

SECTION FOUR: FISHERIES AND WILDLIFE

GOAL: MINNESOTA'S FISH AND WILDLIFE POPULATIONS WILL BE HEALTHY AND PROVIDE GREAT RECREATION OPPORTUNITIES

Strong conservation partnerships will create a future where fishing, hunting, trapping, and wildlife-viewing opportunities meet the



expectations of hunters, anglers, and wildlife watchers. Minnesota has a rich and important fishing and hunting tradition. Fishing, hunting and the taking of game and fish are recognized in the Minnesota State Constitution as a valued part of Minnesota's heritage that shall be forever preserved

for the people and managed by law and regulation for the public good. Minnesotans and visitors have access to rich public lands and recreational opportunities. Businesses that depend on fish and wildlife resources support sustainable management of these resources. This goal for the future envisions:

• **Fish and wildlife populations and the habitats that support them are healthy.** Habitat types in jeopardy, such as prairies and grasslands, wetlands, and shallow lakes, are restored. Endangered and threatened species, species of special concern, and species in greatest conservation need are conserved.



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

• **Conservation partnerships and stewardship ethics are strong.** Public and private-sector partners work together to support Minnesota's resources and promote conservation.

Conservation education and enforcement 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

POSITIONING DNR FOR THE FUTURE

- DNR is organizing much of its work around the major habitats that Minnesotans voted to protect, enhance and restore through the 2008 Legacy Amendment - forests, prairies, wetlands, and other fish and wildlife habitat. This will help us work more efficiently and effectively with partners to deliver the conservation results that Minnesotans want.
- DNR is adapting conservation delivery by working with partners using more systematic and coordinated approaches toward achieving shared priorities and outcomes.
- DNR is pursuing more fish and wildlife habitat projects that also have significant clean water benefits.

habitat. Our increasingly urban population may not always be aware of fish and wildlife needs and laws. Conservation education can improve people's conservation knowledge and help everyone appreciate and nurture Minnesota's abundant fish and wildlife resources.

Retooling our management and channeling our resources in new ways will prepare us for these rapidly changing trends. We will take advantage of new opportunities for managing our natural lands to sustain our wildlife while meeting emerging markets for biomass energy and carbon storage. Minnesotans have voiced unprecedented support for habitat and wildlife protection and we are seeing continued **growth in conservation partnerships** between public and private entities. The 2008 Legacy Amendment secures constitutionally dedicated funds for the protection, restoration and enhancement of

CRITICAL TRENDS

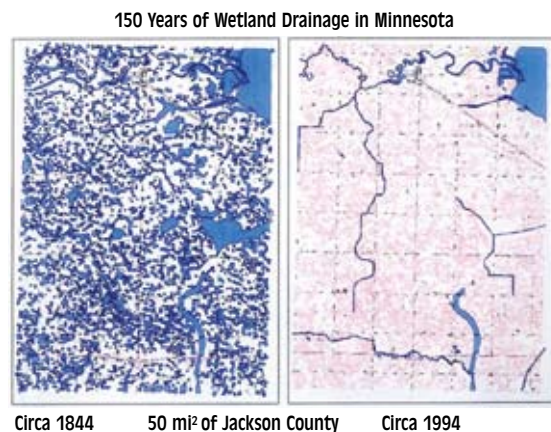
Strong partnerships, innovation, and leadership will help DNR and partners achieve these desired future conditions in the face of critical trends.

Loss of habitat as natural lands and waters are converted and developed for other purposes is a continuing challenge. High conservation value habitat such as wetlands and lakeshore are under threat from drainage and pollution. These habitats not only supply wildlife habitat they are critical to water quality, local economies, and recreation. Habitat loss is exacerbated by increasing fragmentation of land ownership making it harder to maintain quality habitat and reducing citizen access to hunting, fishing and wildlife-watching opportunities.

The **cumulative effects of stresses** – a changing climate, invasive species, disease, pollution, and land conversion – all lead to an unprecedented challenge to ensuring the persistence of the Minnesota's wide range of fish and wildlife species and habitats. Events occurring far from Minnesota, such as the 2010 Gulf oil spill, can also impact migratory wildlife species such as loons and waterfowl.

Increasing recreational and economic demands on fish and wildlife resources create potential for conflict. Some hunters want motorized access, while others want silence. Different people want land managed for different economic uses. What all users have in common is the need for increased access and opportunities.

Managing **interactions between people and wildlife** also challenges us. More people are spending more time in places that bring them into contact—and sometimes conflict—with deer, geese, turkey, bears, and other animals. Wildlife damage to crops and other resources may increase with changes in human and wildlife populations and with changes in the quantity and quality of



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.

FISH AND WILDLIFE RESOURCE FACTS

- **16,000 miles of fishable streams**
- **5,400 fishing lakes**
- **More than 50 wildlife game species managed through regulated harvest**
- **More than 1,100 known wildlife species; many in conservation need**
- **15% of Minnesotans hunt or trap**
- **29% of Minnesotans fish**
- **54% of Minnesotans view/photograph wildlife**

prairies, forests, wetlands, and other fish and wildlife habitat for 25 years. Agencies and organizations are working together to restore and protect habitat and promote conservation of specific species.

Conserving fish and wildlife is a large and complex task. Emerging challenges from new and changing conditions including a shifting climate, changing land use, and expanding invasive species will 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 through the indicators and targets outlined here, we look forward to working with our partners in the months and years ahead.

FISHERIES AND WILDLIFE INDICATORS & TARGETS

INDICATOR	TARGET	PAGE
Fisheries resources		
Walleye population levels; numbers of walleye stocked	Maintain walleye population levels within normal range of variability for all categories of walleye lakes	68
Brown trout population levels	Maintain or increase populations of larger brown trout and add 10 miles of easements on southeastern Minnesota trout streams by the end of 2011	69
Lake Superior steelhead catch rates and spawning numbers	Maintain an average catch rate of 0.06 to 0.10 for steelhead greater than 16 inches 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	70
Percentage of wild lake trout in the recreational fishery of Lake Superior	Achieve a self-sustaining lake trout population capable of supporting a productive fishery. Continue to reduce or eliminate stocking in MN-1 when criteria are met	71
Number of metro region ponds stocked for fishing and education	Stock 40 to 45 ponds, primarily with bluegill and crappie, in FY 2011 and 2012	72

Wildlife resources		
Chronic wasting disease and bovine TB sampling of harvested deer	DNR will maintain targeted surveillance of wild deer for CWD for the foreseeable future and will continue bovine TB surveillance until achieving five consecutive years with no animals testing positive	73
Percent 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	74
Number of wild turkey hunting permits offered; harvest levels; range expansion	Continue to offer high numbers of turkey permits while maintaining hunter success of over 20% and open new permit areas as appropriate	75
Pheasant harvest levels and stamp sales	Achieve an annual average harvest of 450,000 pheasants	76
Ruffed grouse harvest levels	Provide an average annual harvest of 650,000 ruffed grouse	77
Number of landscapes designated as priority open landscape areas	Designate 44 LTAs across the forest and transition zones of Minnesota as priority open landscape areas during DNR's Subsection Forest Resource Management Plan development process	78
Acres of prairie wetlands and grasslands protected annually	Increase the number of high-quality prairie wetland complexes through the restoration and protection of a total of 40,000 wetland and grassland acres by all partners each year	79
Acres of moist soil units established	Working with partners, add 12,000 acres of seasonal wetlands across multiple ownerships using moist soil management techniques by 2012	80
Number of wild rice lakes actively managed for waterfowl	Working with partners such as Ducks Unlimited, actively manage 300 wild rice lakes by 2013	81
Minnesota's share (%) of the yearly Mississippi Flyway duck harvest	Increase Minnesota's share of the Mississippi Flyway duck harvest to 1970s average levels of one duck in six by 2011	82

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FISHERIES AND WILDLIFE INDICATORS & TARGETS

INDICATOR	TARGET	PAGE
Fish and wildlife enforcement		
Number of law enforcement hours by activity	Maintain FY 2010 enforcement hours spent on game and fish enforcement in FY 2011	83
Number of enforcement hours designated to work experimental and special regulation waters	Maintain FY 2010 enforcement hours spent on experimental and special regulation waters in FY 2011	84
Nongame wildlife populations		
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	85
Frog and toad species distribution	Maintain or increase the distribution of frog and toad species	86
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	87
Wolf population in Minnesota	Achieve federal delisting and return gray wolves to state management	88
Number of species on the Minnesota endangered species list	Move fewer species to endangered status with each list revision	89
Number of species in greatest conservation need and key habitats for which we have updated status information	Obtain information needed to update the status or trends of SGCN populations and key habitats, develop and implement monitoring protocols for one additional key habitat or species by 2012, and complete one additional species management plan by 2013	90

WALLEYE STOCKING

INDICATORS: Walleye population levels; numbers of walleye stocked

WHY IS THIS INDICATOR IMPORTANT?

Walleye fishing is an integral part of Minnesota's outdoor fishing heritage. Twenty-nine percent of Minnesotans fish for fun, and about 300,000 non-residents fish in Minnesota; nearly 2 out of 3 anglers will fish for walleye sometime during the year.

WHAT IS DNR DOING?

