatives to ensure a knowledgeable public	110
Percentage of park visitors participating in outdoor education activities	Maintain at least 18 percent participation level of park visitors in outdoor education and interpretive opportunities	111
Number of local officials and citizens attending educational presentations about land use and natural resource conservation	Maintain or increase the number of people attending land-use and natural resource conservation education presentations	112

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Note:

Education and stewardship-related indicators are also described throughout the other sections in this document (natural lands; fisheries and wildlife; healthy waters and watersheds; forests; and outdoor recreation)

Aquatic Education

Indicator: Number of participants involved in MinnAqua fisheries aquatic education program

Why is this indicator important?

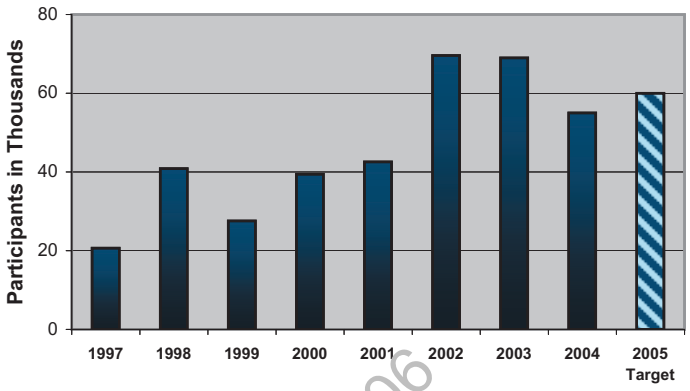
Minnesotans must all work to maintain, enhance, or restore the health of Minnesota's ecosystems so they can continue to serve recreational, environmental, social, and economic purposes. However, not all Minnesotans have the knowledge they need to be effective stewards. Aquatic education programs can help create a citizenry that is aware of and active in natural resource conservation.

What is DNR doing?

DNR designs, implements, and evaluates aquatic education materials and structured programs, trainings, and seminars for a diverse clientele. These materials and programs combine hands-on learning activities about cultural traditions and values of sport fishing, aquatic ecosystems, fish, and resource management. We provide training and materials for educators, staff, and volunteers to help meet state and national environmental education standards and academic standards in schools. We teach others the importance of stewardship, and create a network to support aquatic resource education programs. We evaluate aquatic education programs and materials, assess natural resource perceptions and issues among the public, and identify overall aquatic resource education needs.

Target: Maintain at least 60,000 participants per year in the MinnAqua program.
Participation in the MinnAqua program will provide opportunities for people to better understand aquatic ecosystems, fish management, laws and regulations, diverse values and cultural views of sport fishing, and their role in maintaining quality fishing and aquatic habitat.

Number of Participants Involved in Aquatic Education Programs



Number of participants involved in aquatic education programs. The target is to maintain at least 60,000 participants per year in the MinnAqua program.

MinnAqua programs provide a fun, active, "hands-on" fishing experience. Participants also learn about stewardship of aquatic ecosystems. These programs are popular with many kinds of youth and adult groups.

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Learn more about:

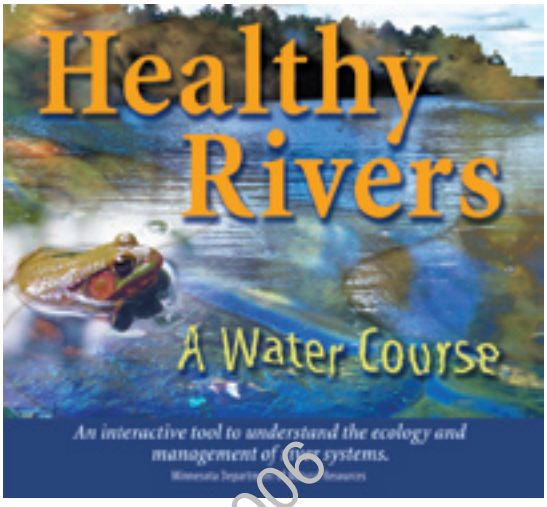
- Minnaqua at: http://www.dnr.state.mn.us/minnaqua/index.html
- Fisheries information and education at: http://www.dnr.state.mn.us/fisheries/management/inform.html
- Other DNR natural resources education programs at: http://www.dnr.state.mn.us/education/index.html

River Ecology and Management

Indicator: Number of individuals educated about river and stream systems

Why is this indicator important?

