Proposed Final – for discussion at December 15 council meeting

- **Outdoor Heritage Fund**

A 25-year framework:

Minnesota's conservation estate, historic conservation investments and future opportunities

Lessard-Sams Outdoor Heritage Council
December 10, 2010

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The Lessard-Sams Outdoor Heritage Council was created in the legislative branch in 2008, consisting of:

- two public members appointed by the senate Subcommittee on Committees of the Committee on Rules and Administration;
- two public members appointed by the speaker of the house;
- four public members appointed by the governor;
- two members of the senate appointed by the senate Subcommittee on Committees of the Committee on Rules and Administration; and
- two members of the house of representatives appointed by the speaker of the house.

Mr. Lester Bensch, owner/operator, Viking Valley Hunt Club, Ashby, Minnesota
Mr. Ryan Bronson, conservation specialist, Federal Premium Ammunition, Eagan, Minnesota
Mr. James Cox, independent business owner, Cologne, Minnesota
Mr. Wayne Enger, county executive director, USDA Farm Service Agency, Perham, Minnesota
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Rep. Bob Gunther, House District 24A, Fairmont, Minnesota
Rep. Rick Hansen, House District 39A, South Saint Paul, Minnesota
Mr. David Hartwell, president, Bellcomb Technologies, Minneapolis, Minnesota
Sen. Bill Ingebrigtsen, Senate District 11, Alexandria, Minnesota
Mr. Michael Kilgore (Chair), professor of natural resource economics and policy, University of Minnesota, Lino Lakes, Minnesota
Mr. Darby Nelson, retired professor of biology and environmental science, Champlin, Minnesota
Mr. Scott Rall, owner, Rall Financial Services, Worthington, Minnesota

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Minnesota Constitution, Article XI: Appropriations and Finances

Sec. 15. **Outdoor heritage, clean water, parks and trails, and arts and cultural heritage; sales tax dedicated funds.** Beginning July 1, 2009, until June 30, 2034, the sales and use tax rate shall be increased by three-eighths of one percent on sales and uses taxable under the general state sales and use tax law. Receipts from the increase, plus penalties and interest and reduced by any refunds, are dedicated, for the benefit of Minnesotans, to the following funds: 33 percent of the receipts shall be deposited in the outdoor heritage fund and may be spent only to restore, protect, and enhance wetlands, prairies, forests, and habitat for fish, game, and wildlife; 33 percent of the receipts shall be deposited in the clean water fund and may be spent only to protect, enhance, and restore water quality in lakes, rivers, and streams and to protect groundwater from degradation, and at least five percent of the clean water fund must be spent only to protect drinking water sources; 14.25 percent of the receipts shall be deposited in the parks and trails fund and may be spent only to support parks and trails of regional or statewide significance; and 19.75 percent shall be deposited in the arts and cultural heritage fund and may be spent only for arts, arts education, and arts access and to preserve Minnesota's history and cultural heritage. An outdoor heritage fund; a parks and trails fund; a clean water fund and a sustainable drinking water account; and an arts and cultural heritage fund are created in the state treasury. The money dedicated under this section shall be appropriated by law. The dedicated money under this section must supplement traditional sources of funding for these purposes and may not be used as a substitute. Land acquired by fee with money deposited in the outdoor heritage fund under this section must be open to the public taking of fish and game during the open season unless otherwise provided by law. If the base of the sales and use tax is changed, the sales and use tax rate in this section may be proportionally adjusted by law to within one-thousandth of one percent in order to provide as close to the same amount of revenue as practicable for each fund as existed before the change to the sales and use tax.
[Adopted, November 4, 2008]

Minnesota Statutes 97A.056, Subd. 3(i):

(i) The council shall develop and submit to the Legislative Coordinating Commission plans for the first ten years of funding, and a framework for 25 years of funding, consistent with statutory and constitutional requirements. The council may use existing plans from other legislative, state, and federal sources, as applicable.

Executive summary

Background

The Outdoor Heritage Fund (OHF) was established with the passage of the Clean Water, Land and Legacy Amendment in 2008. As directed by Minnesota Statutes, section 97A.056, the Lessard-Sams Outdoor Heritage Council (LSOHC) was formed to recommend appropriations from the OHF to the Minnesota Legislature. State statute also required that a 10-year plan and 25-year framework be developed and presented to the Legislative Coordinating Commission (LCC). This document fulfills that requirement with an analysis of the capacity of the OHF to affect conservation, as well as a planned vision and priorities to achieve that vision.

Conservation professionals from a variety of sectors met in 2009 to explore the magnitude of the undertaking for funding statewide conservation programs and gather input for the development of the LSOHC statewide and regional vision and priorities. In late 2009, that information was used to develop a plan for intermediate-term recommendations for appropriations from the OHF. These were most recently published in the council's Call for Funding Requests for 2011 and 2012, and are provided on pages 48-52 of this document. The council reviewed these priorities and affirmed that these statements express its plan for the near term (10 years), with the proviso that the council will review its vision and funding priorities each year.

A 25-year funding framework

In 2010, the LSOHC devised a methodology to draft the plan and framework that included input and review from conservation community leaders, an advisory group to set the specifics of the framework approach, and a working group to collect and analyze data and write a 25-year framework. Finally, the framework was reviewed by internal and external audiences, including the general public, before being submitted to the LCC.

The adopted framework looked at historic and contemporary protection, enhancement, and restoration activity in the state's conservation estate. This was a significant undertaking, since the data required to analyze historic conservation activity as laid out in the Minnesota Constitution, Article XI, Section 15 did not exist. The working group collected data from a variety of sources to quantify existing habitat. Conservation entities that annually spend $1 million or more on habitat acquisition, restoration, and enhancement in Minnesota were surveyed to identify the distribution of past and current protection, restoration, and enhancement activities throughout in the state as well as goals, opportunities, and constraints (challenges) perceived by the conservation community.

Three scenarios were developed to help delineate possible outcomes from investment of the OHF in the next 23 years, as shown in Table 1. All three are simple projections of recent conservation actions over the next 10 and 25 years. The scenarios do not predict the future or set specific goals that bind future LSOHC decisions. They do show the constraints and possibilities associated with various conservation efforts. They are intended to help the council and other decision makers understand the potential impact and trade-offs associated with different levels of support for habitat protection, restoration, and enhancement.

Continued on page 2

Table 1. Scenario description and summary findings.

Scenario and Description	Summary findings
Scenario 1: Pre-Outdoor Heritage Fund Examines conservation work that occurred historically without the benefit of additional OHF investment and estimates the future activity that might occur in the absence of OHF expenditures. This scenario is a base against which the other two scenario outcomes can be evaluated.	After 25 years, the total acres acquired by the state's largest conservation entities could range from 600,000 to 2 million acres without OHF appropriations, depending on the purchasing power of the appropriations as they are influenced by government revenues and inflation. After 25 years, these organizations could restore and enhance between 5.4 million and 17.8 million acres, depending on the purchasing power of their appropriations. These projections may be generous, considering that they are based on past appropriations and organizations noted they face declining initial and long-term funding.
Scenario 2: Current trajectory Scenario 2 extends the OHF's first two years of funding and demonstrates the likely outputs if future OHF appropriations conform to a similar type and pattern as the first two years of funded projects. This scenario is additive to scenario 1.	After 25 years, the total acres acquired through the OHF investment could range from 664,000 to 1.5 million, depending on the purchasing power of the OHF revenues. After 25 years, the OHF could restore and enhance between 620,000 and 1.7 million acres, depending on the purchasing power of OHF revenues.
Scenario 3: Maximized allocations by habitat type and activity Scenario 3 describes the outputs that could be achieved if all of the OHF were dedicated to a single habitat and activity. While not likely to be adopted, it does show the maximum outputs each habitat could garner.	The OHF alone could support about 25 percent of the 2009 target acres, with a few exceptions. Even if all OHF monies were allocated to one activity and habitat type, the 2009 wetlands and prairies/grasslands protection targets and the forests and aquatic habitat restoration/ enhancement targets are unmet without the financial support of conservation partners.

Additional information and analysis

In addition to the three scenarios, appendices to the framework provide additional contextual information and analysis.

- Appendix A provides a summary of input from conservation organizations regarding their goals, future opportunities and constraints (organizational challenges).

Continued on page 3

- Appendix B provides some options for consideration, suggested by the working group. Note that these options have not yet been considered or approved by the council.
- Appendix C provides the council's statewide and section-specific visions and priorities, as well as a results management framework that draws relationships between inputs, outputs and outcomes. The visions and priorities are considered the guiding document, or plan, to inform funding decisions in the next ten years, with the proviso that the council will review its vision and funding priorities each year.
- Appendix D provides a membership list of groups assisting and advising this effort.
- Appendices E-G provide technical summaries and additional details on calculations performed for the scenarios.

The goals highlighted by conservation organizations (summarized in Appendix A) included long-term health of the land and ecosystems as well as protection, improvement, and restoration of watershed and riparian areas. Opportunities identified included numerous public and private funding sources, coordinated management between sectors, and increasing private landowner interest in conservation activities and programs.

Among a list of 22 possible organizational, conservation, political, and environmental constraints that respondents were asked to evaluate, the degradation and loss of functioning systems was of most concern. Many of the challenges in this constraint remain steady over time and include ecological degradation, competing land uses, land use changes, habitat loss, fragmentation, and invasive species. Declining initial funding and a shortage of staffing and human capital were the next most highly rated constraints. With a declining base of funding support and the generational shift in human capital, these constraints were of great concern in the near and long-term.

Conclusions

The 25-year framework suggests that while the OHF will play a critical funding role in the future, the 2009 planning targets greatly exceed the 25-year capacity of the fund, even when combined with resources of major conservation organizations. Furthermore, total accomplishments could vary greatly, depending on sales tax revenues and the future buying power of those revenues. Success in conservation will depend highly on leveraging traditional and other sources of conservation funding with available OHF funds and coordinating efforts with conservation partners. Further refinement is necessary in targeting restoration, enhancement, and protection goals on private as well as public land. Finally, different conservation strategies are necessary for the five ecological sections, given that each has unique land cover and ownership characteristics.

Next steps

The council, council staff and members of the working group are available to discuss the framework with the LCC at its earliest convenience. The council intends to replicate the scenario analyses in future years – as additional funding cycles occur, a clearer picture of the future will emerge. The council is also considering improvements to its process for future planning cycles, and invites the LCC's feedback for future efforts.

Introduction

The Lessard-Sams Outdoor Heritage Council and its planning process

The Minnesota Legislature established the Lessard-Sams Outdoor Heritage Council (LSOHC) to provide annual recommendations to the Legislature on appropriations of money from the Outdoor Heritage Fund (OHF). The OHF was one of four funds established by a 2008 constitutional amendment to fund outdoor heritage, clean water, parks and trails, and arts and cultural heritage.[1]

The LSOHC strives to be consistent with the state constitution and state law by recommending appropriations that directly relate to the restoration, protection, and enhancement of wetlands, prairies, forests, and other habitat for fish, game, and wildlife. The council has already made recommendations for fiscal years 2010 and 2011, which have collectively provided $138 million in resources to 30 programs.[2]

In addition to annual recommendations for funding, the Legislature also requires the LSOHC to develop and submit a report to the Legislative Coordinating Commission (LCC) on its longer-term plans. Minnesota Statutes, section 97A.056, subd. 3(i), requires that:

> (i) The Council shall develop and submit to the Legislative Coordinating Commission plans for the first ten years of funding, and a framework for 25 years of funding, consistent with statutory and constitutional requirements. The Council may use existing plans from other legislative, state, and federal sources, as applicable.

This report summarizes the work of a group of conservation professionals (see Appendix D for membership) that assisted the LSOHC in developing this 10 year plan and 25 year framework. This report builds on habitat planning initiated by the LSOHC in 2009, which included council-sponsored meetings around the state with some 150 conservation professionals. In eight weeks, the council received useful information on the "magnitude of the undertaking" for funding conservation projects, as well as helpful feedback for developing its statewide vision and priority actions as it approached its funding recommendations for FY2011.[3]

[1] Constitutional Amendment – Article XI, found at: http://www.lsohc.leg.mn/constitution.html
[2] A summary of funding to date and accomplishments is available at http://www.lsohc.leg.mn/accomplishments.html
[3] A summary of the 2009 input meetings is available at http://www.lsohc.leg.mn/materials/09_Mtg/LSOHC-planning-meetings-summary.pdf

A 25-year funding framework

Table 2 describes the working definitions of a plan and a framework, as LSOHC staff and the working group understood them.

Table 2. Distinction between a plan and a framework for funding.

A plan…	*A framework…*
➢ Defines the organization's mission (often articulated in statute) ➢ Articulates a vision for the future ➢ Defines core strategies to help the organization realize this vision ➢ Is a public leadership and governance role that may be informed by professional input but should not be delegated	➢ Accepts the mission, vision, and core strategies as givens ➢ Qualitatively and quantitatively describes what can be accomplished within organizational resources ➢ Articulates the "sideboards" or boundaries the plan might encounter ➢ May be delegated to staff for technical assistance

A *plan* has already been developed and is incorporated into Appendix C of this document. The language of the state constitution and state statutes establishes the LSOHC's mission. The council has already articulated statewide priority criteria, as well as a vision and priority actions for each LSOHC ecological section. These were most recently published in the council's Call for Funding Requests for 2011 and 2012 Appropriations, and are provided on pages 48-52 of this document. The council reviewed these priorities and affirmed that these statements express its plan for the near term, with the proviso that the council will review its vision and funding priorities each year.

The LSOHC has noted that the vision and core strategies will likely change over time to reflect public input and take into account unforeseen environmental and economic changes. The council reviews its vision and priorities, along with statewide priorities, annually before it releases its Call for Funding Requests, and also plans to revisit its longer-term funding progress at least every five years.

The LSOHC's *framework* builds on the accomplishments of the 2009 planning process, which defined both funding and acreage targets for protection, restoration, and enhancement. The 2009 process did not attempt to distinguish what the OHF could accomplish separate from the work of public and private conservation partners. Participant and public feedback suggested the targets were also very rough estimates. Furthermore, while planning participants gave feedback that helped prioritize what type of land should be selected for acquisition (whether for fee or conservation easement) and what restoration and enhancement should take place, they were not asked what might limit or constrain their actions. This report builds on the 2009 results by providing more detail on what could be accomplished with the OHF over the next 23 years.