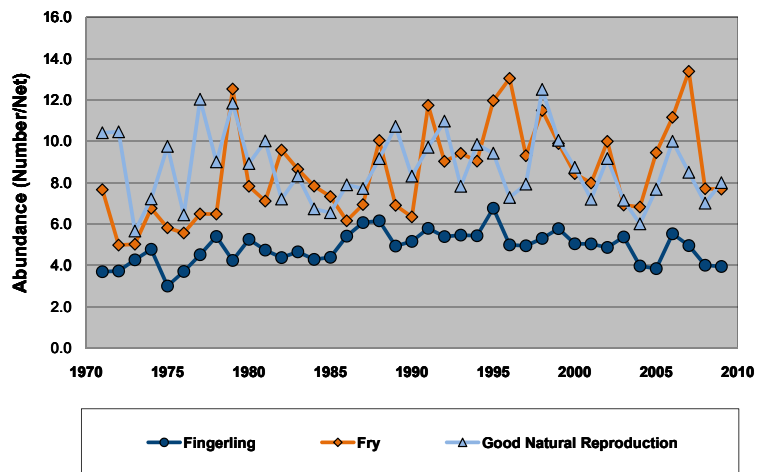
DNR protects and improves walleye habitat and regulates walleye harvest in over 1500 lakes; and stocks walleye into about 1,000 lakes where natural reproduction is either absent or insufficient. With public input, DNR sets fisheries management objectives for each lake, including population goals for various species and stocking plans to achieve those goals. Plans are typically updated or revised every five to 10 years. In 2010, DNR revised its walleye stocking guidelines to incorporate the latest scientific information and an explicit goal of maximizing walleye abundance for angling. DNR also assesses walleye populations and establishes regulations to improve the quality of the walleye fishery on lakes where such regulations make sense. Walleye populations will be evaluated over the next decade to determine if they are responding to increased stocking and the new strategies.

About 600 lakes are stocked with an average of about 160,000 pounds of fingerling (4- to 10-inch) or larger walleye each year. Another 400 lakes are stocked with nearly 350 million fry annually, and 20 lakes are stocked with 2-inch frylings; research is underway to evaluate less expensive frylings as an alternative to fingerlings.

DNR operates 12 hatcheries that hatch nearly 500 million fry annually; raises about 114,000 pounds of fingerlings and yearlings annually; and purchases another 50,000 pounds of fingerlings from private aquaculture facilities. Because most walleye fingerlings are raised in natural wetlands, annual production is greatly influenced by weather.

TARGET: Maintain walleye population levels within normal range of variability for all categories of walleye lakes. Walleye abundance in most lakes remains good and within the normal range of variability, while walleye stocking adds recreational opportunities; most walleye caught in Minnesota are from natural reproduction in self-sustaining lakes. DNR netting surveys can be used to evaluate whether population levels are meeting management goals. Most lake management plans have a numeric goal for the number of walleye caught in netting surveys. By comparing the survey results to the lake management goals we can evaluate overall program success.

Walleye Abundance for Three Categories of Walleye Lakes



Walleye abundance for three categories of walleye lakes. Good Natural Reproduction lakes are not stocked.



Walleye

BROWN TROUT POPULATIONS

INDICATOR: Brown trout population levels

WHY IS THIS INDICATOR IMPORTANT?

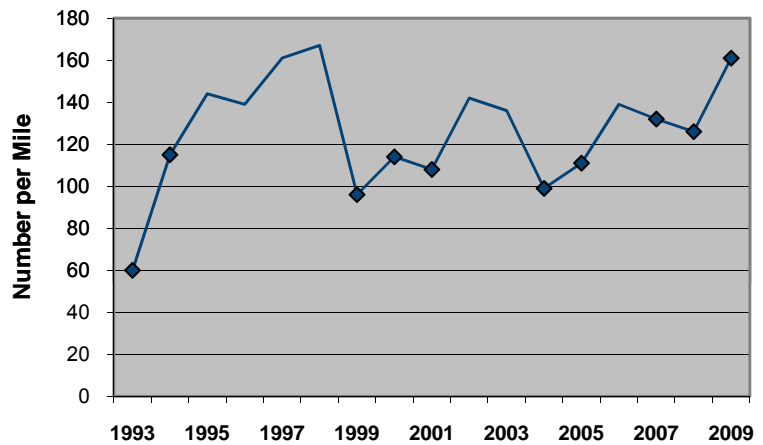
Trout management in southeastern Minnesota streams dates back to the 1870s with the introduction of angling regulations and trout stocking. Today, southeastern Minnesota has 181 cold-water streams totaling 790 miles. This resource provides a popular fishery with an estimated 53,000 angler-trips annually generating an economic impact of almost \$30 million in sales and \$18 million in income. Healthy trout populations are needed to maintain angler satisfaction.

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 populations of larger brown trout and add 10 miles of easements on southeastern Minnesota trout streams by the end of 2011. (See Aquatic Management Areas indicator for progress on easement acquisition). DNR is updating a long-range plan for the management of trout streams in southeastern Minnesota from 2010–2015. 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.

Abundance of Brown Trout ≥ 12 Inches



Number of brown trout ≥ 12 inches per mile in southeastern Minnesota trout streams.



Brown trout. DNR aims to maintain or increase populations of larger brown trout in southeastern Minnesota trout streams.

LEARN MORE ABOUT:

- Trout fishing at: www.mndnr.gov/fish/trout
- Other fish species at: www.mndnr.gov/fishing

STEELHEAD TROUT POPULATIONS

INDICATORS: Lake Superior steelhead catch rates and spawning numbers

WHY IS THIS INDICATOR IMPORTANT?

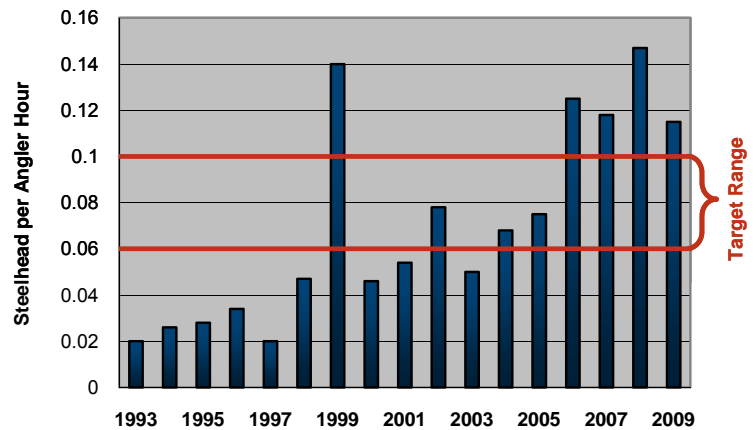
Steelhead were introduced into Lake Superior in 1895 and have since become naturalized throughout the lake. They migrate up streams to spawn each spring and are highly prized by sport anglers for their fight and beauty. During the 1970s and 1980s numbers declined due to overfishing, habitat degradation, 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 18 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 2003 with a renewed effort to rehabilitate steelhead in the Knife River system and continue the positive direction the population has taken over the past 15 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 0.06 to 0.10 for steelhead greater than 16 inches 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 (≥ 16 inches) from Lake Superior



Catch rate of wild steelhead from Lake Superior spring anadromous creel surveys, 1993-2009.



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

LEARN MORE ABOUT:

- Lake Superior fisheries management at: www.mndnr.gov/areas/fisheries/lakesuperior/management.html
- Minnesota trout fishing at: www.mndnr.gov/fish/trout
- Other fish species at: www.mndnr.gov/fishing

LAKE TROUT POPULATIONS

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

WHY IS THIS INDICATOR IMPORTANT?

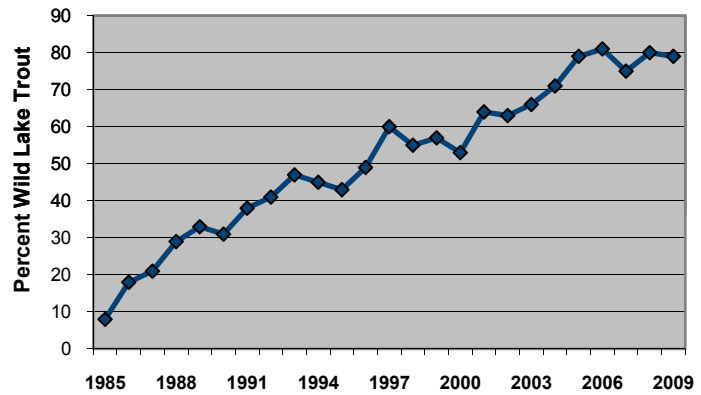
The lake trout is the top native predator in the Lake Superior ecosystem and the most harvested salmonid in the recreational fishery. Commercial overfishing in the 1940s and 1950s and predation by exotic sea lamprey during the 1950s virtually extirpated the fish. Since then, fish management agencies around Lake Superior have been working together, facilitated by the Great Lakes Fishery Commission (GLFC), to rehabilitate lake trout. Rehabilitation efforts include sea lamprey control, harvest regulation, 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. In the Minnesota waters of Lake Superior, three zones have been established for lake trout management. Self-sustaining populations have been established in MN-2 and MN-3, in MN-1 rehabilitation is still occurring.

WHAT IS DNR DOING?