The science of managing rivers and streams in ways that maintain their natural ecological structure and function is not widely understood. DNR professionals are international leaders in stream ecology and restoration, and have developed a framework for understanding the science behind their work. All streams and rivers can be characterized by an interplay of five components: hydrology, geomorphology, connectivity, water quality, and biology. Past management of rivers without consideration of all five components has resulted in diminished resources. Use of this framework forms the basis for effective natural resource management, land-use planning, and policy development. It also informs day-to-day lifestyle choices and activities by an educated citizenry, whose cumulative actions impact watershed condition.



DNR delivers the science of river ecology to non-technical audiences with this popular interactive CD-ROM entitled: "Healthy Rivers: A Water Course."

What is DNR doing?

DNR is teaching river ecology to technical and nontechnical audiences in formal and nonformal education settings. We published an interactive CD-ROM, Healthy Rivers: A Water Course, in August 2004. We offer a three-part series of technical workshops for natural resource professionals covering fluvial geomorphology and stream classification, stream assessment and monitoring, and stream restoration. Since 1998, approximately 300 professionals have participated in the workshops.

DNR professionals are international leaders in stream ecology and restoration. They offer technical workshops to help others understand the science behind this work. About 300 resource professionals have already participated in these workshops.

Target: Reach key audiences and continue to increase ecological literacy around river systems. To achieve this target DNR will: 1) conduct an outreach pilot project to incorporate the Healthy Rivers CD-ROM into community efforts through local government leaders, using an issue-driven process to develop learning modules; 2) work with Forest Lake School District to integrate principles from Healthy Rivers into secondary classrooms and build ecological literacy; and 3) continue to offer the technical workshops for natural resources professionals.

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Learn more about:

- Healthy Rivers: A Water Course CD-ROM at http://www.dnr.state.mn.us/healthyrivers
- Stream health and restoration workshops for professionals at: http://www.dnr.state.mn.us/ecological_services/streamhab/index.html

Forestry Education

Indicator: Public involvement in DNR forestry education programs

Why is this indicator important?

Many DNR forestry programs rely on public cooperation and participation. DNR provides education and information to help ensure that Minnesotans who provide input to forestry programs understand natural resources and resource management. Forestry education efforts are focused to support core DNR priorities.

What is DNR doing?

DNR promotes objective public education and information-sharing programs. Forestry education programs extend from preschool through high school and include various informal learning opportunities.

DNR provides forest management advice, educational curriculum support, and forestry information to 100 School Forest sites. These sites, which comprise roughly 7,150 acres, are used as outdoor classrooms in which students can explore and learn about the natural world. The School Forest Program provides natural resources education to approximately 1,150 schoolteachers and 24,000 K–12 students annually.

Since 1978, DNR has supported Project Learning Tree (PLT), which provides forestry and natural resource information for educators. PLT workshops reach at least 300 educators annually on average; each PLT-trained educator in turn might share forestry information with 30 to 50 students each year. PLT reaches educators and students (ages 3 to 80) in formal classrooms, scout troops, environmental learning centers, forestry groups, and other settings.

Target: Maintain involvement in DNR forestry education initiatives to ensure a knowledgeable public. The School Forest Program will maintain its 100 sites and 7,000 acres of land, and work to increase the number of participating schools. Minnesota PLT will train at least 300 educators annually.

Location of Minnesota's School Forest Sites

School Forest Sites are used as outdoor classrooms where students can explore and learn about the natural world.

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Learn more about:

- School Forest Sites at: http://www.dnr.state.mn.us/schoolforests
- Project Learning Tree at: http://www.dnr.state.mn.us/plt
- Other DNR natural resources education at: http://www.dnr.state.mn.us/education/index.html

Outdoor Education

Indicator: Percentage of park visitors participating in outdoor education activities

Why is this indicator important?