Methods

Development of the framework

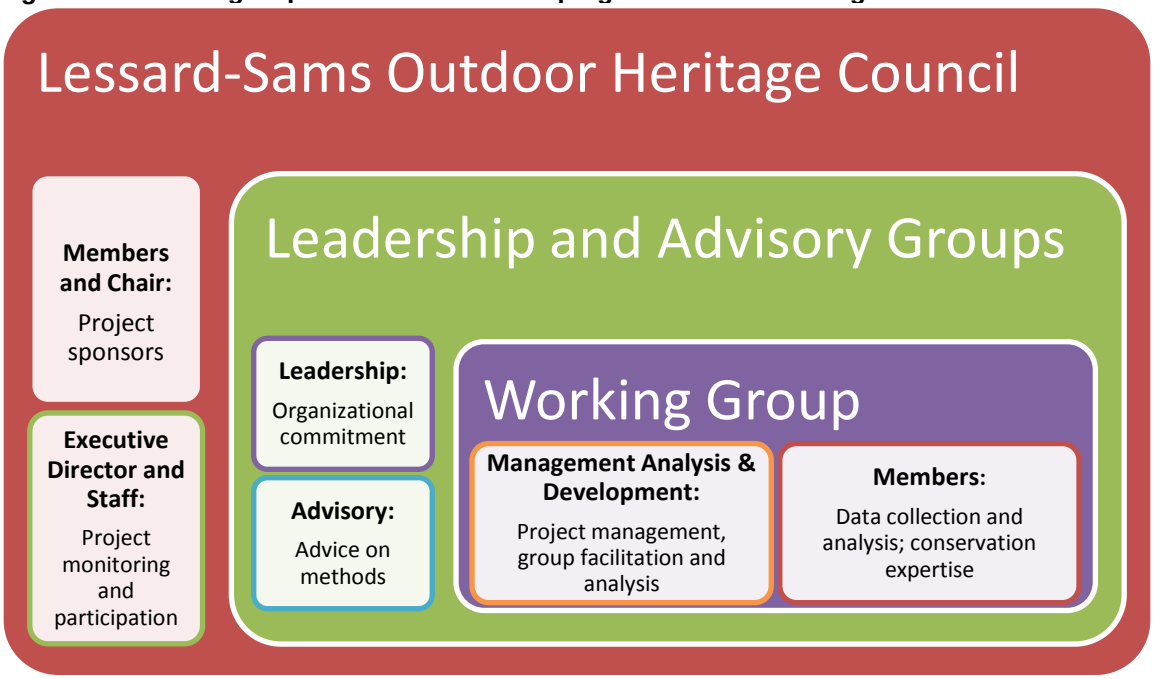
The approach for this framework was determined in consultation with the LSOHC chair, executive director, and staff; staff from House Research; and staff from Senate Counsel and Research. This group met in January 2010 with Management Analysis & Development (MAD), the state's in-house management consulting group, to discuss developing a framework for funding consistent with Minnesota statutes.

MAD began scoping the framework project in spring 2010. This included:

- **Leadership consultation.** MAD met March 9, 2010, with state and federal agency and nongovernmental organization (NGO) leaders identified by council staff (Appendix D). The goal was to obtain feedback on the objectives and plan developed by MAD and council staff, their organizations' commitment to help develop the 25-year framework, and their recommendations for staff to be part of a planning and technical advisory group.
- **Advisory group consultation.** Recommended advisory group members (Appendix D) met with LSOHC members and staff, and MAD consultants on April 8, April 27 and October 6, 2010. The group approved an outline for the 25-year framework developed by the LSOHC chair that set specifics and provided guidance on how to keep the project manageable. Advisory group members offered the names of staff who could perform the analyses called for in the framework outline. Two members of the advisory group were also appointed to the working group.
- **Working group.** The working group met bimonthly between May and October 2010 to collect and analyze data for the framework and prepare a report for the council's consideration. MAD facilitated working group meetings and council staff attended each meeting to provide advice and continuity to the project. Meetings have been listed on the LSOHC website and have been open to the public.
- **Internal and external review.** The LSOHC reviewed a draft of this report on November 4. Conservation professionals and the public reviewed it between November 23 and December 10.

Figure 1 on the next page describes the roles of the groups participating in the project. See Appendix D for a listing of group members.

Figure 1. Roles of groups involved in developing the LSOHC funding framework



Framework components

The framework consists of three parts: a description of Minnesota's conservation estate, a summary of historic conservation efforts, and a presentation and analysis of three scenarios for the future.

Conservation activities and expenditures over the past 10 years, along with the current status of the conservation estate, provide a useful context for habitat protection, enhancement, and restoration. Historic and current status information answers basic questions such as: How much habitat do we already have in Minnesota? Where is it located? How much of it is permanently protected? How much restoration and enhancement is accomplished? Answers to these questions are addressed in the conservation estate and historic conservation efforts parts of the framework.

Minnesota's conservation estate

How much habitat do we have in Minnesota? How much of it is permanently protected? Where is it located? To answer these questions, the working group used a Geographic Information System (GIS) to map and calculate the total acreage of Minnesota's terrestrial and aquatic areas habitat as of June 30, 2009. The resulting data capture the *quantity*, not quality, of land currently meeting a minimum threshold definition of habitat that excludes from consideration highly converted landscapes such as urban areas and cropland. The analysis includes data from a variety of sources in four categories (see Appendix E for a complete description):

1. **Publicly owned terrestrial habitat** – public lands owned and managed for conservation, such as state wildlife management areas (WMAs) and scientific and natural areas (SNAs), state parks, state forests, Chippewa and Superior National Forests, Voyageurs National Park, the Boundary Waters Canoe Area Wilderness (BWCAW), and county lands such as tax-forfeited lands.

2. **Privately owned, permanently protected terrestrial habitat** – lands permanently protected for conservation by a conservation easement or in fee title. Some examples are the state's Reinvest in Minnesota (RIM) conservation easements, the U.S. Fish and Wildlife Service's wetland management district conservation easements, and The Nature Conservancy's not-for-profit landholdings. Private conservation easements, such as those protected by the Minnesota Land Trust, are also in this category, but are not identified due to lack of available spatial data.[4]
3. **Private terrestrial habitat** – privately owned lands deemed to provide at least basic wildlife habitat value based on land cover classification. This includes acres enrolled in temporary easement programs, such as the U.S. Department of Agriculture (USDA) Conservation Reserve Program (CRP), that *temporarily* set aside land for conservation.
4. **Public, permanently protected aquatic habitat** – state waters within the Public Waters Inventory (PWI). These waters are lakes, wetlands, and watercourses for which regulations provide basic protection from alteration. Regulated development activities include filling, excavation, installation of docks or marinas, water level control, dredging, and damming. [5]
5. **Not publicly protected aquatic habitat** –all other lakes and streams that appear on the U.S. Geological Survey 7.5 minute topographic quadrangle maps (1:24,000 scale) outdoor recreationists commonly use for navigation.

The conservation estate is presented by five LSOHC sections (Figure 2). The LSOHC is required by statute to use sections of the state based upon the ecological sections and sub-sections developed by the Minnesota Department of Natural Resources (DNR), and to establish objectives for each section and sub-section to achieve the purposes of the fund. The five LSOHC sections are an aggregation of the state's 10 ecological sections.

Historic conservation efforts

What is the level of habitat acquisition activity? How much restoration and enhancement is accomplished? How much is expended on these activities? To answer these questions, the working group collected 10 years of funding and acreage information from public and private organizations that were estimated to spend more than $1 million per year on land/aquatic habitat acquisition, enhancement and restoration work.[6] Although many types of conservation work, such as public education, regulation, enforcement, environmental review, conservation status and priority assessments contribute to protection, restoration and enhancement, the working group focused on efforts similar to those the LSOHC funded in its first two years and those that directly conserve habitat[7] so data for historic funding and recent council expenditures would be as comparable as possible.

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[4] A recent assessment of conservation easement activity in Minnesota indicated that privately owned conservation easements account for about 7 percent of all conservation easement acreages (Prohaska, J. 2010. *Protecting Minnesota Forests From Parcelization With Conservation Easements.* A report prepared for the Minnesota Forest Resources Council. Found at: www.frc.mn.gov/initiatives_policy_forestparcelization.html)

[5] Please see Appendix E for caveats and assumptions (or for additional information) regarding the use of the term "public waters inventory for protected aquatic habitat."

[6] Organizations listed on page 22.

[7] Minnesota Statutes, section 97A.056, subd. 3, instructs the LSOHC to make recommendations "that **directly** relate to the restoration, protection, and enhancement of wetlands, prairies, forests, and habitat for fish, game, and wildlife, and that prevent forest fragmentation, encourage forest consolidation, and expand restored native prairie." (emphasis added)

Three scenarios for the future

The working group considered three scenarios for the future. All three are simple projections of conservation actions[8] over the next 10 and 25 years. The scenarios do not predict the future or set specific goals that bind future LSOHC decisions. They do show the constraints and possibilities associated with various conservation efforts. They are intended to help the council and other decision makers understand the potential impact and trade-offs associated with different levels of support for habitat protection, restoration, and enhancement.

Scenario 1: Pre-Outdoor Heritage Fund
This scenario describes the conservation activity and outputs prior to the passage of the legacy amendment. It assumes that:

- expenditures for the next 23 years would be the same as past expenditures (with declining state resources and no additional funds, this may be generous)
- the annual average acres protected, restored, enhanced, and maintained in 2010–2034 will be the same as the average protected, restored, enhanced, and maintained in 2000–2009 by the state's largest conservation entities
- no significant changes will occur in pre-OHF conservation funding amounts or allocations among direct protection, restoration, and enhancement activities.

Scenario 2: Extend the OHF's first two funding years
This scenario shows the likely habitat outputs if future OHF appropriations are similar to those of the past two years. This is a "distributed" investment scenario that shows the future outputs if current annual appropriation patterns hold. It assumes that 2010–2011 protected, restored, and enhanced acreage (with the exception of one unusually large forest easement project) will be replicated annually for the next 23 years.

Scenario 3: Maximized allocations
This scenario describes the habitat outputs that could be achieved if all OHF funds were allocated to a single habitat type and activity for the next 23 years. (Under this scenario, the constitutional mission and the LSOHC's vision and priorities are not realized which clearly articulate the desire for protecting, restoring, and enhancing habitat for fish, game, and wildlife.) These are not intended to be realistic scenarios; rather, they show an upper bound for each habitat type and serve as a reality check for expectations of what the OHF can reasonably accomplish over the next 23 years. This scenario assumes:

- OHF annual funding is $80 million in 2010 dollars for the next 23 years
- average cost per acre is based on the 2009 conservation planning session estimates.[9]

[8] Conservation actions are protection through fee acquisitions and permanent easements, restoration, and enhancement.
[9] See Appendix G for the average cost per acre by habitat and activity.

Each scenario's projections are presented by:

- Three annual rates of change to illustrate the implications of inflation, variability in sales tax revenues (OHF's income source), and other economic variables. Combined, these factors will cause the OHF's purchasing power to fluctuate over the years. The three rates of change represent a 5 percent decline, zero change, and 5 percent growth[10] in purchasing power, and show that, over 23 years, different rates significantly affect conservation outputs.
- The time period 2010–2034 (25 years) with calculations for the next 10 years (2012–2021). Scenarios 2 and 3 add the 2010–2011 OHF funded acres to the 23-year projections for the 25-year time period (2010–2034).
- Single counting for acres protected and restored/enhanced, rather than double counting for acres that are protected and restored through the same project. For example, if 430 acres are restored/enhanced but 80 of those acres first had to be purchased, the report would indicate 80 acres protected and 350 acres restored/enhanced.
- Assumes that costs of future protection, restoration, and enhancement work will remain constant.

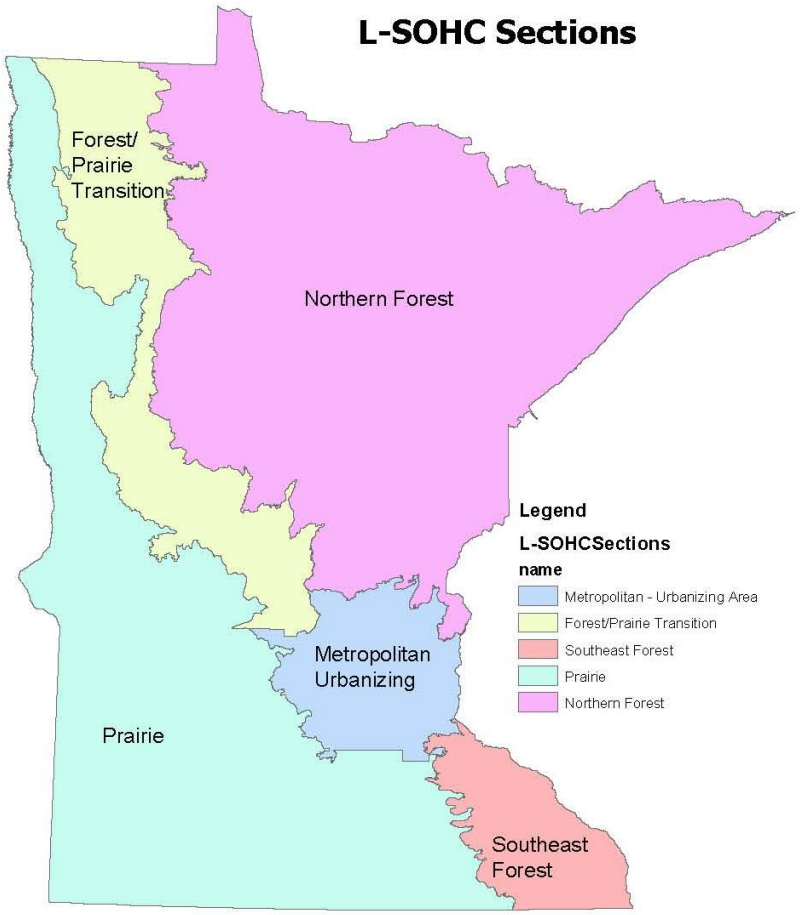
[10] The projections used Microsoft Excel's Future Value function, with -5 percent, zero and +5 percent annual rates, a 23-year period, and annual average acres per year.

Minnesota's conservation estate

Figures 4-8 and Tables 3–6 summarize Minnesota's conservation estate—the land providing wildlife habitat. This includes all terrestrial land except highly converted cover types as identified by land cover or programmatic data, and all lakes and streams. Creation of these maps was briefly summarized in the Methods section above; see Appendix E for more detail, including data sources.

The LSOHC organized the conservation estate into five sections (Figure 2). The LSOHC sections are an aggregation of the ecological sections and subsections developed by the DNR as part of its ecological classification system.[11]

Figure 2. LSOHC sections

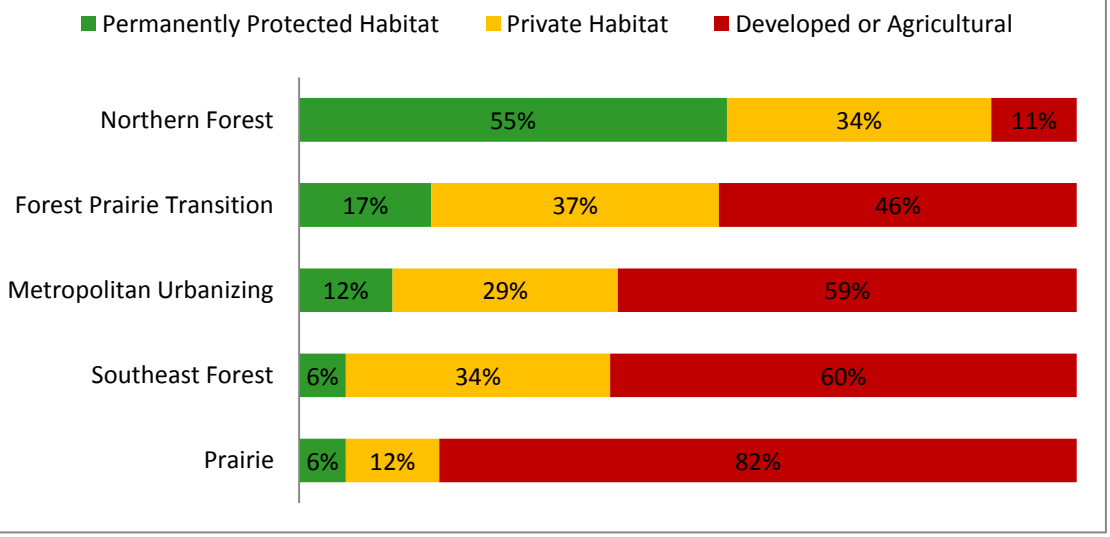


[11] The ecological sections on which the LSOHC sections are based are defined by origin of glacial deposits, regional elevation, distribution of plants, and regional climate. For more information see: http://www.dnr.state.mn.us/ecs/index.html.