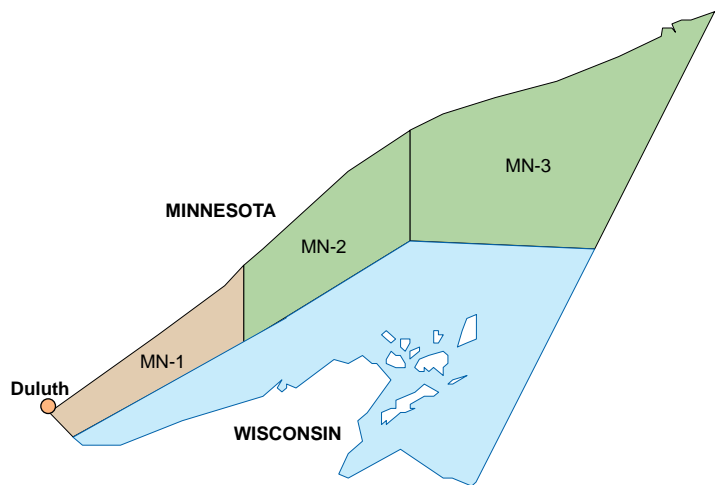
Strategies for lake trout rehabilitation are outlined in *Lake Superior Fisheries Management Plan for the Minnesota Waters of Lake Superior 2006*. DNR continues to work with the GLFC and the U.S. Fish and Wildlife Service to control sea lamprey. Restrictive commercial fishing and a regulated sport fishery also have helped. Because of high natural reproduction by lake trout, stocking has been greatly reduced in Minnesota, and discontinued in the upper two-thirds 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 completed Statistical-Catch-At-Age models that will help determine total allowable catch for the lake trout fishery.

TARGET: Achieve a self-sustaining lake trout population capable of supporting a productive fishery. Continue to reduce or eliminate stocking in MN-1 when criteria are met.

Percent Wild Lake Trout in the Lake Superior Summer Creel Survey 1985-2009



Percent wild lake trout in the Lake Superior summer creel survey 1985-2009.



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 upper two-thirds of Minnesota waters (MN-2 and MN-3). In MN-1, rehabilitation is still occurring.

LEARN MORE ABOUT:

- Lake Superior Fisheries Management at: www.mndnr.gov/areas/fisheries/lakesuperior/management.html
- Minnesota trout fishing at: www.mndnr.gov/fish/trout
- Other fish species at: www.mndnr.gov/fishing

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 hundreds of small lakes suitable for fisheries management. We need to provide adequate shore-fishing locations and fishery management in the metro region to assure future generations will have opportunities to experience our outdoor fishing heritage.

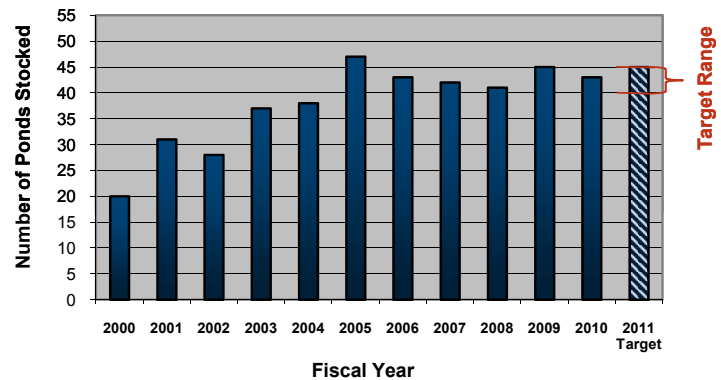
WHAT IS DNR DOING?

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, shore-fishing structures, and fishing piers on small, local lakes. These projects are accomplished through cooperation with local groups. The program also collaborates with the MinnAqua program to meet with schools, environmental learning centers, or other organizations to provide quality education and outreach.

In order to promote fishing among underrepresented communities, DNR responded to public requests to increase white bass fishing opportunities in Central Minnesota by stocking metro lakes with adult white bass and organizing various fishing events. DNR and partners staffed a Take-A-Kid-Fishing event at Lake Phalen to promote fishing within the southeast asian community. DNR is currently exploring the potential for managing additional metro lakes for white bass.

TARGET: Stock 40 to 45 ponds, primarily with bluegill and crappie, in FY 2011 and 2012.

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. In FY 2010, FiN partnered to reach over 5,000 youth and families during 103 angling and education events.

LEARN MORE ABOUT:

- Fishing in the Neighborhood at: www.mndnr.gov/fishing/fin
- Fisheries aquatic education at: www.mndnr.gov/minnaqua

CHRONIC WASTING DISEASE AND BOVINE TUBERCULOSIS

INDICATOR: Chronic wasting disease (CWD) and bovine TB 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 and each year nearly half a million deer hunters generate \$263 million of retail spending. Chronic wasting disease (CWD), a fatal disease of cervids (deer, elk and moose), has not been detected in the state’s wild deer population, but has been found in three captive elk farms and one captive deer facility. Although the disease is not known to affect human health, it has the potential to increase mortality in wild deer populations. Bovine tuberculosis (TB) was found in a northwestern Minnesota cattle herd in 2005 and the disease “spilled over” into wild deer. So far bovine TB in wild deer has been restricted to a relatively small geographic area of less than 200 square miles and the prevalence is declining.

WHAT IS DNR DOING?

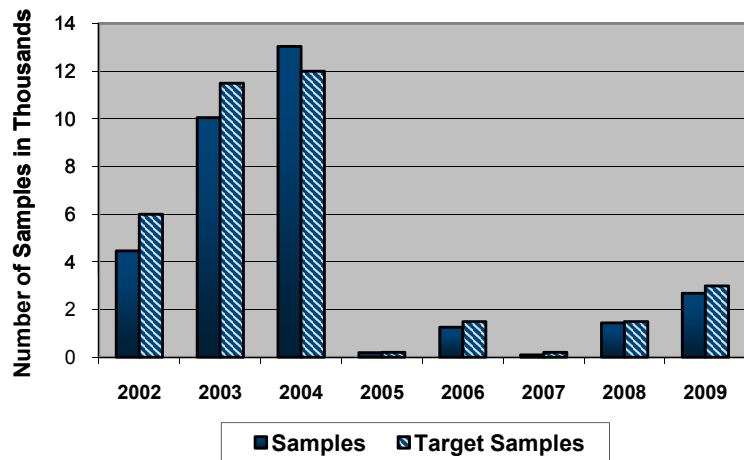
Legislation has allowed us to take preventive steps to minimize the risk of CWD being brought into the state. From 2002 to 2004 DNR conducted a statewide surveillance effort testing 28,000 samples of hunter-harvested deer for the disease. DNR efforts now focus on targeted surveillance, testing for CWD in sick deer or deer exhibiting symptoms of CWD and in wild deer when the disease is found in captive cervid farms within our state or in wild deer within our border states. In the bovine TB area, DNR banned feeding of wild deer or elk, liberalized hunting opportunities to help reduce deer densities, provided landowner shooting permits, and used ground and aerial sharpshooters to further reduce deer densities in the core area and to remove TB positive animals.

TARGET: DNR will maintain targeted surveillance of wild deer for CWD for the foreseeable future and will continue bovine TB surveillance until achieving five consecutive years with no animals testing positive. DNR met its original target to complete a statewide cervid monitoring for CWD detection by 2004. Since 2002, DNR tested more than 33,000 wild deer for CWD statewide. Since 2005, DNR has tested more than 8,100 deer in the bovine TB area and a total of 27 deer have tested positive.

LEARN MORE ABOUT:

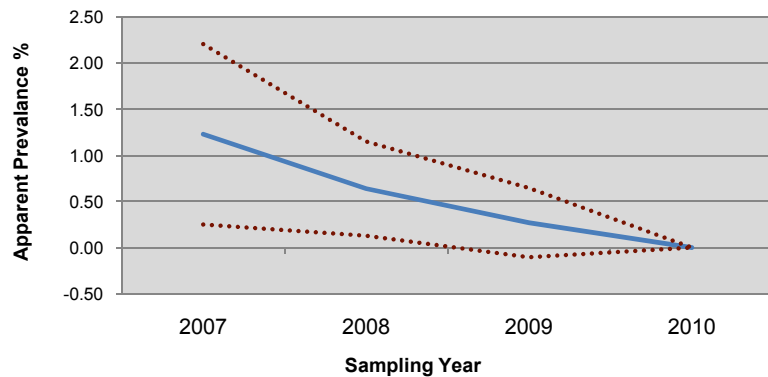
- CWD and monitoring at: www.mndnr.gov/mammals/deer/cwd

CWD Sampling of Harvested Deer



From 2002 to 2004 DNR conducted a statewide surveillance effort for chronic wasting disease. DNR efforts now focus on targeted surveillance.

Bovine TB Prevalence in Sharpshooter Harvested Deer



The declining trend in bovine TB apparent prevalence suggests that our efforts to mitigate risks of disease spread between cattle and deer have reduced or eliminated deer-to-deer transmission of this disease in the bovine TB core area. The dotted lines are statistical estimates of confidence in the apparent prevalence data.

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. While some individuals prefer high deer densities and annual harvest rates, there is a general belief that negative deer-human interactions have increased and contributed to a broadened public interest in deer management.

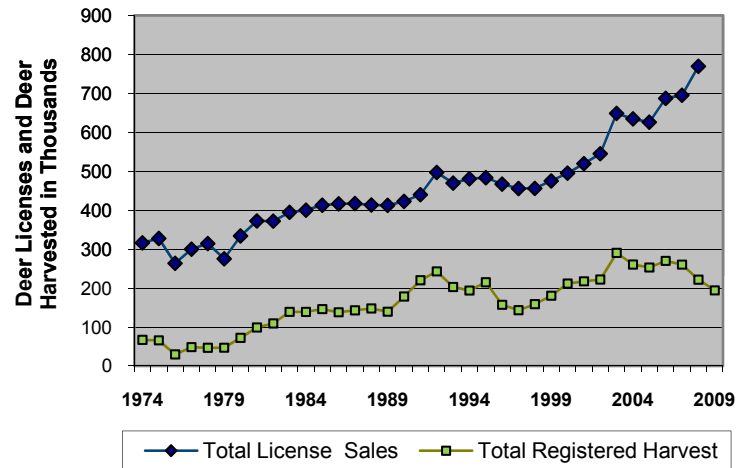
WHAT IS DNR DOING?