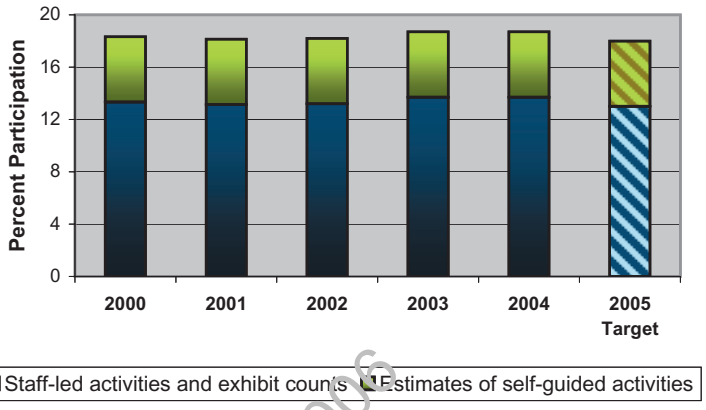
Minnesota law mandates that Minnesota state parks provide educational programs interpreting Minnesota's natural and cultural resources for the public. Outdoor education creates a sense of stewardship for Minnesota's natural and cultural heritage. It promotes recreation through experiential programs on camping, hiking, biking, canoeing, cross-country skiing, snowshoeing, fishing, wildlife watching, hunter education, and snowmobile safety. Park education programs offer a low-key enforcement tool that helps us manage visitors. They also promote understanding of and support for DNR's programs, key messages, and management decisions, resulting in reduced management costs and more effective outcomes.

What is DNR doing?

Educational programs have been integral to DNR's mission for more than 60 years. State parks offer more than $200 million in interpretive facilities and offer hands-on educational experiences for 8.5 million visitors each year.

Target: Maintain at least 18 percent participation level of park visitors in outdoor education and interpretive opportunities. Educational services in Minnesota state parks reach 1.5 million visitors annually. We will attempt to reach our target through the strategic delivery of educational resources and by documenting participation in interpretive services.

Percent Participation in Parks Education and Interpretive Activities



Percent participation in parks education and interpretive activities. Each year, outdoor education activities in Minnesota State Parks reach over 1 million visitors. An estimated 500,000 additional visitors use self-guided educational opportunities. Note: 2004 data are pending.

Outdoor education in Minnesota State Parks seeks to create a sense of stewardship for Minnesota's natural and cultural heritage.

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Learn more about:

- Naturalist programs at: http://www.dnr.state.mn.us/state_parks/kids.html
- State parks at: http://www.dnr.state.mn.us/state_parks/index.html
- Other DNR natural resources education programs at: http://www.dnr.state.mn.us/education/index.html

Natural Resource-Based Land Use Planning Education and Assistance

Indicator: Number of local officials and citizens attending educational presentations about land use and natural resource conservation

Why is this indicator important?

To preserve our state's natural heritage, natural resources must be conserved through wise land-use decisions at the local level. These decisions are made by local officials, who often lack a clear understanding of the impacts of land-use changes, especially development, on natural resources.

DNR staff work with the local community to identify priorities for land conservation.

What is DNR doing?

DNR, through the Central Region's Community Assistance Program, is educating local officials using a number of tools, including the newly developed Guide to Using Natural Resource Information in Local Decision Making and NEMO (Nonpoint Education for Municipal Officials). These sister programs focus on the importance of planning in which natural resource conservation is given high priority on communities' long-term health and sustainability.

DNR is part of Northland NEMO, a partnership of agency, nonprofit, and education organizations that provides land-use and water-quality training to local elected and appointed officials, lake associations, civic groups, natural resource staff, and others. NEMO offers educational programming to help local officials and citizens understand the impacts of development on water resources, the pollutants in nonpoint-source pollution, and a variety of strategies for protecting water resources. NEMO emphasizes the importance of natural resource–based land-use planning and site design, innovative storm-water management, and shoreland/streambank restoration as strategies to protect water resources. Northland NEMO is also a member of the National NEMO Network, an excellent source of information and educational materials that provides critical support to the program.

Central region community assistance staff delivered the NEMO message to approximately 2,000 people at 43 presentations in FY04. NEMO partners outside DNR reached many others. As a result of this programming, local governments and citizen groups are seeking additional information about (and some have implemented) shoreland restoration, ordinances to protect water quality, innovative storm-water management, and natural resource-–based planning.

Target: Maintain or increase the number of people attending land-use and natural resource conservation education presentations.