Overall findings

The Minnesota conservation estate data show some interesting variations in habitat by LSOHC section. Figure 3 summarizes terrestrial and aquatic habitat by LSOHC section.

Figure 3. Terrestrial and aquatic habitat by LSOHC Section



Northern Forest:

- This section covers 43 percent of the state and has 69 percent of Minnesota's habitat.
- Eighty-nine percent of this section is identified as habitat, but only 55 percent of the section is permanently protected. Almost three-fourths of protected habitat is terrestrial.
- Eighty-two percent of the state's permanently protected acres are in this section.

Forest/Prairie Transition:

- This section covers 12 percent of the state and has 12 percent of Minnesota's habitat.
- Over half of this section is identified as habitat, but only 17 percent of the section is permanently protected. Protected acres are distributed almost equally between aquatic and terrestrial habitats.
- Only 7 percent of the state's permanently protected acres are in this section.

Metropolitan Urbanizing:

- This section covers 6 percent of the state and has 5 percent of Minnesota's habitat.
- Forty-one percent of this section is identified as habitat, but only 12 percent of the section is permanently protected. Roughly two-thirds of protected habitat is aquatic.
- Only 3 percent of the state's permanently protected acres are in this section.

Southeast Forest:

- This section covers 5 percent of the state and has 4 percent of its habitat.
- Forty percent of this section is identified as habitat, but only 6 percent of the section is permanently protected. Over 90 percent of protected habitat is terrestrial.
- Only 1 percent of the state's permanently protected acres are in this section.

Prairie:

- This section covers 34 percent of the state and has 11 percent of Minnesota's habitat.
- Only 18 percent of this section is identified as habitat, and only a third of that is permanently protected. Protected acres are distributed almost equally between aquatic and terrestrial habitats.
- Only 7 percent of the state's permanently protected acres are in this section.

Across the sections:

- Over half of the Forest/Prairie Transition and Northern Forest sections are habitat.
- The Prairie section has lost the most habitat.
- The Northern Forest has a disproportionately high amount of the state's permanently protected habitat; it also has the majority of the private habitat.
- The Metropolitan Urbanizing and Southeast Forest sections have the lowest relative amounts of permanently protected habitat.

Habitat loss

This 25-year framework focuses on contributions to the conservation estate, but losses are also occurring. Precise information on habitat loss is not readily available, and estimates range widely. Additionally, these estimates:

- Mostly use pre-2003 data.
- Include the 1980 and 1990 decades, when Minnesota experienced significant population growth and development.
- Count "non-habitat" lands, primarily agriculture lands, as land converted to development.
- May have used different data sets and methods to measure habitat loss.

Habitat loss estimates:

- "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."[12] This daily rate translates to 62,000 acres converted annually.
- "The state loses approximately 1,500 acres of forest and natural land cover to urban development each year." [13]
- "In recent years forest land has been converted to other uses—primarily residential—at a rate of 3,600 acres per year." [14]

[12] Minnesota Department of Natural Resources, *A Strategic Conservation Agenda 2003-2007*, April 2007 update, page 2. http://files.dnr.state.mn.us/aboutdnr/reports/conservationagenda/fulldoc.pdf
[13] Minnesota Department of Natural Resources, *Minnesota Forest Resource Assessment*, June 2010: Part I, page 56. http://files.dnr.state.mn.us/forestry/subsection/mnForestResourceAssessment.pdf
[14] Minnesota Department of Natural Resources, *A Strategic Conservation Agenda 2003-2007*, April 2007 update, page 75. http://files.dnr.state.mn.us/aboutdnr/reports/conservationagenda/fulldoc.pdf

- The five-county Twin Cities Metro area's developed area increased by 11,000 acres annually from 1986 to 2002, while agriculture lands decreased annually by 8,500 acres. Annual losses in forest and wetland acres were 1,400 and 1,100, respectively.[15]
- "Analysis of reported [Wetland Conservation Act] data shows a net loss of 1,367 (average of 456/year) acres over 2001-2003, when counting acres impacted through reported exemptions, regulated impacts, and required mitigation."[16]
- In Minnesota's Prairie Pothole Region, sub-regional wetland loss ranged from no change to 15 percent loss of total wetland acreage during 1980-2007, when the entire prairie region lost an estimated 4.3 percent. In some areas, almost all wetlands have been drained, such as the Red River valley, where wetland management district's restoration work produced a very slight (0.4 percent) increase in wetland area. Most areas show modest declines in wetland area, almost all of which were converted to agricultural lands.[17]
- "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. In 2008 farm crop prices increased dramatically and more than 60,000 acres were withdrawn from the federal Conservation Reserve Program (CRP)." [18]

[15] Manson, Steven and Marvin Bauer, "Changing Landscapes in the Twin Cities Metropolitan Area," CURA Reporter, Fall 2006. Annual changes derived from Table 1, page 5. http://www.cura.umn.edu/reporter/06-Fall/Manson&Bauer.pdf

[16] Minnesota Board of Water and Soil Resources, 2001-2003 Minnesota Wetland Report, page 2. http://www.bwsr.state.mn.us/wetlands/publications/wetlandreport.pdf

[17] Oslund, Fred T., Rex R. Johnson, and Dan R. Hertel, *Assessing Wetland Changes in the Prairie Pothole Region of Minnesota from 1980 to 2007*. Journal of Fish and Wildlife Management, 2010 (forthcoming). http://www.fwspubs.org/doi/pdf/10.3996/122009-JFWM-027

[18] Minnesota Department of Natural Resources, *A Strategic Conservation Agenda 2009-2013 Part II: Performance and Accountability Report*, in press for December 2010 release, page 29, http://www.dnr.state.mn.us/conservationagenda/key_measures.html

Figure 4. Minnesota's Habitat Conservation Estate

Some data included in this analysis are of coarse resolution and may not always accurately reflect ground conditions. Acreage numbers reported here are estimates and should not be interpreted as exact figures. These data are meant to be viewed at a statewide scale. Viewing these data at more local scales may lead to misinterpretation.

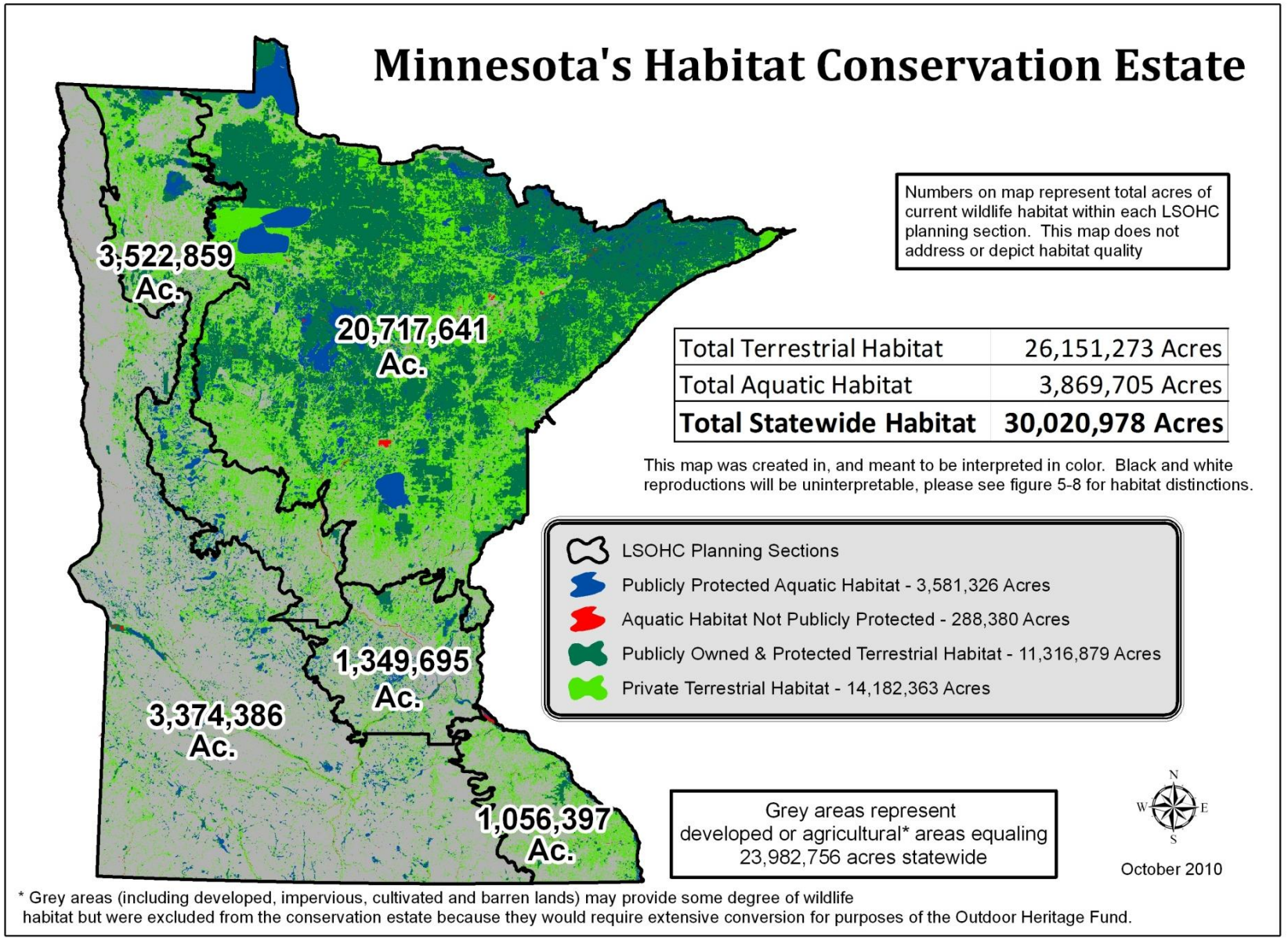
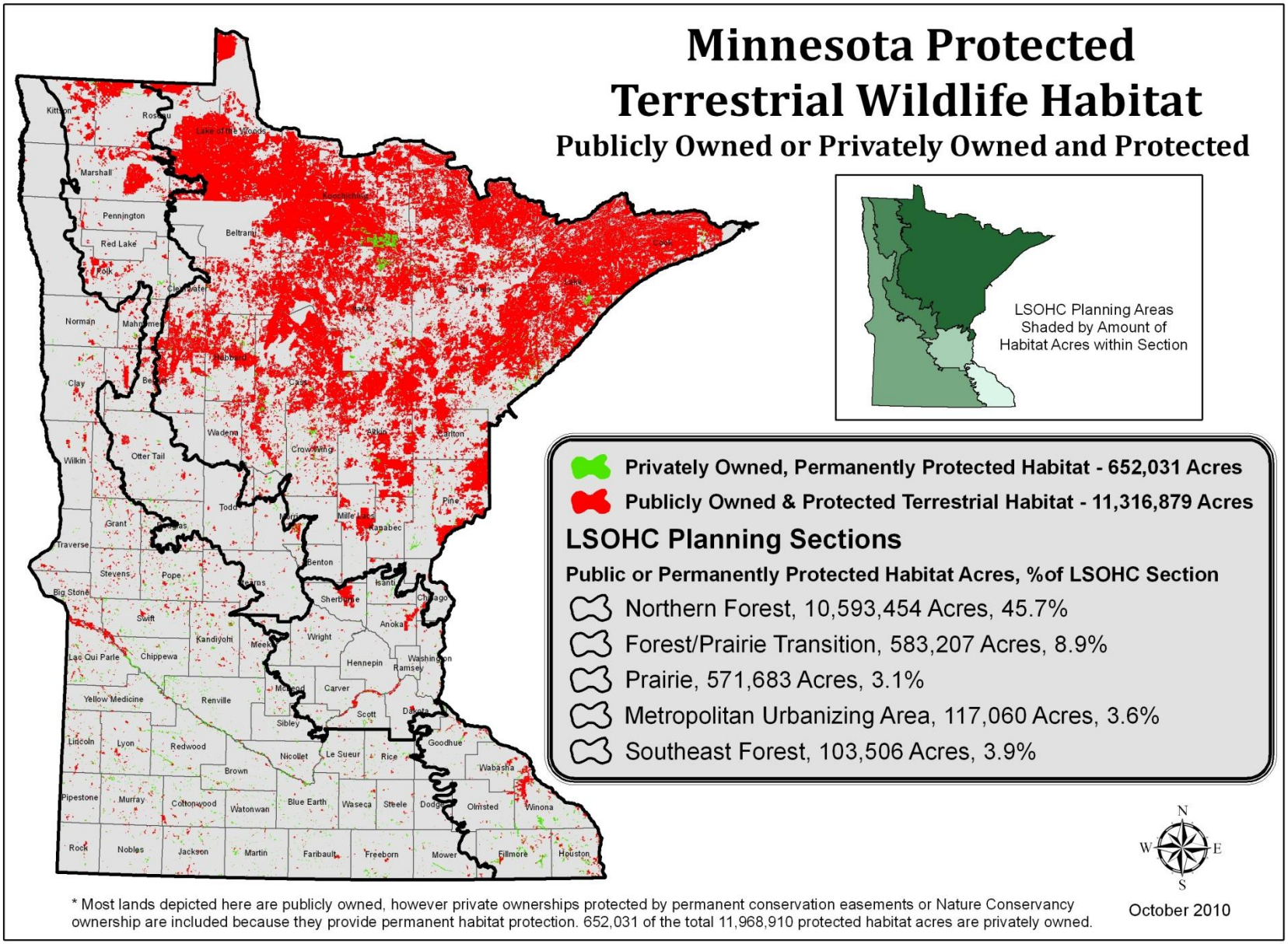


Figure 5. Minnesota Protected Terrestrial Wildlife Habitat

Some data included in this analysis are of coarse resolution and may not always accurately reflect ground conditions. Acreage numbers reported here are estimates and should not be interpreted as exact figures. These data are meant to be viewed at a statewide scale. Viewing these data at more local scales may lead to misinterpretation.



* Most lands depicted here are publicly owned, however private ownerships protected by permanent conservation easements or Nature Conservancy ownership are included because they provide permanent habitat protection. 652,031 of the total 11,968,910 protected habitat acres are privately owned.

Figure 6. Minnesota Privately Owned Terrestrial Wildlife Habitat

Some data included in this analysis are of coarse resolution and may not always accurately reflect ground conditions. Acreage numbers reported here are estimates and should not be interpreted as exact figures. These data are meant to be viewed at a statewide scale. Viewing these data at more local scales may lead to misinterpretation.