DNR modified the process of distributing either-sex deer permits in the 2003 season to facilitate antlerless deer harvest and improve customer service. Beginning in 2005 DNR brought stakeholders together to establish deer population goals in all deer permit areas. This process was completed in 2007. In addition, DNR researchers are determining the effectiveness of different regulatory packages to manage deer densities. Several surveys have been completed to determine both the biological effects and social impacts of the varying regulatory packages.

TARGET: Maintain deer populations within goal ranges in at least 75 percent of deer permit areas.

Currently nearly all of Minnesota's permit areas are within 25% of their goal population. DNR will meet the target by applying deer harvest strategies that manage deer populations within established goal levels. 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 that provide food for deer in forested areas are distributed across the landscape. DNR will increase the use of innovative regulations to manage deer populations. We will continue to target the harvest of antlerless deer when necessary. We will continue to expand youth hunting opportunities to improve hunter recruitment.

Total Deer License and Permit Sales and Harvest Levels



Deer hunting permits and harvest levels. Deer license and permit sales have increased to over 700,000 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.



White-tailed deer

LEARN MORE ABOUT:

- Deer hunting at: www.mndnr.gov/hunting/deer
- Other hunting at: www.mndnr.gov/hunting

WILD TURKEYS

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

WHY IS THIS INDICATOR IMPORTANT?

DNR began efforts to transplant wild turkeys to southeastern Minnesota in the late 1960s; this effort has been hugely successful. Turkeys are now established in approximately two thirds of southern and western Minnesota. 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 2010, DNR will offer nearly 56,000 permits in 77 permit areas. Healthy populations of turkeys and corresponding increases in permit availability have made turkeys a popular game bird.

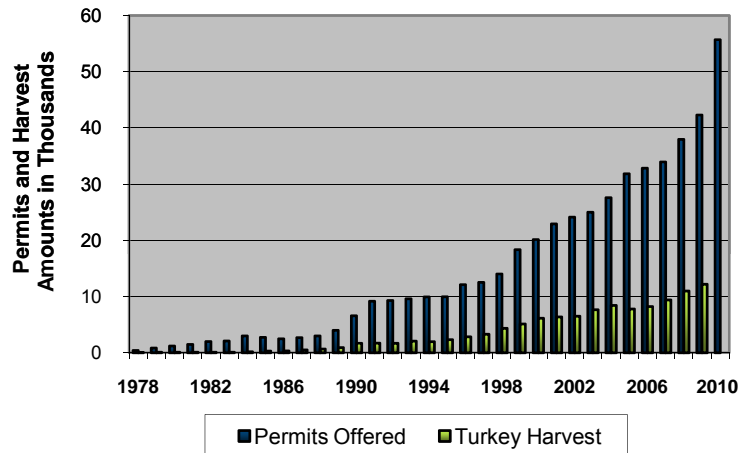
WHAT IS DNR DOING?

Since 1978 turkey permits have increased tremendously. DNR manages opportunity to hunt turkeys to ensure a balance between maximum opportunity to hunt, reasonable opportunity to harvest a bird, and safety. Over the past 10 years hunter success has ranged from 20 to 34 percent. Special youth hunts, in partnership with the National Wild Turkey Federation, have been very popular and serve the dual purpose of educating youth about the outdoors and recruiting the next generation of hunters. To provide even more opportunity, youth under 17 may now purchase their license over the counter, meaning that any youth who wants to hunt can obtain a license for any season. DNR also cooperates in research to evaluate impact of winter food on survival of wild turkeys at the northern portion of their range and has completed a six year plan to guide wild turkey management through 2011. These efforts will ensure healthy turkey populations and continued high hunter participation.

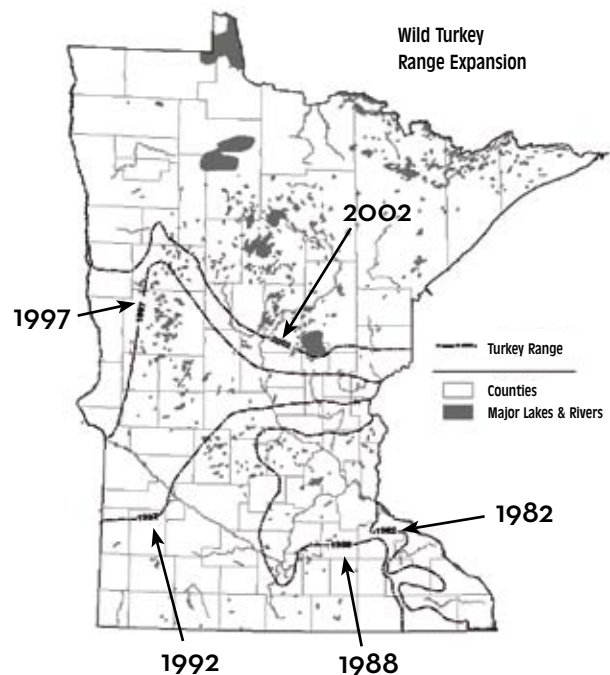
TARGET: Continue to offer high numbers of turkey permits while maintaining hunter success of over 20% and open new permit areas as appropriate.

DNR's wild turkey management plan provides 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. The long-term goal is to eliminate turkey hunt lotteries and permit quotas to the extent possible.

Wild Turkey Hunting Opportunities



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

LEARN MORE ABOUT:

- Wild turkey hunting and success rates by permit area at: www.mndnr.gov/hunting/turkey

PHEASANTS

INDICATOR: Pheasant harvest levels and stamp sales

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 healthy 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 correspond historically to economic benefits to agricultural regions.

WHAT IS DNR DOING?

Pheasant populations depend largely on land-use practices on private farmland. The single largest influence on land-use practices is U.S.

Department of Agriculture farm policy and programs.

Pheasant populations have fluctuated over the years in response to changes in farm policy.

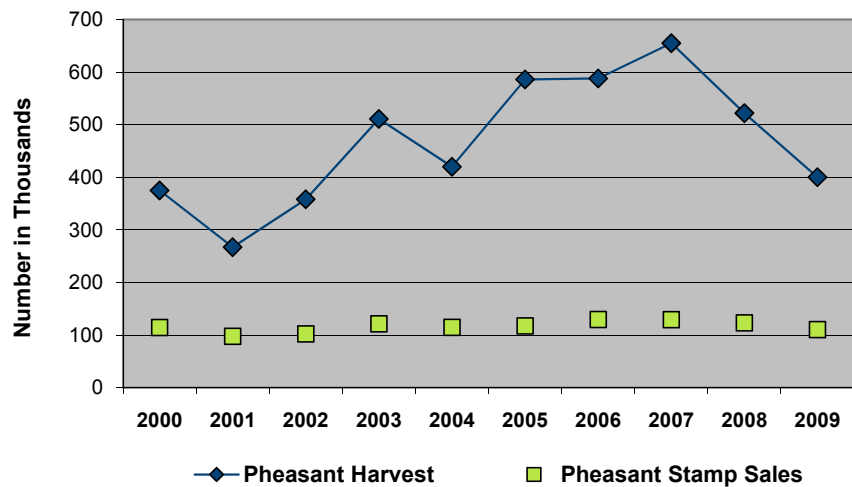
Populations were high until the "soil bank" long-term set-aside program ended in the mid-1960s and agriculture became more intensive and less diversified. Pheasant numbers have increased since long-term farm bill conservation programs resumed in the mid-1980s.

In 2008 the Farm Bill Assistance Partnership, in which DNR is a major partner, worked with private landowners to enroll nearly 5,500 acres into Federal conservation programs and assisted with mid-contract management on another 15,000 acres. Unfortunately, Minnesota started losing Conservation Reserve Program (CRP) acres in 2007 as existing CRP contracts expired and crop prices soared. CRP enrollment in Minnesota declined by 97,000 acres from 2008, including 72,000 acres in the pheasant range. Although this loss is significant, Minnesota has fared better than neighboring states. Permanently protected grasslands in Wildlife Management Areas, Waterfowl Production Areas and Federal Programs such as the Wetlands Reserve Program continue to increase, but are not making up for the loss of CRP.

TARGET: Achieve an annual average harvest of 450,000 pheasants.

DNR completed a long-range plan to guide pheasant management in Minnesota through 2025. To meet the target we need a habitat base that can support an average fall population of 3 million pheasants. To support population levels DNR will continue to help accelerate land acquisition to protect critical pheasant habitat, direct farmland research toward better understanding of pheasant winter habitat and other needs, and provide technical and cost-share assistance to private landowners for improving pheasant habitat.

Pheasant Harvest and Stamp Sales



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.

LEARN MORE ABOUT:

- Pheasant hunting at: www.mndnr.gov/hunting/pheasant

RUFFED GROUSE

INDICATOR: Ruffed grouse harvest levels

WHY IS THIS INDICATOR IMPORTANT?

The ruffed grouse is one of Minnesota's most important game birds in terms of harvest. 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 contribute to high hunter satisfaction.