Learn more about:

- Natural resource-–based planning at: http://www.dnr.state.mn.us/nrig/index.html
- The National NEMO Network at: http://nemo.uconn.edu/national/index.htm

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Natural Resources Stewardship Education

Key Indicator Gaps

Indicator Gaps:

Although the indicators in this report have data of sufficient quality and coverage to support trend reporting, we recognize gaps in our ability to report on important education and natural resources trends. The following is a preliminary list of important indicators that require either additional data or new monitoring efforts. When baseline and trend data for new indicators are available, cooperative efforts will be needed to establish conservation targets.

A preliminary list of indicator gaps include:

Indicators that measure change in stewardship behaviors resulting from DNR education programs.
Indicators that measure natural resource improvements resulting from DNR education programs. (For example, measures of lake improvements as a result of aquatic education programs).

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The Task Ahead

Natural resource conservation constantly faces new challenges and new opportunities. Increasingly our natural resources are influenced by global forces: global economics, global climate change, and unprecedented global social mobility.

As a natural resource organization, DNR must continually develop more effective tools to anticipate and respond to changing conditions that will influence the future health of natural resources. This report serves as a template for communicating through measurable indicators and targets how DNR programs are achieving mission results. It records things we are doing well to sustain our natural resources. It also records trends that pose troubling challenges for the future.

Indicators and Targets as Information Tools

Information is key to sound natural resource management. Indicators help us simplify and summarize complex data into concise measures. Good indicators are sensitive to natural resources change. They reflect public values. They are easily understood. They can be tracked over time.

Targets help us measure progress against specific benchmarks, to document accountability to real conservation results. Good targets are both short- and long-term, allowing us to demonstrate how programs progress toward both annual and extended goals. They clarify expectations with citizens and stakeholders. They help promote innovation and partnerships in achieving results.

Continuous Improvement

This report uses indicators to help clarify and document natural resource trends and targets to document progress. Our goal is to more effectively tie performance to budgeting and planning and continuously improve management.

DNR is committed to being a leader in the use of performance indicators. We must enhance the effective use of indicators and targets in two major ways:

1) DNR and partners need to cooperatively develop new indicators that gauge changes in natural resource conditions more accurately than existing indicators. We will need to foster partnerships to share the costs of natural resource monitoring.

2) DNR needs to work closely with stakeholders to develop both short- and long-term targets that focus attention on the most important conservation results.

Conservation of natural resources is the responsibility of all citizens. Good information is a foundation for natural resources stewardship. DNR welcomes broad participation in our efforts to improve our ability to measure progress toward our conservation mission.

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Number of DNR staff trained in use of the Ecological Classification System - pg. 86
Number of Subsection Forest Resources Management Plans (SFRMPs) completed - pg. 87

Private forest stewardship

Acres of private forestlands with forest stewardship plans - pg. 88

Forests key indicator gaps

A preliminary list of important indicators that require either additional data or new monitoring efforts. - pg. 89

Outdoor Recreation Indicators

Trails

Number of acres of state forests with a completed forest road and trail inventory; number of miles and location of OHV trails designated and closed - pg. 94
Acres of natural vegetation restored and managed within trail rights-of-way - pg. 95
Number of state trail miles acquired; number of state trail miles developed - pg. 96
Number of state trail miles rehabilitated - pg. 97

Water access

Number of access points acquired and/or developed along high-priority lakes and rivers - pg. 98
Number of safe harbors and accesses developed along Lake Superior - pg. 99

Recreation safety and enforcement

Number of students completing safety training classes; number of fatalities per 100,000 registrations (watercraft, OHV, snowmobile) - pg. 100

State Parks

Percentage satisfied with visit to a Minnesota state park - pg. 101
Acres of natural vegetation actively maintained or restored in the state park system - pg. 102
Maintenance and restoration of historic buildings, structures, and districts within state parks - pg. 103

Outdoor Recreation key indicator gaps

A preliminary list of important indicators that require either additional data or new monitoring efforts. - pg. 104

Natural Resources Stewardship Education Indicators

(Note: see other sections for additional education and stewardship related indicators)

Number of participants involved in MinnAqua fisheries aquatic education program - pg. 108
Number of individuals educated about river and stream systems - pg. 109
Public involvement in DNR forestry education programs - pg. 110
Percentage of park visitors participating in outdoor education activities - pg. 111
Number of local officials and citizens attending educational presentations about land use and natural resource conservation - pg. 112

Natural Resources Stewardship Education key indicator gaps

A preliminary list of important indicators that require either additional data or new monitoring efforts. - pg. 113

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