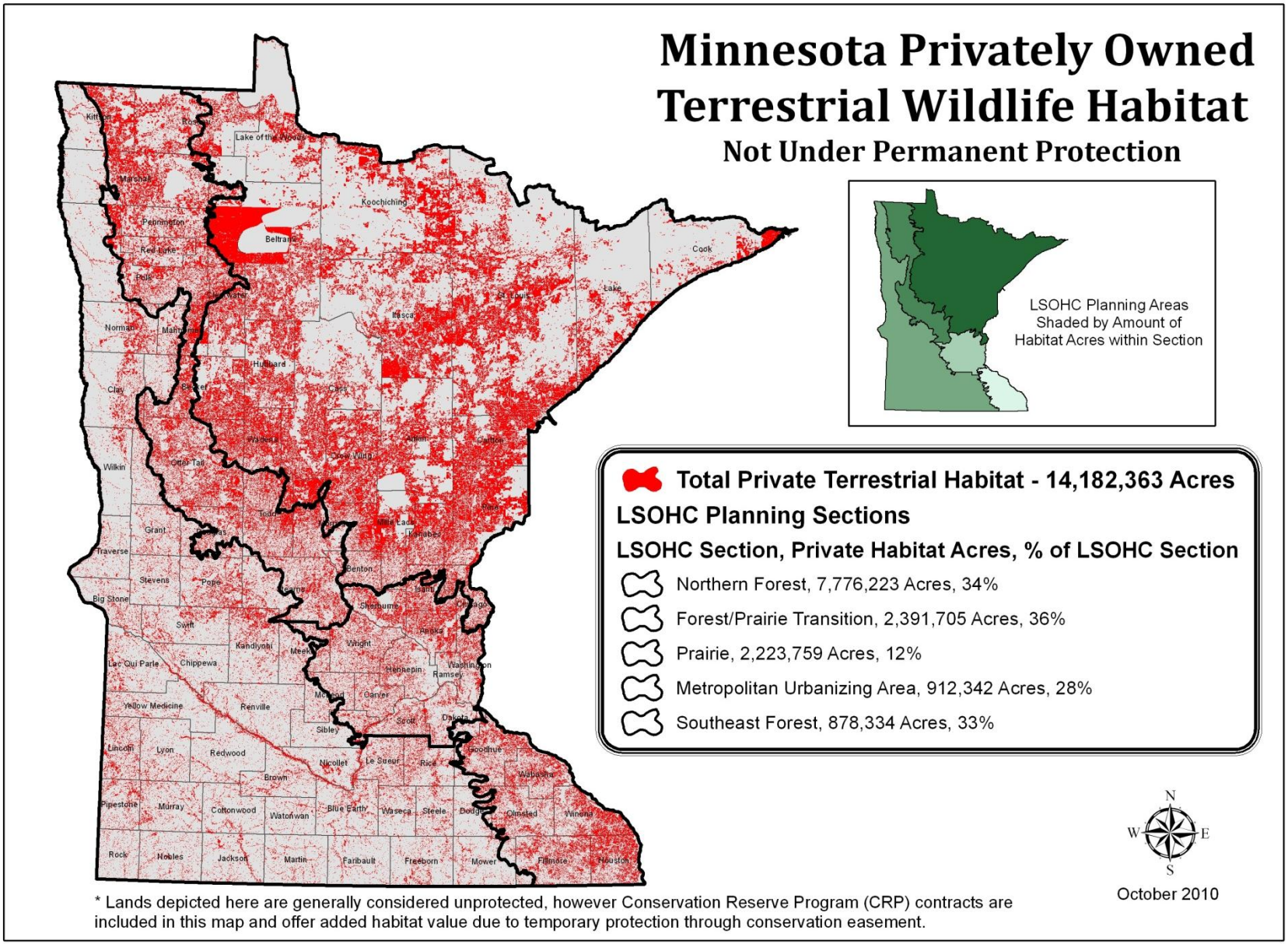
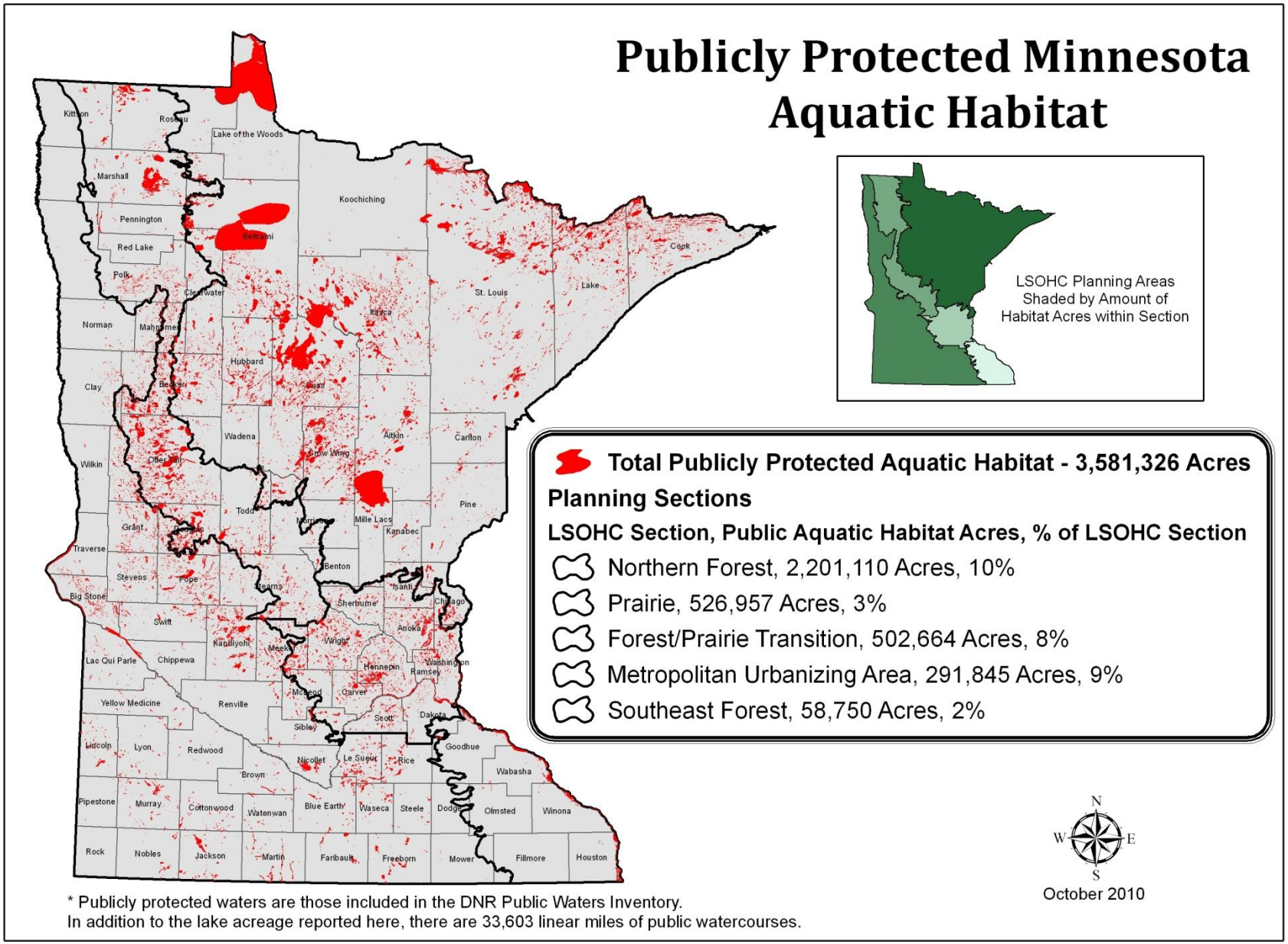


Figure 7. Publicly Protected Minnesota Aquatic Habitat

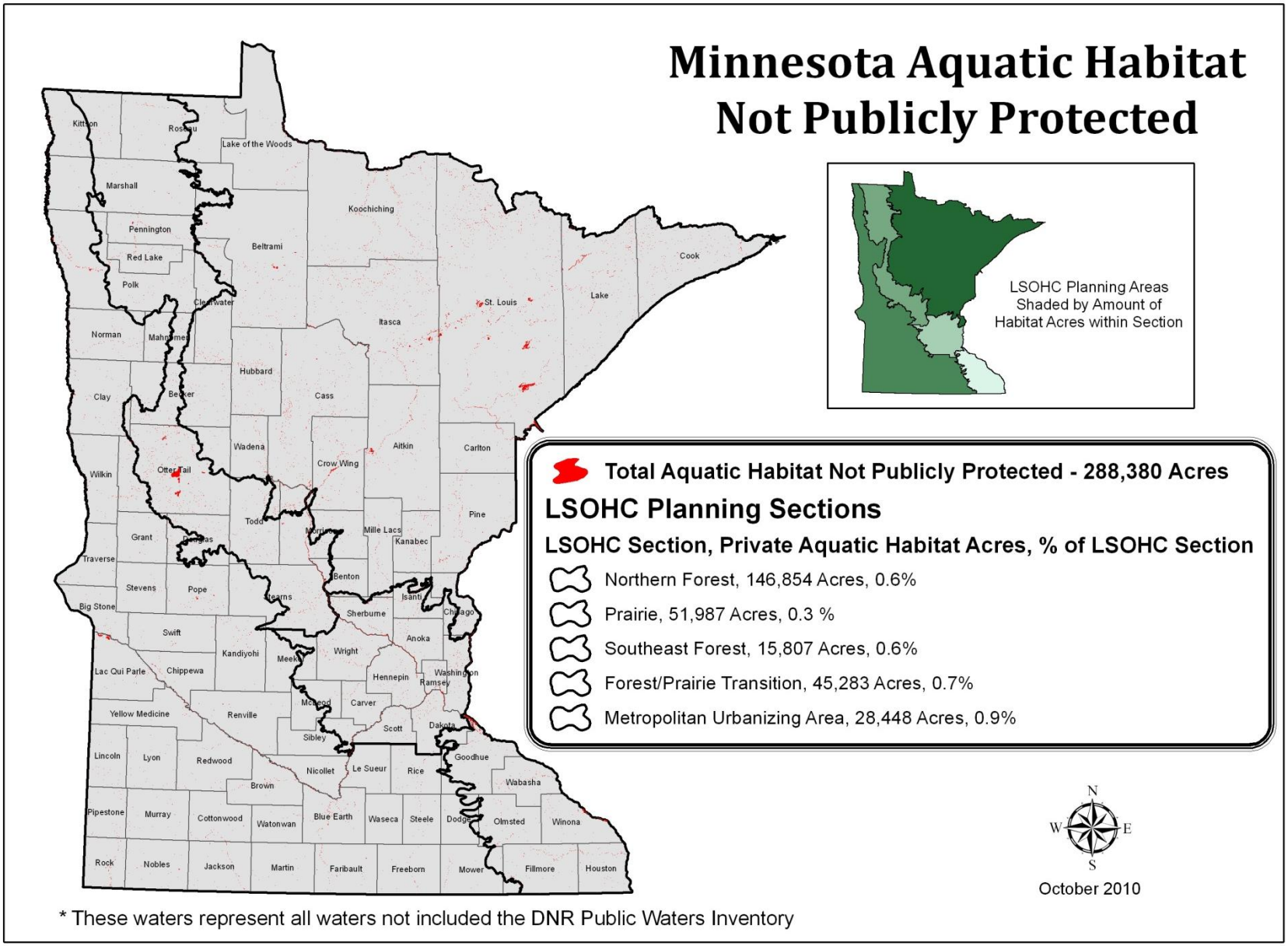
Some data included in this analysis are of coarse resolution and may not always accurately reflect ground conditions. Acreage numbers reported here are estimates and should not be interpreted as exact figures. These data are meant to be viewed at a statewide scale. Viewing these data at more local scales may lead to misinterpretation.



* Publicly protected waters are those included in the DNR Public Waters Inventory.
In addition to the lake acreage reported here, there are 33,603 linear miles of public watercourses.

Figure 8. Minnesota Aquatic Habitat Not Publicly Protected

Some data included in this analysis are of coarse resolution and may not always accurately reflect ground conditions. Acreage numbers reported here are estimates and should not be interpreted as exact figures. These data are meant to be viewed at a statewide scale. Viewing these data at more local scales may lead to misinterpretation.



* These waters represent all waters not included the DNR Public Waters Inventory

Table 3. Minnesota's habitat estate[19] (public and private).

LSOHC Planning Section	Total # of Acres	% of State	Habitat Acres	% of LSOHC Section	% of Habitat Acres
Forest/Prairie Transition	6,560,182	12	3,522,859	54	12
Metropolitan Urbanizing	3,291,096	6	1,349,695	41	5
Northern Forest	23,163,472	43	20,717,641	89	69
Prairie	18,341,600	34	3,374,386	18	11
Southeast Forest	2,647,384	5	1,056,397	40	4
TOTALS	**54,003,734**	**100**	**30,020,978**	**56**	**100**

Source: LSOHC working group GIS analysis, October 2010. See Appendix E for more information.

Table 4. Minnesota's estate of developed or agricultural areas.

LSOHC Planning Section	# of Acres	% of State	Developed or Agricultural Acres	% of LSOHC Section	% of Developed/ Agricultural Acres
Forest/Prairie Transition	6,560,182	12	3,037,323	46	13
Metropolitan Urbanizing	3,291,096	6	1,941,401	59	8
Northern Forest	23,163,472	43	2,445,831	11	10
Prairie	18,341,600	34	14,967,214,	82	62
Southeast Forest	2,647,384	5	1,590,987	60	7
TOTALS	**54,003,734**	**100**	**23,982,756**	**44**	**100**

Source: LSOHC Working Group GIS analysis, October 2010. See Appendix E for more information.

Table 5. Minnesota's permanently protected habitat estate.[20]

LSOHC Planning Section	# of Acres	% of State	All Permanently Protected Habitat Acres	% of LSOHC Section	% of Protected Acres
Forest/Prairie Transition	6,560,182	12	1,085,871	17	7
Metropolitan Urbanizing	3,291,096	6	408,905	12	3
Northern Forest	23,163,472	43	12,794,564	55	82
Prairie	18,341,600	34	1,098,640	6	7
Southeast Forest	2,647,384	5	162,256	6	1
TOTALS	**54,003,734**	**100**	**15,550,236**	**29**	**100**

Source: L-SOHC Working Group GIS analysis, October 2010. See Appendix E for more information.

[19] Habitat includes all terrestrial lands except those identified as impervious, agricultural, or barren by the National Land Cover Database (NLCD) land cover data and as well as the DNR inventory of all lakes and streams that appear on the U.S. Geological Survey (see Appendix E for further detail).

[20] Permanently protected habitat includes publicly owned and managed conservation lands as well as privately owned lands that are permanently protected and managed for conservation by a conservation easement or in fee title. Lands under temporary protection (such as CRP lands) are not considered permanently protected for the purposes of this assessment.

Table 6. Minnesota's private habitat estate (not permanently protected).

LSOHC Planning Section	# of Acres	% of State	All Private Habitat Acres Not Permanently Protected	% of LSOHC Section	% of Private Habitat Acres
Forest/Prairie Transition	6,560,182	12	2,436,988	37	17
Metropolitan Urbanizing	3,291,096	6	940,790	29	7
Northern Forest	23,163,472	43	7,923,077	34	55
Prairie	18,341,600	34	2,275,746	12	16
Southeast Forest	2,647,384	5	894,141	34	6
TOTALS	**54,003,734**	**100**	**14,470,742**	**27**	**100**

Source: L-SOHC Working Group GIS analysis, October 2010. See Appendix E for more information.