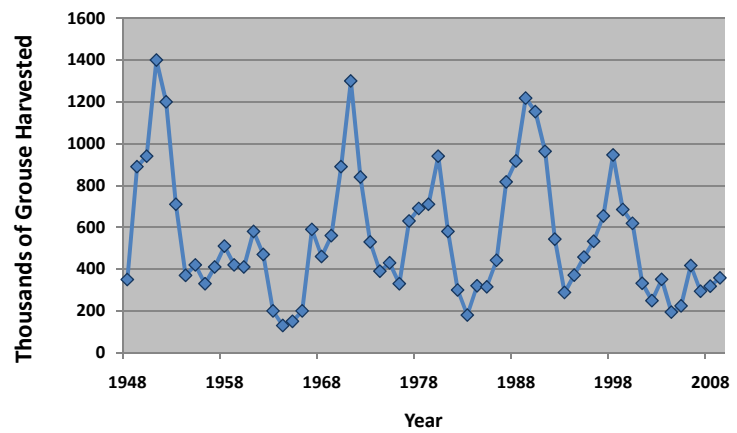
WHAT IS DNR DOING?

DNR is actively managing our aspen resource (an important part of grouse habitat) with continued strong aspen and balsam poplar harvest on state lands. Wildlife managers actively participate in DNR's Subsection Forest Resource Management Plan (SFRMP) development process, ensuring ruffed grouse habitat management issues are addressed. DNR is completing a long-range management plan for ruffed grouse. DNR is also partnering with nonprofit organizations to provide more emphasis on ruffed grouse management areas, hunter walking trails, and overall enhancement of grouse hunting opportunity. DNR and the Ruffed Grouse Society have jointly filled a position to promote the management of, and increased participation in, grouse and woodcock hunting, and enhancing habitat.

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 Plans and DNR Timber Sales indicators).

Ruffed Grouse Harvest Levels



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



Ruffed grouse

LEARN MORE ABOUT:

- Grouse hunting at: www.mndnr.gov/hunting/grouse

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, agriculture 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 15,000 in 1949 to some 5,000 in 1995; in 1999, the Minnesota population of sharp-tailed grouse was 70 percent below 1980 levels.

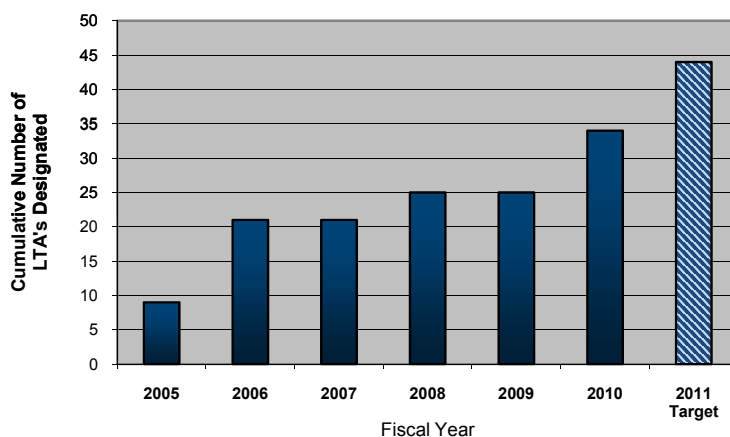
WHAT IS DNR DOING?

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 Plan development process. In addition to nine LTAs already designated as priority open landscape areas in the Mille Lacs subsection plan, in 2006 DNR designated three LTAs as part of the Chippewa Plains/ Pine Moraines and Outwash Plains subsection planning process. In 2011 we anticipate five LTA designations for the Anoka Sandplains and five for the Hardwood Hills SFRMPs. DNR will focus brushland management and funding within these LTAs to maintain them as open landscape areas. DNR will also use forest management activities to enhance brushland within these areas.

TARGET: Designate 44 LTAs across the forest and transition zones of Minnesota as priority open landscape areas during DNR's Subsection Forest Resources Management Plan development process.

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

Land Type Associations (LTAs) Designated as Open Landscapes



Land Type Associations (LTAs) designated as open landscapes. DNR's target is to designate 44 LTAs across the forest and transition zones of Minnesota as priority open landscape areas.



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.

LEARN MORE ABOUT:

- Subsection Forest Resource Management Plan process at: www.mndnr.gov/forestry/subsection/index.html
- Sharp-tailed grouse at: www.mndnr.gov/snapshots/birds/sharptailedgrouse.html

PRAIRIE WETLAND COMPLEXES

INDICATOR: Acres of prairie wetlands and grasslands protected annually

WHY IS THIS INDICATOR IMPORTANT?

Prairie wetland complexes—restored or native grasslands mixed with a range of wetland types and sizes—are important for many species, including waterfowl, shorebirds, amphibians, pheasants, and deer. Prairie wetland complexes provide great opportunities for Minnesotans to enjoy the outdoors through hunting and wildlife watching. They also provide resilient habitats in the face of global climate change. To meet wildlife needs, such complexes should be at least 4 square miles in size. At least 20 percent of the area should be in wetlands with a strong emphasis on seasonal wetlands. A minimum of 40 percent should be in grassland, with half as permanent grassland cover protected by easements or public land ownership.

We will work with public and private partners to restore and protect an additional 2 million acres of prairie wetlands and grasslands while maintaining our existing habitat base.

WHAT IS DNR DOING?

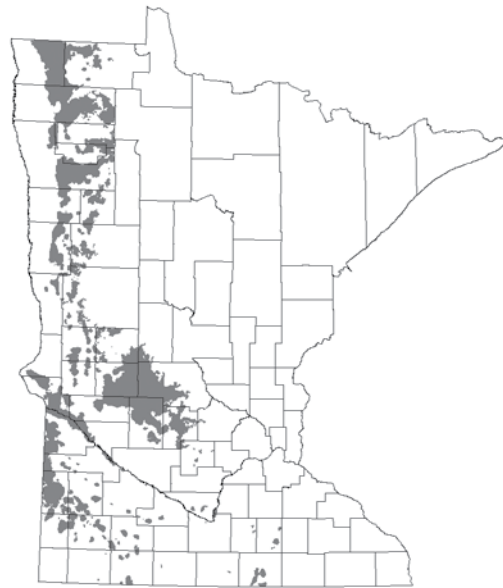
DNR programs that benefit prairie wetland complexes include enforcement, promotion of federal farm programs, and protecting and managing prairie wetland habitat through the Prairie Stewardship Program, Wildlife Management Areas, state parks, and Scientific and Natural Areas (see other specific indicators). DNR is also actively participating in and providing leadership for the Working Lands Initiative to better target conservation and agricultural programs that benefit prairie wetlands and grasslands. Local teams of public and private partners have identified target areas in 28 counties.

TARGET: Increase the number of high-quality prairie wetland complexes through the restoration and protection of a total of 40,000 wetland and grassland acres by all partners each year.

Despite more than meeting our objectives in 2006 and 2007, the loss of Conservation Reserve Program sign ups in 2008 and 2009 have overwhelmed those gains and the acres acquired through other programs. From 2005 to 2009 there was an overall net loss of 30,000 acres.



Prairie wetland complexes, found in the historical prairie areas of Minnesota, are valuable waterfowl habitat when they cover at least 4 square miles and include a variety of wetland and grassland types. This photo shows a cooperative Board of Water and Soil Resources/DNR restoration site.



DNR and partners are focusing efforts to conserve quality complexes that 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. The map shading represents areas with the best opportunities for restoring and protecting prairie wetland grassland complexes based on existing habitat.

LEARN MORE ABOUT:

- Wetlands at: www.mndnr.gov/wetlands
- Prairies at: www.mndnr.gov/prairierestoration
- Waterfowl hunting and habitat at: www.mndnr.gov/hunting/waterfowl

MOIST SOIL MANAGEMENT

INDICATOR: Acres of moist soil units established

WHY IS THIS INDICATOR IMPORTANT?

Waterfowl and waterfowling are important parts of Minnesota's natural and cultural heritage. Despite substantial losses in the quantity and quality of waterfowl habitat, Minnesota remains one of the most important production and harvest states in the Mississippi Flyway. In 2001, Minnesota waterfowl hunters and watchers spent more than \$224 million on trip expenses and equipment and generated more than \$20 million in state tax receipts.

DNR and partners have acquired and developed wildlife areas and managed shallow lakes and acquired permanent easements.

However, recent declines in breeding duck populations, hunter participation, and harvest have frustrated both hunters and managers. Habitat degradation and loss are still major barriers to success.

Seasonal wetlands attract and provide food for breeding ducks. Seasonal wetlands flooded in fall provide attractive habitat for migrating dabbling ducks and shorebirds. In addition, seasonal wetlands in the upper reaches of watersheds reduce flooding and improve water quality.

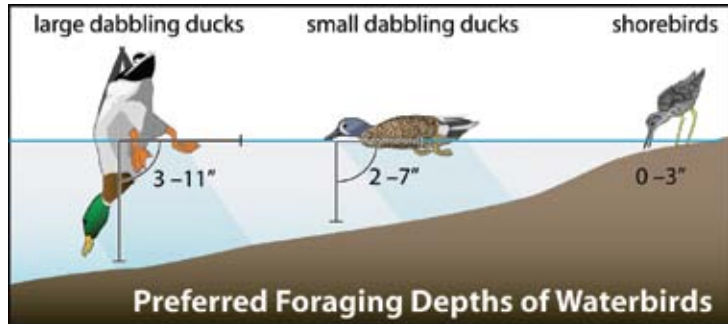
Moist soil management creates seasonal wetland habitat through intensive water-level management.

WHAT IS DNR DOING?

DNR is expanding moist soil management in Minnesota. DNR and partners are creating guidelines for development and management of moist soil units. Moist soil units have been established and are being established on several WMAs. DNR continues to partner with the Bois De Sioux WD to combine moist soils management with flood reduction in the Red River Valley.

Furthering this work on private lands will require a broader effort. DNR will capitalize on its new Division of Ecological and Water Resources' charge to enhance Minnesota's watersheds. The combination of staff in this division is uniquely positioned to work with local governments to navigate public drainage law and private landowners' land management needs. DNR will develop strategies that integrate moist soils management with agricultural production.

TARGET: Working with partners, add 12,000 acres of wetlands managed as seasonal wetlands across multiple ownerships using moist soil management techniques by 2012. As DNR and partners create and implement moist soil management guidelines and test new strategies for developing moist soil units, the target will be revisited to reflect new information on best management practices.



Fredrickson, L.H., & Dugger, B.D. 1993. Management of Wetlands at high altitudes in the Southwest. U.S. Department of Agriculture, Forest Service, Southwest Region, Washington, D.C.

Moist soil management is a wetland management technique that targets the creation of shallow water (less than 12 inches deep) to benefit dabbling ducks and shorebirds.

LEARN MORE ABOUT:

- Moist soil management at: www.mndnr.gov/hunting/waterfowl

WILD RICE LAKES

INDICATOR: Number of wild rice lakes actively managed for waterfowl

WHY IS THIS INDICATOR IMPORTANT?

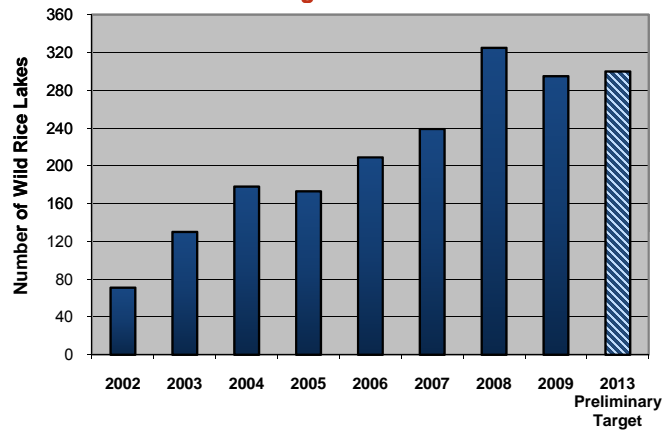
Minnesota has more acres of natural wild rice than any other state in the country. Wild rice has been historically documented in over 1,400 basins in 60 of Minnesota's counties. Wild rice lakes play an important social and cultural role in Minnesota's rural communities. They are also important habitat for wildlife—especially migrating waterfowl. Many wild rice lakes are traditional harvesting and waterfowl hunting areas.

WHAT IS DNR DOING?

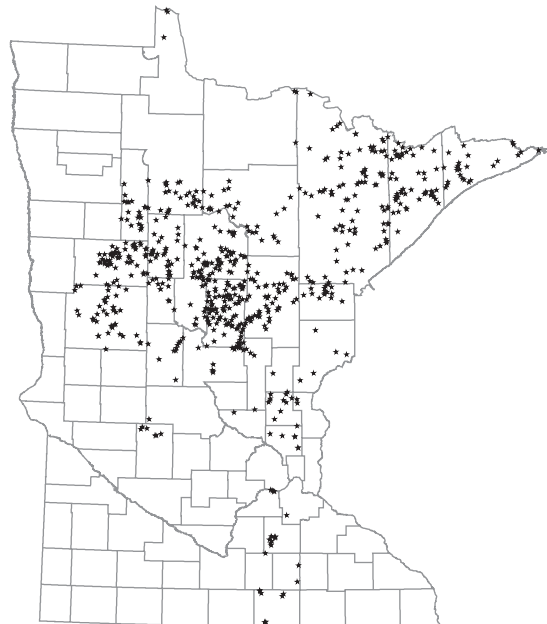
A DNR assessment found more than 1200 lakes and impoundments in 55 counties that contain significant wild rice. DNR is working with partners to increase the number of wild rice lakes that are actively managed for waterfowl. Activities include monitoring and managing water levels on wild rice lakes, improving 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, actively manage 300 wild rice lakes by 2013. Partnerships are critical to improving the quality of waterfowl habitat in areas throughout the state. In 2009, DNR and Ducks Unlimited managed 295 lakes and impoundments for a total of 110,334 acres of wild rice water. 2009 was an excellent year for wild rice harvest. 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 Complexes indicator).

Number of Wild Rice Lakes Actively Managed for Waterfowl



Number of wild rice lakes actively managed for waterfowl. 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.

LEARN MORE ABOUT:

- Wild rice lake management at: www.mndnr.gov/wildlife/shallowlakes/wildrice.html

MISSISSIPPI FLYWAY DUCK HARVEST

INDICATOR: Minnesota's share of the yearly Mississippi 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.

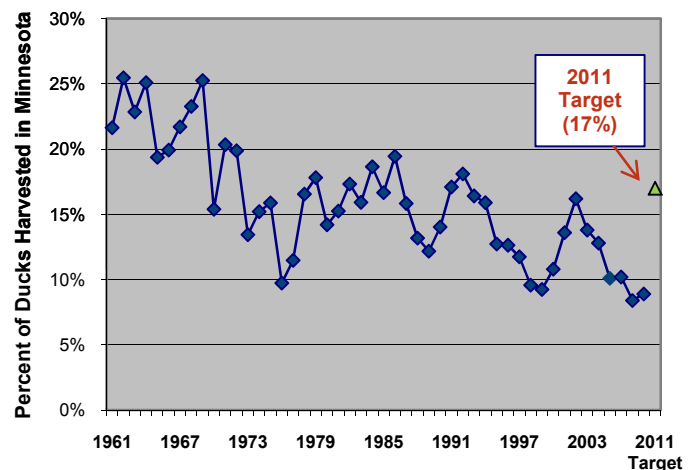
WHAT IS DNR DOING?

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 prairie wetland 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.

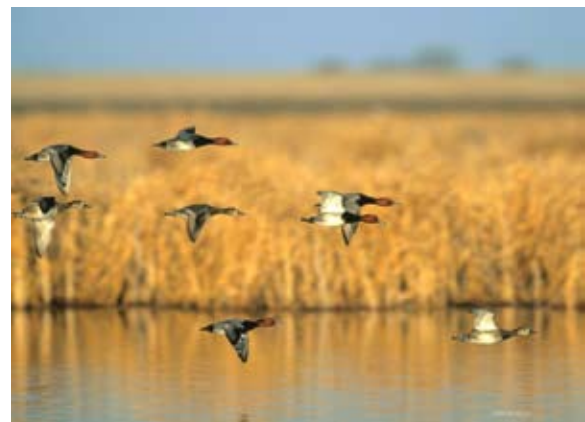
TARGET: Increase Minnesota's share of the Mississippi Flyway duck harvest to 1970s average levels of one duck in six by 2011. Currently we are not on track to meet the 2011 target. Duck populations take time to respond to habitat restoration and protection, and external factors (such as weather, other states' harvest levels, bag limits, and season length) influence Minnesota's harvest success. Two important challenges to meet this target include a 30% decline in duck hunter numbers since 1970 and the rapid conversion of Conservation Reserve Program (CRP) lands that offset progress toward protecting and restoring prairie wetland complexes.

Note: This indicator may be difficult to interpret; it gives a limited view of waterfowl population health, and consolidates many sources of information into just one measure. As a result, DNR will be reevaluating this indicator to determine if we can develop a more suitable measure related to duck use or abundance. U.S. Fish and Wildlife Service Harvest Information Program data for Minnesota and the Mississippi Flyway were used for estimates beginning in 2000. Future updates of *A Strategic Conservation Agenda* may include new indicators.

Minnesota's Share (%) of the Yearly Mississippi 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. Data from 2000 onward rely on the U.S. Fish and Wildlife Service [USFWS] Harvest Information Program [HIP] estimates.)



Redhead ducks

Bill Marchel

LEARN MORE ABOUT:

- Waterfowl hunting at: www.mndnr.gov/hunting/waterfowl

FISHERIES AND WILDLIFE ENFORCEMENT

INDICATOR: Number of law enforcement hours by activity

WHY IS THIS INDICATOR IMPORTANT?

DNR conservation officers exist to provide public safety, safety education, and ensure compliance with laws regarding state game and fish, recreational vehicles, non-motorized recreational activities, natural resource commercial operations, and environmental protection. Conservation officers protect our state's natural resources so that our investments into sound wildlife management practices are not lost. Without adequate law enforcement, a minority who violate the law can despoil our state's resources for the majority.

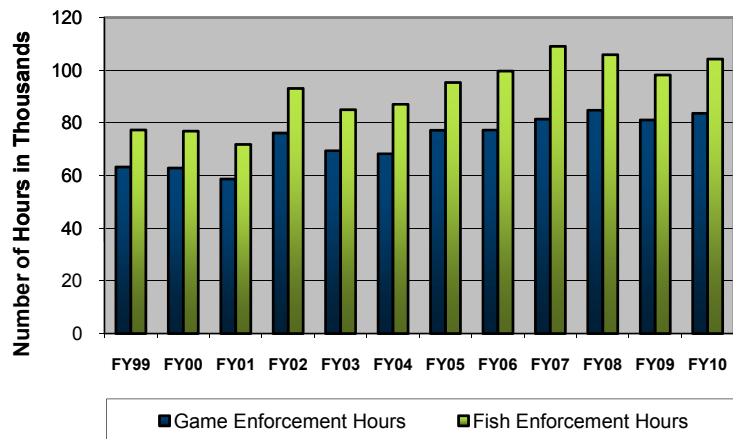
WHAT IS THE DNR DOING?