Historic conservation efforts

To better understand historic conservation efforts, the working group asked organizations that spent over $1 million annually[21] on activities for which the primary goal was the acquisition, restoration or enhancement of fish and wildlife habitat to share expenditure and acreage data on those activities for 2000–2009. Outdoor Heritage Fund projects were excluded because the fund did not exist pre-2009. Data were received from the following organizations:[22]

- Association of Minnesota Counties
- Legislative-Citizen Commission on Minnesota Resources (LCCMR)
- Minnesota Board of Water and Soil Resources (BWSR)
- Minnesota DNR
- Minnesota Land Trust
- Pheasants Forever
- The Nature Conservancy
- USDA-Natural Resource Conservation Service
- USDI- Fish and Wildlife Service
- USDA- Forest Service, Chippewa National Forest
- USDA- Forest Service, Superior National Forest

The responses indicate little overlap or duplication in reported outputs for joint projects. For example, one entity wrote, "The protection acres exclude lands that were acquired on behalf of a public agency." Where double counting may have occurred, the affected acres are relatively small.

Additionally:

- The resulting acres and expenditures are conservative because smaller organizations and water quality projects that also benefit wildlife habitat were excluded. Also, the DNR was unable to report restoration and enhancement acreage for the Scientific and Natural Area (SNA) and Native Prairie Bank programs.
- A year's expenditures may not directly relate to all of the reported acres. For example, an appropriation might be made in one year and the restoration and enhancement of land might be done over subsequent years. A 10-year average accounts for time lags between spending and acreage output.
- Per-acre costs may vary widely because of the type of restoration/enhancement activities conducted by different organizations. In some cases low per-acre cost activities are applied to large acreages and result in lower total average costs per acre when totaled across many activities (for instance, manipulating shallow lake

[21] The $1 million threshold was selected for two reasons. First, the working group needed to limit the scope to keep data collection manageable within the approximate month-long data collection period. Second, the working group had to consider the risk of double-counting expenditures and acreages when grantor/grantee relationships existed or when joint projects occurred.

[22] The Conservation Fund and the Trust for Public Land provided qualitative data on constraints and opportunities, but no expenditure or acreage data (primarily due to the significant risk of double counting). Tribal governments were contacted via the Minnesota Indian Affairs Council, but no responses were received. Ducks Unlimited and Great River Greening reported being below the $1 million threshold.

water levels can enhance habitat for a large lake). Unreported private funds may have also helped protect acres, especially under grant programs.

- Reporting organizations may differ in how they categorize activities as restoration/enhancement or maintenance. However, the DNR Division of Fish and Wildlife provided data for three-quarters of the restoration/enhancement and maintenance acres, providing consistency and stability to this measure over time. Restoration and enhancement as measured by the DNR generally involved improvements leading to significant landscape changes. Examples are forest stand improvement, open land and brushland burns, and shallow lake restorations. Maintenance activities, such as noxious weed control, ensure the landscape remains in the desired state. Maintenance also includes assessment activities critical for habitat management but that do not directly improve the landscape. While assessment activities are often reported on an acreage basis, the acres are not included in this summary. However, expenditures supporting assessment were included in the reported cost of maintenance.
- Significant effort was made by working group members and respondents to determine whether the desired outcome of conservation activities should be categorized as restoration/enhancement or maintenance. For example, most of the acres harvested for timber by the DNR and the U.S. Forest Service were excluded, even though timber harvesting creates some habitat co-benefits. However, when timber harvest was used as a management tool for forest stand improvement, it was considered restoration and enhancement.
- DNR data for 2000–2004 are not as precise as those for 2005–2009, especially with respect to expenditures. When data were missing for 2000–2004, the 2005–2009 average was substituted. This mostly affected DNR's restoration and enhancement acres.
- The estimates of expenditures by habitat type are rough estimates. The degree to which organizations tracked this between 2000 and 2009 varies greatly.
- Due to differences in categorical activity definitions, USDA-Forest Service expenditures are based on average costs per acre multiplied by acres restored and enhanced.
- Government agencies and NGOs typically do not classify expenditures or accomplishments by the habitat types that are mandated in LSOHC statutory language (prairie, wetland, forest, and other), so responses must be considered estimates. Nonetheless, the results should provide a relatively accurate estimate at the state and LSOHC section scales.

LCCMR is not directly involved with land and habitat protection or restoration and enhancement, but it does select and oversee projects and provides significant funds to the other conservation organizations. To avoid double counting, only LCCMR expenditure and acreage data not captured by other reporting organizations were included.

The total reported annual acres are similar from year to year (Table 7). However, the distribution of acres fluctuates among activities. For example, DNR Forestry had a large easement project in 2007, while BWSR had large easement projects in 2001 and 2002. In 2009, the DNR Division of Parks and Trails had a large acquisition. The DNR Division of Fish and Wildlife reported three-quarters of the annual restoration and enhancement acres, which explains much of the year-to-year stability.

Table 7. Habitat acres directly protected, restored, enhanced and maintained by reporting organizations, 2000–2009.

Year	Fee Acquisition	Permanent Easement	Restoration/ Enhancement	Maintenance	Protection Grants	Restore/ Enhance Grants
2000	12,577	21,937	347,780	269,255	430	23,816
2001	31,329	52,150	338,974	269,494	430	27,622
2002	13,472	32,075	328,586	269,920	430	22,682
2003	7,156	8,310	338,804	269,999	430	21,738
2004	8,188	11,881	354,856	270,914	430	18,996
2005	13,136	21,439	354,013	331,251	430	18,694
2006	11,638	12,619	344,636	291,837	495	44,762
2007	11,784	65,843	349,830	340,538	1,475	19,331
2008	9,393	21,931	388,951	304,417	968	25,377
2009	14,656	24,852	345,630	283,732	1,555	22,687
Total	**133,327**	**273,035**	**3,492,060**	**2,901,357**	**7,073**	**245,704**
Average	13,333	27,304	349,206	290,136	707	24,570

Source: LSOHC Working Group Data Requests, August and October 2010

Table 8 shows historical expenditures reported for the same organizations. While an individual organization's year-to-year expenditures fluctuate, the group total is quite stable, especially for fee acquisition and restoration and enhancement. On average, the reporting organizations spent approximately $85 million annually on direct conservation activities. The OHF will allocate $86 million in FY2012.

Table 8. Expenditures for direct habitat protection, restoration, enhancement, and maintenance by reporting organizations, 2000–2009.

Year	Fee Acquisition	Permanent Easement	Restoration/ Enhancement	Maintenance	Protection Grants	Restore/ Enhance Grants	Total Spending
2000	$22,185,398	$27,881,136	$16,536,298	$7,983,822	$314,162	$1,448,136	$76,348,952
2001	$32,813,318	$59,429,589	$15,428,003	$9,180,271	$314,162	$1,448,136	$118,613,479
2002	$23,659,613	$13,659,755	$17,596,332	$9,182,303	$314,162	$1,117,817	$65,529,982
2003	$24,824,235	$13,863,498	$17,467,422	$9,222,319	$314,162	$1,699,180	$67,390,816
2004	$23,757,108	$14,887,118	$18,215,223	$9,192,307	$314,162	$1,003,103	$67,369,021
2005	$38,721,800	$37,652,432	$17,209,814	$9,470,817	$314,162	$1,281,871	$104,650,896
2006	$34,087,831	$8,691,262	$16,876,428	$9,297,960	$314,000	$2,171,413	$71,438,894
2007	$25,238,194	$16,240,427	$16,903,896	$9,385,752	$913,487	$3,424,190	$72,105,946
2008	$33,575,152	$42,636,511	$17,000,455	$8,406,503	$846,298	$1,587,691	$104,052,610
2009	$40,018,719	$30,922,442	$21,436,215	$9,429,513	$839,912	$2,138,708	$104,785,509
Total	**$298,881,367**	**$265,864,170**	**$174,670,085**	**$90,751,567**	**$4,798,669**	**$17,320,245**	**$852,286,103**
Average	$29,888,137	$26,586,417	$17,467,009	$9,075,157	$479,867	$1,732,025	$85,228,610

Source: LSOHC Working Group Data Requests, August and October 2010

Scenario 1: Pre-Outdoor Heritage Fund

This scenario describes outputs that could be expected if the OHF were not available to fund conservation work. It assumes that past expenditure levels would continue through the next 23 years. With declining state resources and no additional funds, this may be a generous assumption. This scenario also assumes that:

- The annual average acres protected, restored, enhanced, and maintained from 2010–2034 will be the same as the average protected, restored, enhanced, and maintained in 2000–2009 by the state's largest conservation entities.
- No significant changes occur in pre-OHF conservation funding amounts or allocations among direct protection, restoration, and enhancement activities.

Table 9 summarizes the average 10-year acre outcomes for 2000–2009 for the state's largest conservation entities, as described in more detail in the Historic Conservation Efforts section. On average, 41,300 acres are protected, 373,800 acres are restored and enhanced, and 290,100 acres are maintained annually.[23]

Table 9. 2000–2009 average annual acres by activity.

Activity	Annual acres	Components of activity
Protection	41,300	Sum of: Fee acquisition, permanent easement, and protection grants
Restore/Enhance	373,800	Sum of: Restoration/enhancement and Restore/enhance grants
Maintenance	290,100	Maintenance

Source: Table 7. Annual acres were rounded to nearest 100.

Table 10 shows that, after 25 years, the total acres acquired under Scenario 1 range from 600,000 to 2 million, depending on the purchasing power of the private and public sector funds.

Participating conservation organizations estimated the percent of their 2000–2009 expenditures acres by habitat type. Table 11 shows that nearly 80 percent of fee acquisition and easement expenditures are allocated to prairies and wetlands, while restoration and enhancement dollars are more evenly allocated among prairie, wetlands, and forests.[24]

[23] Maintained acres are likely higher. USDA-Forest Service maintained acreage data were excluded because of the high number of acres inventoried, which does not directly contribute to habitat benefit.
[24] Each organization's reported percentages were weighted by its 10-year total acres to estimate a group percent by habitat.

Table 10. Ten- and 25-year acreage outputs, based on historic averages, at different annual rates of change in purchasing power.

Activity	5% annual decline	No change	5% annual growth
Acreage outputs in the next 10 years (2012–2021)			
Protection	330,000	410,000	520,000
Restore/Enhance	3,000,000	3,740,000	4,700,000
Maintenance	2,330,000	2,900,000	3,650,000
Acreage outputs after 25 years (2010–2034)			
Protection	600,000	1,030,000	1,970,000
Restore/Enhance	5,400,000	9,350,000	17,840,000
Maintenance	4,190,000	7,250,000	13,850,000

Total acres were rounded to nearest 10,000.

Table 11. Estimated 2000–2009 expenditures by habitat type.

Habitat Type	Protection	Restoration/ Enhancement
Prairies/Grasslands	51%	33%
Wetlands	28%	24%
Forests	11%	34%
Aquatic	10%	9%
Total	100%	100%

Each organization's reported percentages were weighted by its 10-year average expenditures to estimate a group percent by habitat. The wetlands percentage is likely underestimated because some organizations do not track wetlands separately from prairies/grasslands and forests.

Figure 9 compares the permanent habitat gains estimated above with an annual estimated loss of 7,500 acres of forests, wetlands and grasslands permanently converted to non-habitat uses annually, with no change in the year-to-year loss rate. This estimate is derived from the sources discussed on pages 13–14 and is not a reliable predictor due to the source data's variations and age (pre-2003 and earlier).[25]

This habitat loss estimate excludes agriculture lands withdrawn from the federal Conservation Reserve Program (CRP) because of the program's year-to-year variability. On average, 28,000 CRP acres per year were withdrawn from 2006-2010. But from 2000-2005, CRP enrollment increased enrollment and the 2000-2010 average is a gain of 42,000 acres annually.[26] The future of the CRP is a major uncertainty that could make it very difficult to result in net positive gains in habitat.

Figure 10 shows acres restored and enhanced over 25 years, at different annual rates of change in purchasing power.

[25] The 7,500 acres is based on 3,500 forest acres loss per year, 1,500 wetland acres loss per year, and a presumed permanent grassland loss of 1,500 acres per year.
[26] http://www.fsa.usda.gov/Internet/FSA_File/cumlativeco8609.xls (2000-2009 data) and http://www.fsa.usda.gov/Internet/FSA_File/signup_39_accept_st_offers.pdf (2010 data).

Figure 9. Acres protected over 25 years at different annual rates of change in purchasing power, compared with potential habitat loss due to land conversion.

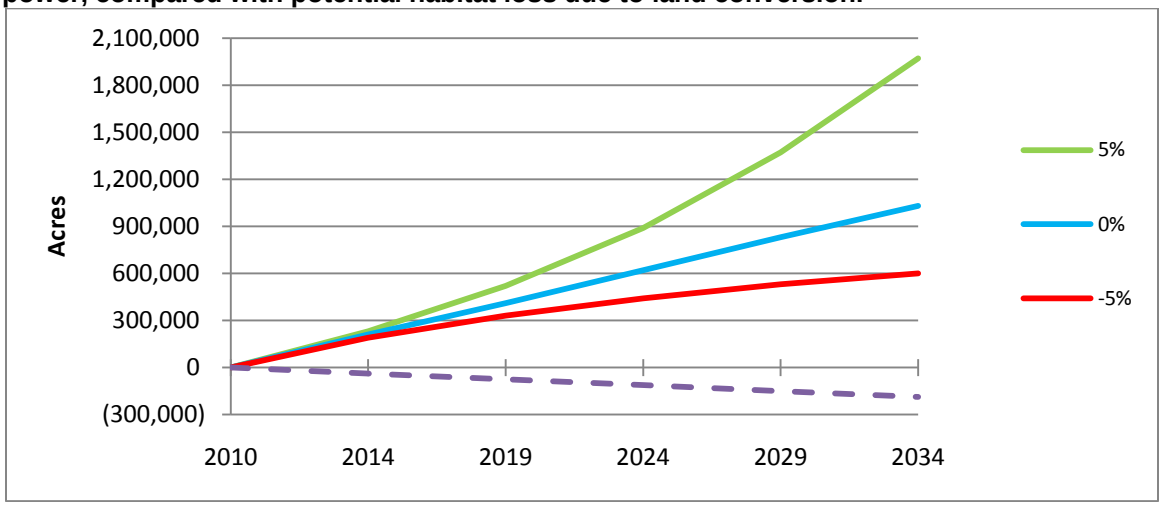
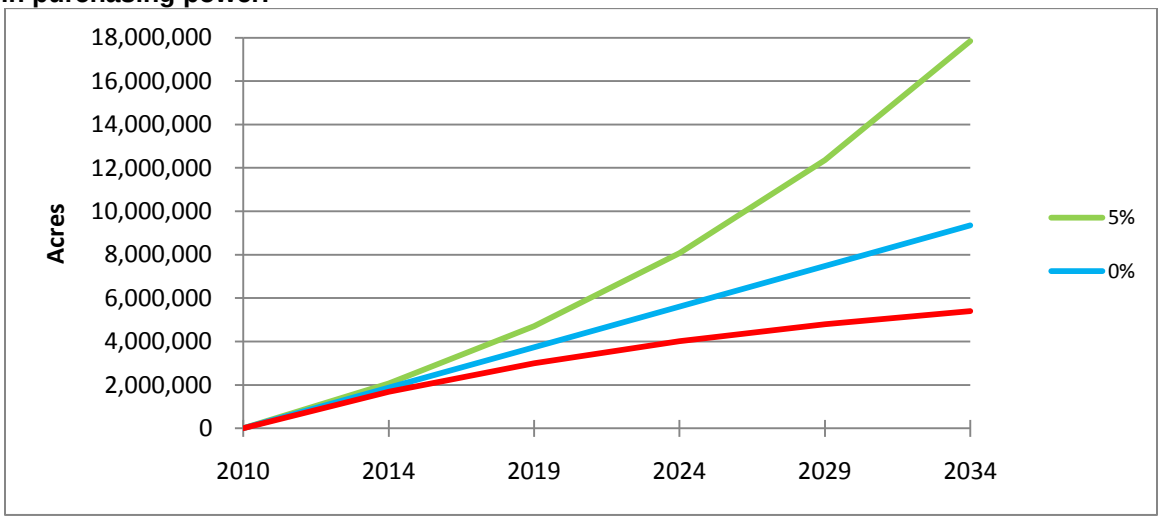


Figure 10. Acres restored and enhanced over 25 years at different annual rates of change in purchasing power.



Summary findings from Scenario 1

- After 25 years, the total acres acquired by the state's largest conservation entities could range from 600,000 to 2 million acres without OHF appropriations, depending directly on the purchasing power of the appropriations as they are influenced by sales tax revenues and inflation (see Table 10 and Figure 9).
- After 25 years, these organizations could restore and enhance between 5.4 million and 17.8 million acres, depending on the purchasing power of their appropriations (see Table 10 and Figure 10).
- As noted earlier, these projections may be generous, considering that they are based on past appropriations and organizations noted they face declining initial and long-term funding.

Scenario 2: Current trajectory

Scenario 2 shows the likely outputs if remaining OHF appropriations conform to a similar type and pattern as the first two years' funded projects. It assumes that the 2010–2011 OHF projects' protected, restored, and enhanced acres, after adjusting for a large forest easement project, will be replicated annually for the next 23 years. Scenario 2 is additive to Scenario 1. In other words, it describes the contribution that the OHF can make in addition to historic efforts.

Table 12 shows the OHF's FY2010 and FY2011 acres by habitat. These two years include the Forest for the Future Program's Upper Mississippi Forest Project allocation, which received $18 million annually in 2010 and 2011 to protect 189,000 acres of northeast Minnesota forest, wetlands, and shoreline.[27] This was seen as a unique and timely opportunity by the LSOHC. However, a single project of this magnitude is unlikely to occur again, so some adjustments were made in creating the scenario to more accurately reflect likely expenditures. Additionally, the OHF's FY2011 revenues were $10 million more than FY2010's due to increased sales tax revenue.

Table 12. OHF FY2010 and FY2011 funded acres.

Habitat type	Acres acquired		Acres restored/enhanced	
	2010	2011	2010	2011
Wetlands	5,038	2,786	6,519	11,731
Prairies/Grasslands	9,815	8,129	7,327	26,867
Forests	95,000	96,813	3,310	4,252
Aquatic	2,618	3,745	1,191	4,494
Total	**112,471**	**111,473**	**18,347**	**47,344**

Source: LSOHC grant recipients' submitted accomplishment plans, as of July 2010. Acres represent both actual accomplishments and plans. Wetlands are likely counted in the prairie and forest numbers.

A two-year average with significant inter-year variation is not a highly reliable starting point for projections and prevented an analysis by LSOHC sections. With additional years of funding decisions, a recalculated average will provide greater confidence.

As noted above, it was necessary to adjust the Forest for the Future Program's Upper Mississippi Forest Project acres because another investment of this magnitude is unlikely to occur again. To calculate the 2010–2011 average for Scenario 2's projections, the key assumptions were:

- 12,010 acres annually completes the Forest for the Future Program's current 530,000 acre goal[28] by 2034
- The LSOHC and Legislature support the Forest for the Future Program's target acreage

[27] According to LSOHC project reporting practices, all the acres are recorded as forest habitat, but include 60,000 wetland acres and 260–280 shoreline miles (about 3,000 acres). http://files.dnr.state.mn.us/assistance/backyard/forestlegacy/dnr_background_upmblandin.pdf

[28] The Forest for the Future Program is refining its total acreage goal, so the 350,000 figure will change.

- $12 million of the $18 million in annual Forest for the Future Program's funds are reallocated proportionately to the other 2010 and 2011 projects, with the remaining $6 million allocated to the 12,010 forest acres.

Table 13 shows the 2010 and 2011 adjusted acres and the resulting two-year average, which is the starting point for these projections. Table 14 shows the resulting 10- and 25-year projections. Note that these tables estimate *scenario 2 only* - scenarios 1 and 2 must be added together in order to obtain an estimate of the change in Minnesota's conservation estate with the infusion of OHF dollars.

Table 13. Adjusted 2010 and 2011 acres.

Habitat type	Acres protected			Acres restored/enhanced		
	2010	2011	Average	2010	2011	Average
Wetlands	6,280	3,360	4,820	8,130	14,150	11,140
Prairies/Grasslands	12,230	9,810	11,020	9,130	32,410	20,770
Forests	12,010	12,010	12,010	4,130	5,130	4,630
Aquatic	3,260	4,520	3,890	1,480	5,420	3,450
Total	**33,780**	**29,700**	**31,740**	**22,870**	**57,110**	**39,990**

Appendix F shows the step-by-step adjustments.

Table 14. Ten- and 25-year acreage outputs under current trajectory (OHF funding).[29]

Habitat type	Protected			Restored and Enhanced		
	5% annual decline	No change	5% annual growth	5% annual decline	No change	5% annual growth
Next 10 years (2012–2021)						
Wetlands	39,000	48,000	61,000	89,000	111,000	140,000
Prairies/Grasslands	88,000	110,000	139,000	167,000	208,000	261,000
Forests	96,000	120,000	151,000	37,000	46,000	58,000
Aquatic	31,000	39,000	49,000	28,000	35,000	43,000
Totals	**254,000**	**317,000**	**400,000**	**321,000**	**400,000**	**502,000**
After 25 years (2010–2034)						
Wetlands	75,000	119,000	208,000	172,000	274,000	480,000
Prairies/Grasslands	171,000	271,000	475,000	322,000	512,000	895,000
Forests	358,000	468,000	690,000	72,000	114,000	200,000
Aquatic	60,000	95,000	167,000	54,000	85,000	149,000
Totals	**664,000**	**953,000**	**1,540,000**	**620,000**	**985,000**	**1,724,000**

Total acres were rounded to nearest 1,000.

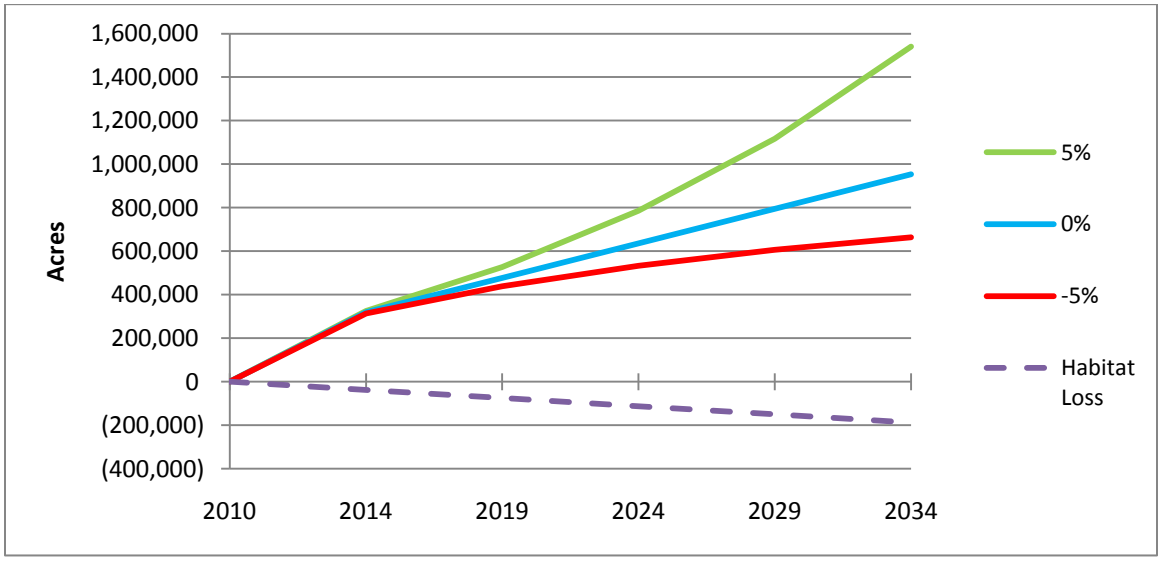
[29] 2010–2011 actual acres and 2010–2011 adjusted average for next 23 years, at different annual growth rates.

Figure 11 compares permanent habitat gains with an annual estimated loss of 7,500 acres of forests, wetlands and grasslands permanently converted to non-habitat uses annually, with no change in the year-to-year loss rate. This estimate is derived from the sources discussed on pages 13–14 and is not a reliable predictor due to the source data's variations and age (pre-2003 and earlier).[30]

This habitat loss estimate excludes agriculture lands withdrawn from the federal Conservation Reserve Program (CRP) because of the program's year-to-year variability. On average, 28,000 CRP acres per year were withdrawn from 2006-2010. But from 2000-2005, CRP enrollment increased enrollment and the 2000-2010 average is a gain of 42,000 acres annually.[31] The future of the CRP is a major uncertainty that could make it very difficult to result in net positive gains in habitat.

Figure 12 shows the resulting restoration and enhancement patterns at different growth rates. Note that the growth lines overlap in the near term (2010–2014) because they include the same 2010 and 2011 acres.

Figure 11. Total acres acquired over 25 years, at different annual rates of change in purchasing power, if OHF expenditures continue based on the first two years' trends, compared with potential habitat loss due to land conversion.

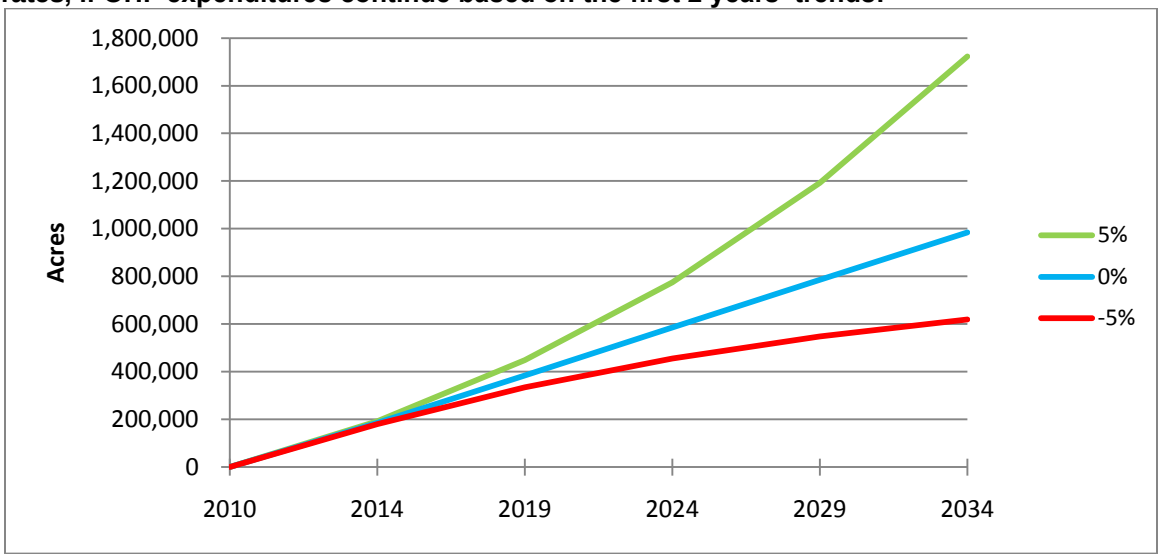


Note: The kink in the above figure at 2014 reflects the large 2010–2011 forest easement project and the adjustment made for subsequent years.

[30] The 7,500 acres is based on 3,500 forest acres loss per year, 1,500 wetland acres loss per year, and a presumed permanent grassland loss of 1,500 acres per year.

[31] http://www.fsa.usda.gov/Internet/FSA_File/cumlativeco8609.xls (2000-2009 data) and http://www.fsa.usda.gov/Internet/FSA_File/signup_39_accept_st_offers.pdf (2010 data).

Figure 12. Total acres restored and enhanced over 25 years, at different annual growth rates, if OHF expenditures continue based on the first 2 years' trends.



Summary findings from Scenario 2

- After 25 years, the total acres acquired through the OHF investment could range from 664,000 to 1.5 million, depending on the purchasing power of the OHF revenues.
- After 25 years, the OHF could restore and enhance between 620,000 and 1.7 million acres, depending on the purchasing power of OHF revenues.

Summary findings from Scenarios 1 and 2 combined

Tables 15 and 16 below combine the first two scenarios' projections to show the potential impact of all major conservation funding efforts – those of the largest conservation organizations as well as the OHF.

Table 15. Total acres acquired over 25 years.

Activity	5% annual decline	No change	5% annual growth
Scenario 1: Historic	600,000	1,030,000	1,970,000
Scenario 2: OHF	664,000	953,000	1,540,000
Total	**1,264,000**	**1,983,000**	**3,510,000**
Percent increase due to OHF	**111%**	**93%**	**78%**

Table 16. Total acres restored and enhanced over 25 years.

Activity	5% annual decline	No change	5% annual growth
Scenario 1: Historic	5,400,000	9,350,000	17,840,000
Scenario 2: OHF	620,000	985,000	1,724,000
Total	**6,020,000**	**10,335,000**	**19,564,000**
Percent increase due to OHF	**11%**	**11%**	**10%**

- Based on the first two years of funding, the OHF would almost double current protection (acquisition and easement) efforts.
- Based on the first two years of funding, the OHF would increase restoration and enhancement activity by approximately 10%. Compared to the percent increase that is possible for protection efforts, this may seem small. Bear in mind that per-acre costs between the two scenarios may vary widely because of the type of restoration/enhancement activities conducted by different organizations.
    - The acreage within the historical base effort (Scenario 1) reported by conservation organizations would include low per-acre cost activities that are applied to large acreages, which results in a large sum of restored and enhanced acreage, as well as a lower average cost per acre when totaled across many activities.
    - The type of work funded in the first two years of the OHF (Scenario 2) has likely been more intensive and expensive restoration and enhancement than was reported by conservation organizations, such as conversion of lands with negligible habitat value to ones with moderate to high value. Furthermore, the OHF and conservation organizations may have counted the number of acres differently (acres affected by a restoration or enhancement project would be greater than the acres actually worked). These cost and measurement differences would result in a higher average cost per acre and a lower sum of restored and enhanced acres when totaled across many activities.

Scenario 3: Maximized allocations by habitat type and activity

This scenario describes the outputs that could be achieved if all OHF funds were allocated to a single habitat type and activity for the next 23 years. Under this scenario, neither the constitutional mission nor the LSOHC's vision and priorities are realized. This scenario shows an upper bound for what might be accomplished for each habitat type if the entire OHF funds were allocated to one activity in one habitat type. It serves as a reality check for calibrating expectations of what the OHF can reasonably accomplish over the next 23 years. Key assumptions are:

- OHF annual funding is $80 million.
- There are no input constraints (human, seed stock, etc.)
- Average cost per acre is based on the 2009 conservation professional planning session estimates.[32]

For example, if $80 million per year is directed to protecting wetlands at $4,000 per acre, 20,000 acres are protected annually and 460,000 acres are protected during the next 23 years.

Table 17 adds the OHF's actual 2010 and 2011 acres to the 23-year maximized allocations. **Table cells should not be summed because options are mutually exclusive in this scenario.**

Table 17. Projected acreage outputs after 25 years for Scenario 3 (2010–2011 actual acres and maximized acres for next 23 years.)