DNR has a three-pronged approach to gaining compliance with fish and wildlife regulations: information, education, and law enforcement, with enforcement action as the last action. Conservation Officers are often the first contact hunters and anglers have with the DNR. Besides performing routine license checks and reviewing daily catch allotments, they provide other natural resource information to hunters and anglers and other members of the public. As resource conditions and budgets change, DNR is constantly evaluating how best to ensure compliance with fish and wildlife regulations while meeting other enforcement priorities, for instance, the Waterfowl Task Force. Although still a priority, dropping waterfowl stamp license sales and a reduction in the number of available field officers will result in a reduction of the Task Force's operations.

TARGET: Maintain FY 2010 enforcement hours spent on game and fish enforcement in FY 2011.

Compliance with natural resource laws is difficult to measure. Our goal is to increase the compliance rate as well as maintain levels of service hours.

Number of Law Enforcement Hours by Activity



Number of law enforcement hours by activity.



LEARN MORE ABOUT:

- Enforcement at: www.mndnr.gov/enforcement/

LAW ENFORCEMENT ON EXPERIMENTAL AND SPECIAL REGULATION WATERS

INDICATOR: Number of enforcement hours designated to work experimental and special regulation waters

WHY IS THIS INDICATOR IMPORTANT?

DNR has provided increased opportunities for anglers by intensively managing individual lakes and streams. There are currently 323 experimental and special regulation waters in Minnesota. 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 rate can negatively affect the success of an experimental/special regulation water. 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 and promote compliance.

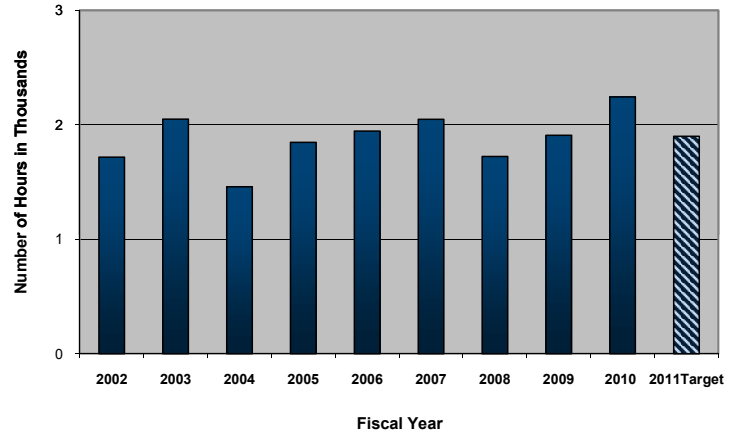
WHAT IS DNR DOING?

Retirements within the ranks of conservation officers have reduced DNR's ability to enforce fishing regulations. The current fiscal environment has negatively impacted our ability to hire replacement officers. In FY 09 approximately 55 percent of each officer's game and fish enforcement time was dedicated to fisheries related activities. Enforcement and fisheries staff work together to determine where enforcement efforts should be deployed to best support fisheries management. For example, enforcement officers utilize special funding for developing joint boating safety and fishery enforcement projects on priority waters throughout the state, including Red Lake, Rainy River, and Mississippi River.

TARGET: Maintain FY 2009 enforcement hours spent on experimental and special regulation waters in FY 2011.

In FY 2009 officers spent 1,909 hours working experimental and special regulation waters. Maintaining this enforcement effort should make management more effective and increase satisfaction among anglers and resorters.

Fish Enforcement Hours on Experimental and Special Regulation Waters



Conservation Officer hours in support of fisheries management on experimental and special regulation waters.



Anglers enjoy the fishing on a lake with special regulations.

LEARN MORE ABOUT:

- Enforcement at: www.mndnr.gov/enforcement
- Fishing at: www.mndnr.gov/fishing

LOON ABUNDANCE

INDICATOR: Loon population levels in six lake index areas

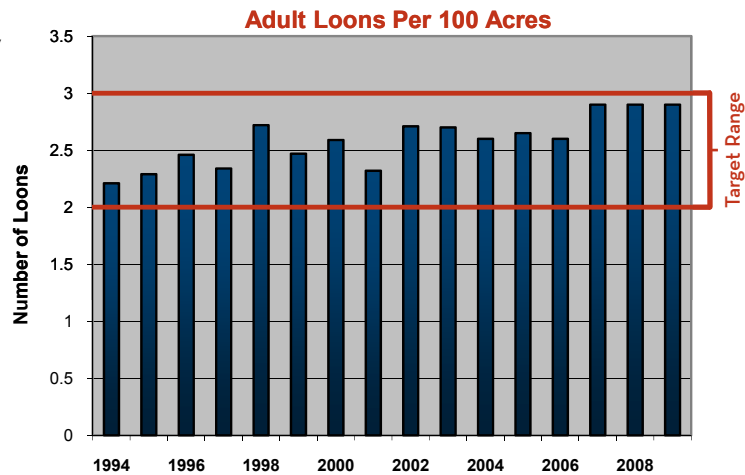
WHY IS THIS INDICATOR IMPORTANT?

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.

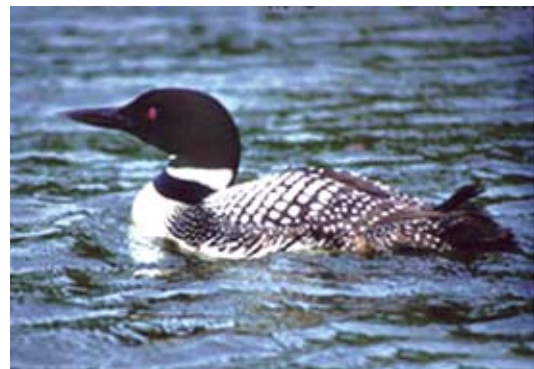
WHAT IS DNR DOING?

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 in the state. Because of natural variability, loon populations will fluctuate somewhat from year to year.



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.

LEARN MORE ABOUT:

- The common loon at: www.mndnr.gov/snapshots/birds/commonloon.html
- The Minnesota Loon Monitoring Project at: www.mndnr.gov/eco/nongame/projects/mlmp_state.html
- Volunteering for loon surveys at: www.mndnr.gov/eco/nongame/projects/loon_survey.html or www.mndnr.gov/eco/nongame/projects/mlmp_state.html

FROGS AND TOADS

INDICATOR: Frog and toad species distribution

WHY IS THIS INDICATOR IMPORTANT?

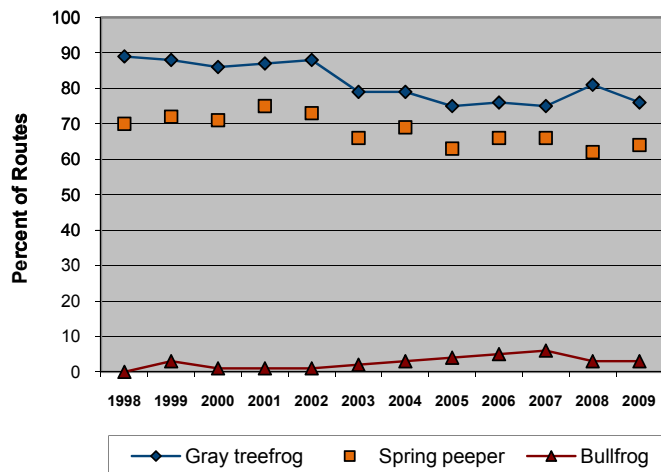
Biologists around the world have discovered that populations of frogs and toads are in decline. The causes are uncertain, but they likely include habitat loss and degradation, loss of stratospheric ozone, increased vulnerability to disease, and exposure to pollution and pesticides. With a life cycle 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 conducted the Minnesota Frog and Toad Calling Survey, which is designed to detect trends in the state's frog and toad populations over time. Trained volunteers conduct three nighttime surveys on routes distributed throughout the state, and report on which of the state's 14 species of frogs and toads are heard singing. Data are analyzed to evaluate changes in the distribution and abundance of these species within the state. In addition, it is hoped that wetland conservation efforts will have a positive impact on frog and toad distribution.

TARGET: Maintain or increase the distribution of frog and toad species. While atypical spring weather makes interpretation difficult, statewide population trends may be emerging for three species. There has been an apparent decrease in two species (gray treefrog and spring peeper) and an increase in bullfrogs. Additional years of data will allow us to clarify these possible trends.

Percent of Survey Routes on which Selected Frog Species were Heard



Percent of survey routes at which selected species were heard statewide during the Minnesota Frog and Toad Calling Survey 1998-2008.



Spring peeper

LEARN MORE ABOUT:

- Minnesota's frogs and toads at: www.mndnr.gov/reptiles_amphibians/frogs_toads
- The Minnesota Frog and Toad Calling Survey at: www.mndnr.gov/volunteering/frogtoad_survey

TOPEKA SHINER

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

WHY IS THIS INDICATOR IMPORTANT?