Habitat type	Acquired Acres				Acres Restored/Enhanced		
	5% annual decline	No change	5% annual growth		5% annual decline	No change	5% annual growth
	Next 10 years (2012–2021)				**Next 10 years (2012–2021)**		
Wetlands	160,000	200,000	250,000	**or ⇨**	800,000	1,000,000	1,260,000
Prairies/ Grasslands	180,000	230,000	290,000	**or ⇨**	920,000	1,140,000	1,440,000
Forests	860,000	1,070,000	1,340,000	**or ⇨**	710,000	890,000	1,120,000
Aquatic	130,000	160,000	200,000	**or ⇨**	60,000	80,000	100,000
	After 25 years (2010–2034)				**After 25 years (2010–2034)**		
Wetlands	290,000	470,000	840,000	**or ⇨**	1,410,000	2,320,000	4,160,000
Prairies/ Grasslands	340,000	550,000	970,000	**or ⇨**	1,610,000	2,660,000	4,760,000
Forests	1,670,000	2,640,000	4,610,000	**or ⇨**	1,240,000	2,050,000	3,690,000
Aquatic	230,000	380,000	670,000	**or ⇨**	120,000	190,000	340,000

Total acres were rounded to nearest 10,000.

[32] See Appendix G for the average cost per acre by habitat and activity.

Summary finding from Scenario 3

- **The OHF alone could support about 25% of the 2009 target acres, with a few exceptions.** Even if all OHF monies were allocated to one activity and habitat type (Scenario 3), they do not meet the targets that were set during the LSOHC's 2009 planning process. Specifically, the 2009 wetlands and prairies/grasslands protection targets and the forests and aquatic habitat restoration/enhancement targets are unmet without the financial support of conservation partners. The conclusions on the next two pages provide additional details about the targets.

Conclusions

The working group compared the conservation estate (Table 18) and the three scenarios to the targets that were set during the LSOHC's 2009 planning process (Tables 19 and 20).

Table 18. Minnesota's total conservation estate acres.

Category	Acres	Percent
Publicly owned or permanently protected terrestrial	11,970,000	22%
Publicly owned aquatic	3,580,000	7%
Privately owned not permanently protected terrestrial	14,180,000	26%
Privately owned aquatic	290,000	1%
Nonhabitat lands	23,980,000	44%
State total acreage	54,000,000	100%

Source: See Figures 4–8. Acres are rounded to the nearest 10,000.

Table 19. Publicly owned or permanently protected habitat acres by scenario after 25 years (assuming zero growth).

Habitat Type	2009 targets	Scenario 1*	Scenario 2	Scenario 3
Wetlands	530,000	*288,400*	119,000	470,000
Prairies/Grasslands	2,540,000	*525,300*	271,000	550,000
Forests	2,330,000	*113,300*	468,000	2,640,000
Aquatic	240,000	*103,000*	95,000	380,000
Total	5,640,000	1,030,000	953,000	N/A

Sources: LSOHC *Strategic Planning and Recommendation Development Process – Summary of Input Meetings*, September 2009, and Scenarios 1–3. *estimate based on the weighted percentage of expenditures reported in Table 8 multiplied by the total anticipated protected acres

Table 20. Restored and enhanced acres by scenario (assuming no growth).

Habitat Type	2009 targets	Scenario 1*	Scenario 2	Scenario 3
Wetlands	470,000	*2,244,000*	274,000	2,320,000
Prairies/Grasslands	2,130,000	*3,085,500*	512,000	2,660,000
Forests	4,490,000	*3,179,000*	114,000	2,050,000
Aquatic	400,000	*841,500*	85,000	190,000
Total	7,490,000	9,350,000	985,000	N/A

Sources: LSOHC *Strategic Planning and Recommendation Development Process – Summary of Input Meetings*, September 2009, and Scenarios 1–3.*Estimate based on the weighted percentage of expenditures reported in Table 8 multiplied by the total anticipated restored and enhanced acres

- **Under Scenario 2, the OHF could almost double historic protection efforts, from 1,030,000 acres to 1,983,000 acres. (**Table 19).

- **OHF restoration and enhancement activities would add an additional 10% to current efforts, but the type of work is not necessarily comparable.** As noted during the discussion of Scenario 2, the OHF would likely be funding more intensive

restoration and enhancement, such as conversion of lands with negligible habitat value to ones with moderate to high value, which may contribute to the lower annual acreage reported in Scenario 2 compared to historic outputs. In addition, organizations may be counting the number of acres differently (affected versus worked acres). See Table 20.

- **The LSOHC 2009 planning targets for protection exceed the capacity of the OHF and major conservation efforts added together.** The ability to meet restoration and planning targets is less clear. The 2009 planning targets were informed by a number of conservation plans and the judgment of conservation professionals, but, assuming zero growth, they are unreachable. See Table 19.

- **The OHF alone could support about 25% of the 2009 target acres, with a few exceptions.** Even if all OHF monies were allocated to one activity and habitat type (Scenario 3), the 2009 wetlands and prairies/grasslands protection targets and the forests and aquatic habitat restoration/enhancement targets are unmet without the financial support of conservation partners. See Tables 19 and 20.

- **The OHF and current efforts could increase the number of publicly owned and privately protected terrestrial habitat by 15% over the next 23 years.** Although this may sound encouraging, it also creates a greater maintenance burden for conservation organizations. A recent Office of the Legislative Auditor report[33] and the LSOHC 2009 planning sessions raised concerns about the shortfall in maintaining current wildlife lands and waters. This implies that serious consideration should be given to prioritizing expenditures among activities, and that priorities may justifiably need to shift from protection to restoration/enhancement over the life of the OHF. See Tables 18 and 19.

- **All estimates are highly dependent on growth rates.** The comparisons above used projections with zero growth, but different annual growth rates will significantly affect the total acres protected, restored, and enhanced. A negative 5 percent annual change results in almost two-thirds fewer acres than a 5 percent annual increase over 23 years. Thus there is a great deal of uncertainty inherent in these projections.

- **Key attributes differ markedly among LSOHC sections.** Consider:
  - Almost 55 percent of the Northern Forest Section is publicly owned or protected by permanent private easement. In contrast, only 6 percent of the Prairie and Southeast Forest sections and approximately 15 percent of the Metro Urbanizing and Forest/Prairie Transition sections are publicly owned or permanently protected habitat.
  - Nearly 90 percent of the Northern Forest Section, whether publicly or privately owned, is habitat, while the Prairie Section is 18 percent habitat. The other sections are 40 to 53 percent habitat.

[33]Office of the Legislative Auditor, *Natural Resource Land*, March 2010. Found at: http://www.auditor.leg.state.mn.us/ped/pedrep/nrland.pdf

  - The ratio of protected aquatic to protect terrestrial habitat varies, with nearly equal amounts in the Forest/Prairie Transition and Prairie sections, lower amounts of protected terrestrial habitat in the Metropolitan Urbanizing Section, and lower amounts of protected aquatic habitat in the Southeast Forest and Northern Forest sections.

- **Some of the LSOHC's 2009 restoration and enhancement targets exceed the current number of permanently protected acres, especially wetlands and prairies\grasslands.** This discrepancy is in line with the conservation estate assessment, which indicated that only 18 percent of the Prairie Section is "habitat" and that only 6 percent of the area is protected—underscoring the challenges associated with a largely privately owned agricultural landscape. Restoration of these habitats to meet 2009 LSOHC planning targets would first require the protection of hundreds of thousands of acres.

Appendix A: Goals, opportunities, and constraints

The working group asked conservation organizations to identify and evaluate opportunities and constraints (or organizational challenges) over the previous 10 years, over the next 10 years, and over the next 11–25 years. In addition to the organizations listed on page 23, the Trust for Public Land and the Conservation Fund responded.

The questions posed were:

- Please identify major goals (including specific targets/outcomes) of your organization regarding the protection, restoration, and enhancement of prairies, forests, wetlands, and aquatic wildlife habitat for the next 10–25 years.
- What are the top three opportunities that may have a positive influence on these goals?
- Identify the overall top three constraints (based on impact) for your organization and discuss what it would take to overcome them.

The working group also provided a table of 22 constraints (see Table 21) and asked organizations to rate how significant each has been or could be to their organization's ability to meet protection, restoration, and enhancement goals in the previous 10 years, over the next 10 years and in the next 11–25 years. The rating scale was: none (1), low (2), moderate (3) or major (4).

Table 21. List of organizational, conservation, political, and environmental constraints.

Constraints	
Shortage of staffing/human capital	Reductions in current protection (e.g. removal from CRP)
Shortage of technical expertise	Lack of willing sellers
Lack of data or information	Inadequate regulations
Lack of decision support (prioritization) tools	Inadequate enforcement
Declining initial funding	Increasing land values
Declining long-term funding	Competing land uses
Increasing long-term stewardship and/or maintenance costs	Restricted supply of materials (e.g., native seeds)
Capacity for long-term monitoring	Changes in resource-based economies
Lack of coordination amongst various entities/ programs	Invasive species
Local political resistance to new conservation lands	Loss of functioning systems/ fragmentation/ degradation
Uncertainty regarding PILT payments	Climate change

The following themes and conclusions are drawn from the responses received. Because only one response was received from each organization, results are not statistically representative of the statewide conservation community. However, the responses do provide substantial insight regarding past and future opportunities and constraints.

Habitat goals

- Goals reported included goals for long-term health of the land and ecosystems, as well as protection, improvement, and restoration of watershed and riparian areas. Numerous strategies were identified for achieving these goals, including actively managing ecosystems, working to preserve biological diversity, and controlling the spread of nonnative invasive species.
- Four organizations (the National Wildlife Refuge System, the DNR, the Minnesota Land Trust, and The Nature Conservancy) reported that they had established specific acreage or shoreline goals or targets. Four organizations (the U.S. Forest Service, the DNR, the National Wildlife Refuge System, and Pheasants Forever) reported population-related goals for species. Two organizations (the DNR and BWSR) reported that they set program goals relative to landscape characteristics (e.g., targeting specific lands as priorities for the forest, prairie, wetland, and aquatic habitat protection or priority characteristics for the Reinvest in Minnesota-Wetland Reserve Program (RIM-WRP) partnership.

Habitat opportunities

Opportunities that were anticipated to have a positive influence on these goals included:

- Numerous federal funding opportunities, such as USDA Farm Bill programs (including the Wetland Reserve Program, Grassland Reserve Program, the Mississippi River Basin Initiative, and CRP), the Migratory Bird Conservation Fund, Land and Water Conservation Fund, the Partners for Fish and Wildlife program, and the Great Lakes Restoration Initiative.
- New state funding opportunities such as the OHF and the Clean Water Fund.
- Opportunities to coordinate management and responses to challenges that cross ownership and jurisdictional boundaries; coordination opportunities with bodies such as the Minnesota Forest Resources Council, NGOs, and individual landowners via an “all lands management” strategy.
- Increasing private landowner willingness to coordinate land management strategies or to donate all or a portion of their lands for conservation easements.

Constraints

The 22 constraints are listed in Table 22 in ranked order of significance, as measured by a mean average over all three time periods. Constraints that showed the greatest increase in significance over time periods are noted with a check mark. The bar graphs following the table show average ratings.

Table 22. Constraints to increasing Minnesota's conservation estate responses.

Constraints, in ranked order (based on average over the three time periods)	**Greatest increase in significance…**		
	from the past 10 to the next 10 years	from the past 10 to the next 23 years	from next 10 to 23 years[34]
1. Loss of functioning systems, fragmentation/ degradation			
2. Declining initial funding	✓	✓	
3. (tied) Shortage of staffing/human capital	✓	✓	
3. (tied) Declining long-term funding	✓	✓	
4. Changes in resource-based economies			
5. Competing land uses			✓
6. (tied) Invasive species		✓	✓
6. (tied) Capacity for long-term monitoring			
7. (tied) Local political resistance to new conservation lands			
7. (tied) Increasing long-term stewardship and/or maintenance costs			
8. Reductions in current protection (e.g., removal from CRP)	✓	✓	
9. Increasing land values			✓
10. Climate change			
11. Inadequate regulations			
12. Inadequate enforcement			
13. Restricted supply of materials (e.g., native seeds)			
14. Lack of coordination amongst various entities/ programs			
15. Uncertainty regarding PILT payments	✓		
16. Shortage of technical expertise			
17. Lack of data or information			
18. (tied) Lack of decision support (prioritization) tools			
18. (tied) Lack of willing sellers			

Loss of functioning systems and habitat fragmentation/degradation was the top concern among respondents, and its importance remains steady over time. Many challenges persist over time, and many even increasing, such as ecological degradation, competing land uses, land use changes (conversion to development or agriculture), habitat loss, fragmentation, and invasive species. Organizations noted that as a result, a net positive change is difficult to achieve. One stakeholder noted that invasive species are degrading habitat at a faster pace than they can be addressed.[35]

[34] Eight factors were tied for second place in anticipated change in significance from 2020 to 2033.
[35] Estimates of habitat loss are provided in the "Minnesota's conservation estate" section.

Declining initial funding was the second-ranked constraint. Funding was also mentioned as an opportunity, but organizations noted that while new sources such as the OHF are clearly a huge boost, many funding challenges remain. Increasing instability in funds makes it difficult for stakeholders to plan or to hire permanent employees. Indirect costs associated with projects are difficult for organizations to cover without additional support, and other conservation costs continue to increase with the same amount of base funding. **Declining long-term funding** also was ranked near the top, with uncertainty and declining funding increasingly a concern over the longer term (11–25 years).

A shortage of staffing and human capital is a limiting factor for organizations, and is an increasing concern over the longer term. Technical capacity is an increasing concern over time, largely due to a generational shift in the workforce and leadership. A particular skill set mentioned that is of importance to the OHF is real estate expertise in the area of conservation easements – both legal and process expertise. In the short term, stakeholders noted that unstable funding and programs limit their ability to plan their workforce. Furthermore, staff that do indirect-cost work (e.g., administrative, grant management, payroll, legal, human resources, information technology) are necessary but not funded by the OHF, and a relatively stable funding stream is critical to maintain operational capacity in these areas. Decreasing private fund support makes indirect costs particularly challenging for NGOs.

Organizations also noted that long-term stewardship will be increasingly challenging. There is already a backlog of maintenance/enhancement needs, and new land acquisitions will add to this base of necessary long-term funding. Meeting this challenge in the face of continued habitat loss and degradation will require monitoring and adaptive management[36] to effectively determine the approach. While monitoring efforts are expensive, they were identified as being critical for understanding whether projects and activities are achieving their desired results and then adjusting accordingly.

A few constraints are notable because they ranked fairly low:

- Collaboration and coordination was of relatively low concern. Organizations noted that increased partnerships have allowed them to boost efficiency and adopt value-added strategies. The responses show a close knitting together of NGOs and state/federal agencies.
- Organizations noted that private landowners have become an important strategic component in their work, and a lack of willing sellers was one of the lowest-ranked constraints. Conservation entities stated that helping private landowners successfully manage their lands is critical for a comprehensive ecological approach.

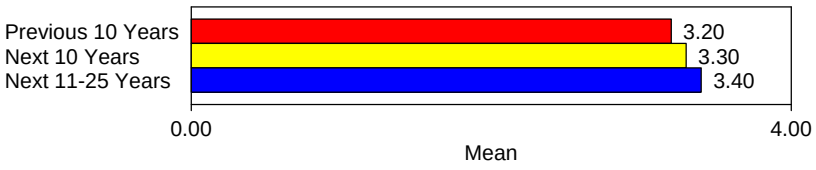
Although "uncertainty regarding PILT payments" was ranked near the bottom for federal and state agencies and NGOs, it was considered a major constraint for counties.