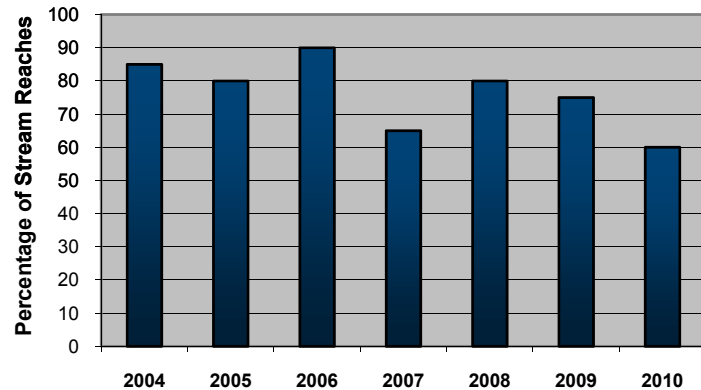
The Topeka shiner (*Notropis topeka*) was once a common prairie stream fish throughout the central United States. It received federal endangered status designation in January 1999 due to its disappearance from 80 percent of its historic range. The species' decline is attributed to the impacts of intensive agriculture, stream channelization, dam construction, and bank erosion on its habitat. Recent studies conducted by 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.

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, DNR works with private landowners to protect and restore its habitat. DNR also conducts an annual survey of 20 randomly-selected stream segments to monitor Topeka shiner distribution in the state, and to insure that the species remains well-distributed throughout its range in Minnesota.

TARGET: Maintain or increase the percentage of stream reaches in the Missouri River watershed with Topeka shiner present. Annual surveys indicate that the Topeka shiner remains well-distributed throughout its range in Minnesota.

Percentage of Stream Reaches with Topeka Shiner



Percent of stream reaches in which Topeka shiners were found. Minnesota is now home to one of the healthiest remaining populations of this prairie stream fish.



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

LEARN MORE ABOUT:

- DNR Topeka shiner surveys at: www.mndnr.gov/eco/nongame/projects/topeka_shiner.html
- Topeka shiner at: http://hatch.cehd.umn.edu/research/fish/fishes/topeka_shiner.html

WOLF MANAGEMENT

INDICATOR: Wolf population in Minnesota

WHY IS THIS INDICATOR IMPORTANT?

Since wolves were listed under the Endangered Species Act of 1973, the Minnesota wolf population has increased fourfold and expanded into Wisconsin and Michigan, resulting in a Western Great Lakes regional population of 4,000 wolves. The population in this region has greatly exceeded all measures of recovery called for in federal wolf recovery plans. However, despite multiple federal rules attempting delisting of Western Great Lakes wolves, delisting still has not occurred because of court challenges to the federal delisting process.

WHAT IS DNR DOING?

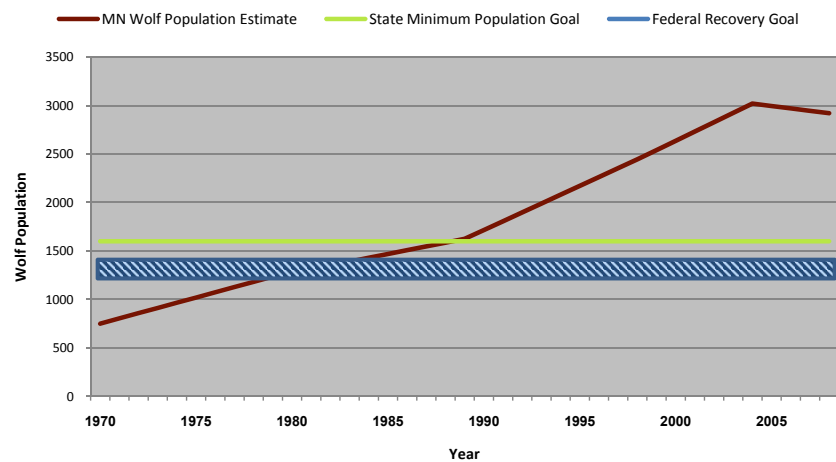
DNR monitors the wolf population through surveys, disease screening, and genetic analysis to evaluate population trends and health. DNR also works with the Minnesota Department of Agriculture and USDA Wildlife Services to implement an integrated wolf depredation management program.

Minnesota has gone through an extensive process to ensure wolf populations stay healthy after wolves are delisted. The Minnesota Wolf Management Plan, provides livestock owners and other citizens flexibility for managing wolves and addressing conflicts between wolves and domestic animals.

All criteria for delisting wolves have been met. DNR has petitioned to remove the wolf in Minnesota from the endangered species list. DNR is also working with the U.S. Fish and Wildlife Service to develop a federal rulemaking strategy that will result in delisting wolves.

TARGET: Achieve federal delisting and return gray wolves to state management. DNR's longstanding goal is to ensure the long-term survival of the wolf in Minnesota and resolve conflicts between wolves and humans. Population recovery goals for wolves have been exceeded for more than a decade in Minnesota and the Western Great Lakes region. The challenge at this time is to validate the success of that recovery effort and the effectiveness of the Endangered Species Act by removing this species from the federal threatened and endangered species list.

Minnesota Wolf Population Estimate



DNR monitors the wolf population through surveys, disease screening, and genetic analysis to evaluate population trends and health.

LEARN MORE ABOUT:

- Wolf management at: www.mndnr.gov/mammals/wolves/mgmt.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.

WHAT IS DNR DOING?

Minnesota Statutes, Sec. 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 of state and federal programs.



The timber rattlesnake, an endangered reptile.

TARGET: Move fewer species to endangered status with each list revision. DNR aims to complete the next revision of the state’s endangered species list by the end of 2010. DNR also completed a strategic assessment of the needs of wildlife species in greatest conservation need as part of its Wildlife Action Plan (see Wildlife Action Plan indicator). This plan articulates key measures of success and provides a blueprint for preventing the endangerment of additional wildlife species.

LEARN MORE ABOUT:

- Minnesota’s list of endangered, threatened, and special concern species at: www.mndnr.gov/ets/
- Minnesota Wildlife Action Plan at: www.mndnr.gov/cwcs

WILDLIFE ACTION PLAN

INDICATOR: Number of species in greatest conservation need and key habitats for which we have updated status information

WHY IS THIS INDICATOR IMPORTANT?

In 2001, Congress challenged states to develop wildlife conservation plans. Minnesota's response is documented in *Tomorrow's Habitat for the Wild & Rare: An Action Plan for Minnesota Wildlife*. The plan identifies 292 species as "species in greatest conservation need" (SGCN) because they are rare, populations are declining, or they face serious threats. It also identifies key habitats for conserving SGCN.

SGCN designation was based on information available when the plan was developed. For many SGCN, we need additional data to update their status today. It is important to monitor outcomes as we work to improve key habitats.

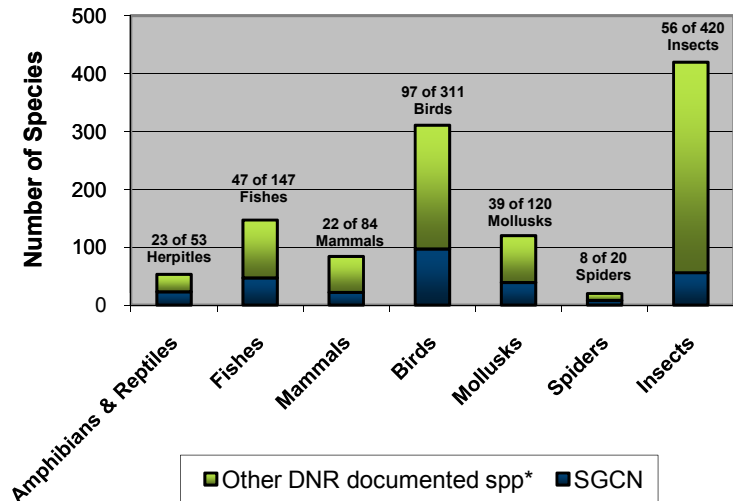
WHAT IS DNR DOING?

Since 2001, DNR has invested more than \$8 million in federal State Wildlife Grant funds to stabilize and increase populations of SGCN and improve key habitats. Central to this effort has been improving our knowledge about SGCN populations and key habitats. Species addressed include wood turtle, northern goshawk, Karner blue butterfly, timber rattlesnake, rare mussels, nongame fish, and dragonflies. Habitat monitoring has focused on prairie, which supports the greatest number of SGCN in Minnesota. We are determining the quantity of prairie remaining in the state. Working with the U.S. Fish and Wildlife Service and The Nature Conservancy, we also have established and implemented protocols to monitor the condition of prairie.

TARGET: Obtain information needed to update the status or trends of SGCN

populations and key habitats, develop and implement monitoring protocols for one additional key habitat or species by 2012, and complete one additional species management plan by 2013. Many other Conservation Agenda indicators address populations of SGCN (e.g., distribution of frogs and toads, wetland monitoring, loon population levels). These will also help us measure the success of the state wildlife action plan.

Species in Greatest Conservation Need (SGCN) in Minnesota



About one-quarter of Minnesota's nearly 1,200 assessed wildlife species are identified as species in greatest conservation need. Habitat conservation is important for these rare and declining species. (Note that the number of DNR-documented invertebrate species is substantially less than the total number in Minnesota.)



The bobolink is one of Minnesota's 97 bird species in greatest conservation need.

LEARN MORE ABOUT:

- Minnesota Wildlife Action Plan at: www.mndnr.gov/cwcs

FISHERIES AND WILDLIFE KEY INDICATOR GAPS

INDICATORS IN DEVELOPMENT:

A preliminary list of indicators in development includes:

Indicator to measure sturgeon populations and recovery efforts
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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 includes:

Indicators to measure compliance with special regulations as a result of education and enforcement
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Indicators to measure rate of shoreline development and loss of shoreline habitat

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 Species in Greatest Conservation Need
--

Indicators to measure the viability of populations of rare, threatened, and endangered species
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