[36] Adaptive management is an iterative process to improve subsequent management policies and practices by deliberately setting and monitoring objectives, learning from outcomes, and adjusting methods. It employs programs that are designed to experimentally compare selected policies or practices.

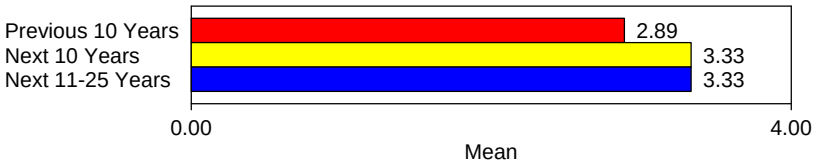
Constraints survey summary

Constraints are listed by topic, in descending order (highest overall constraint is first)
Scale for evaluation: None = 1; Minor = 2; Moderate = 3; Major = 4

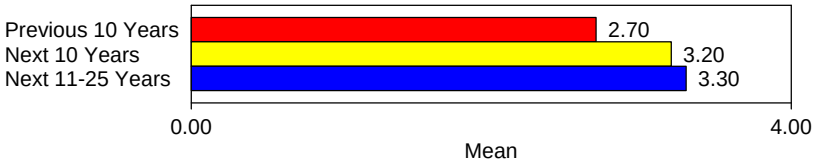
Loss of functioning systems/fragmentation/degradation



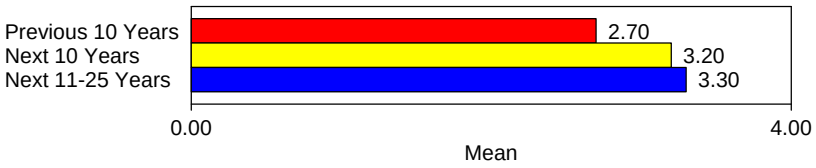
Declining initial funding



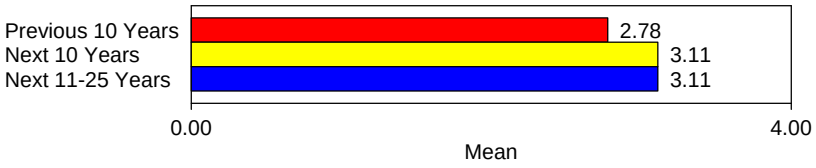
Shortage of staffing/human capital



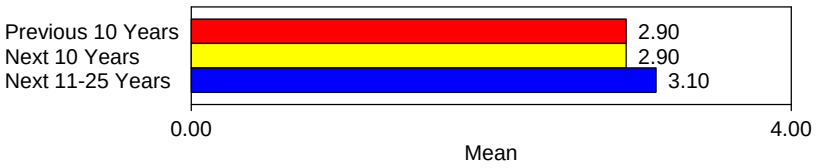
Declining long-term funding



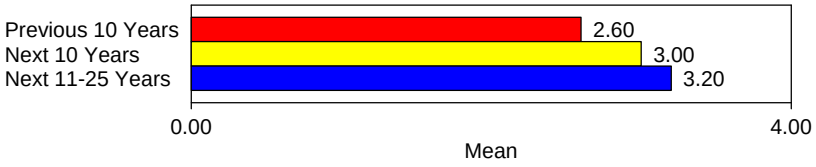
Changes in resource-based economies



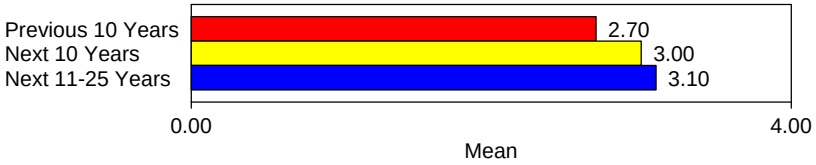
Competing land uses



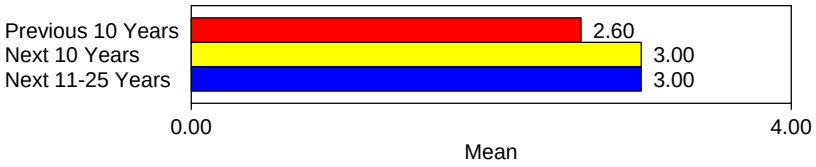
Invasive species



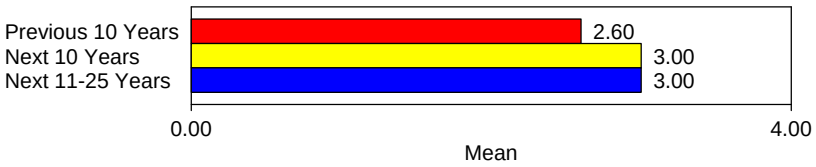
Capacity for long-term monitoring



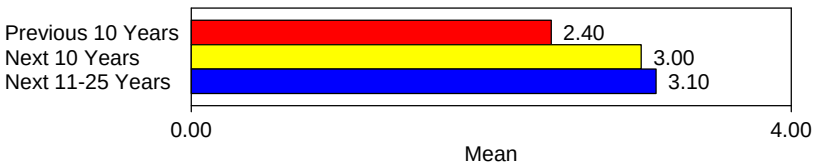
Local political resistance to new conservation lands



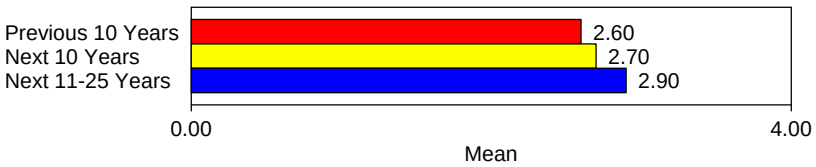
Increasing long-term stewardship and/or maintenance costs



Reductions in current protection (e.g., removal from CRP)

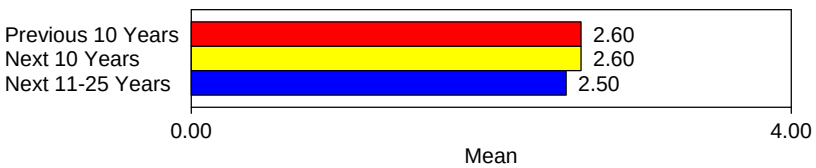


Increasing land values

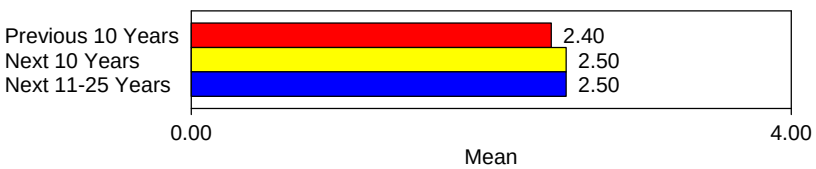


Climate change

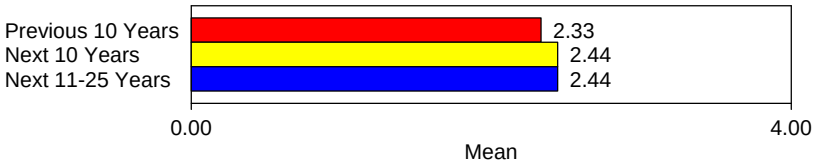
Inadequate regulations



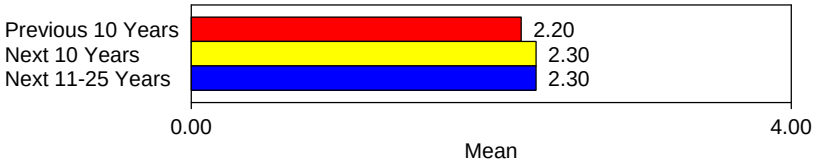
Inadequate enforcement



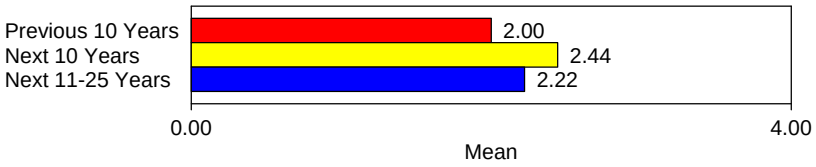
Restricted supply of materials



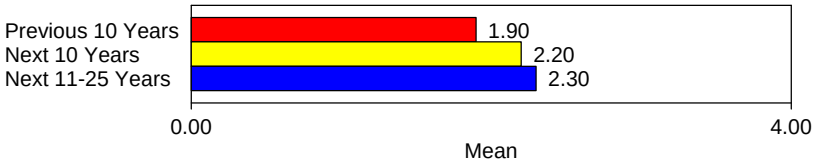
Lack of coordination amongst entities/programs



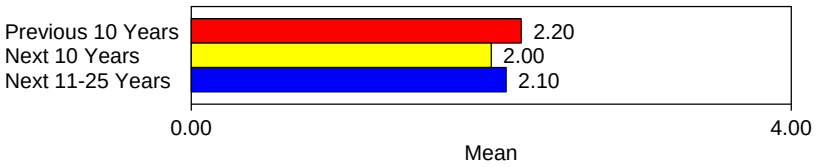
Uncertainty regarding PILT payments



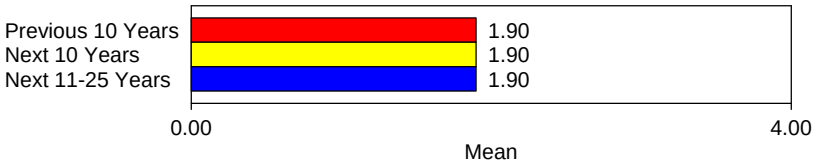
Shortage of technical expertise



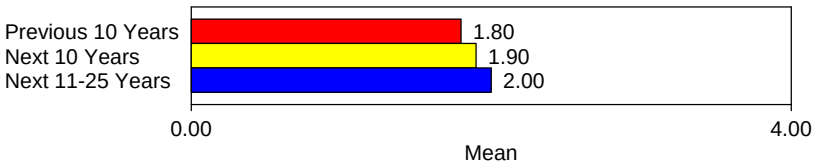
Lack of data or information



Lack of decision support



Lack of willing sellers



Appendix B: Options for consideration

The following options for consideration were developed by the working group. These options have not been discussed by the LSOHC.

Revise the 2009 acreage targets to establish attainable and ecologically beneficial goals. The targets were based on existing plans and professional judgment, but were developed through different approaches and with different assumptions. The TNC-led Minnesota State Prairie Landscape Comprehensive Plan 2010 (in progress) is an excellent example of multiple conservation partners setting specific goals. Once more realistic targets are established, conservation organizations must agree on each of their respective financial roles or contributions because no partner can achieve the goals alone. Setting acreage targets must consider the best available science and professional judgment on key qualitative characteristics to ensure that the acres protected, restored, and enhanced offer the greatest habitat and ecological return on investment. A qualitative and/or quantitative evaluation framework would assist allocation decisions by identifying the conditions that support the best outcomes.

Consider the role of private lands, a significant part of Minnesota's habitat. The amount of privately owned habitat, not permanently protected almost equals Minnesota's publicly owned or permanently protected acres (see Table 18). Restoring and enhancing private lands near public lands can improve habitat quality and the ecosystem functions that support it, and may provide other benefits. Acquisition is one way to prevent habitat fragmentation; promoting good private and public landscape management is another, often more cost-effective method. High land costs in the Metro Urbanizing and Southeast Forest sections make restoration and enhancement an attractive alternative to acquisition. The land use and management activities of private landowners will continue to play a critical role in conservation throughout the state.

Different LSOHC sections require different strategic priorities and coordination with other funds. Once critical parcels are acquired, restoration and enhancement should be the OHF's focus in the Northern Forest section, given the high public ownership, significant private habitat, and concerns regarding payment in lieu of taxes (PILT). In the Southeast Forest section, on other hand, the focus of recent planning efforts on water quality issues offers opportunities to support projects in conjunction with the Clean Water Legacy Fund. Both acquisition and restoration will be important in the Prairie and Forest/Prairie Transition sections; protection of existing native prairie remnants should be a priority, along with protection and restoration of wetlands and grassland complexes.

Consider organizational constraints in accomplishing conservation objectives. Organizations seem to have difficulty ramping up in the first few years of meeting the growing demand for conservation work due to the increase in funding from the OHF. In the near term, operational capacity is a considerable constraint, and in 5–10 years resource issues (physical/technical capacity) will become more important. Over the next 11–25 years, increased uncertainty about funding may be a major constraint. While the major short-term challenge is getting the appropriate programmatic systems in place, there is a need for supplemental funding for indirect costs associated with OHF-funded

projects. As organizations adapt, new capacities will emerge. Furthermore, a strategy to address workforce development is needed. This strategy would ensure adequate human resources for both legal and process work to acquire, restore, enhance, and maintain land.

Develop new and nontraditional programs/strategies. Given the continued degradation and loss of functioning systems and the challenges of achieving a positive net conservation benefit, it may be necessary to adapt existing programs or create entirely new conservation programs. Some examples are the Working Lands Initiative, the Minnesota Prairie Recovery Project, or efforts to recruit farmers as public land stewards or providing incentives for diverse prairie-based biofuels. This would imply increased risks and rewards and an increased need for monitoring and adaptive management.

Appendix C: Planning and managing for results

The purpose of this appendix to the report is to:

- Present the LSOHC's statewide priority actions and section-specific vision and priority actions, and
- Discuss a results management framework that could help the council evaluate its progress.

Council priorities and vision

Below are the LSOHC's current statements of statewide priority criteria for project evaluation and LSOHC section-specific vision and priority actions, excerpted from its 2012 Call for Funding Requests. These were developed in September 2009 and refined by the council at two subsequent meetings.

Statewide priority criteria

1. Are ongoing, successful, transparent, and accountable programs addressing actions and targets of one or more of the ecological sections
2. Produce multiple enduring conservation benefits
3. Are able to leverage effort and/or other funds to supplement any OHF appropriation
4. Allow public access (this comes into play when all other things about the request are approximately equal)
5. Address conservation opportunities that will be lost if not immediately acted on
6. Restore or enhance habitat on state-owned WMAs, AMAs, SNAs, and state forests
7. Use a science-based strategic planning and evaluation model similar to the U.S. Fish and Wildlife Service's Strategic Habitat Conservation model to guide protection, restoration, and enhancement
8. Address wildlife species of greatest conservation need, Minnesota County Biological Survey data, and rare, threatened, and endangered species inventories in land and water decisions
9. Provide Minnesotans with greater public access to outdoor environments with hunting, fishing, and other outdoor recreation opportunities
10. Ensures activities for protecting, restoring, and enhancing are coordinated among agencies, nonprofits, and others while doing this important work
11. Target unique Minnesota landscapes that have historical value to fish and wildlife.

Ecological Section Vision and Priorities

Northern Forest Section Vision

The LSOHC's vision for the Northern Forest Section contains a clear view of the desired future condition for the section's forestlands, lakes and wetlands, and wildlife habitat.

Forestlands should be universally accessible for forest management as well as protected from development and fragmentation. Private inholdings in public forests and key properties for habitat and stand management adjacent to public forests should be acquired with an eye toward ensuring no net loss of forestland. Of special concern is the condition of brushlands within forestlands. These lands, along with early successional forest habitat, are crucial for game and nongame species and need restoration and enhancement so as to ensure ample availability of this habitat type.

Lakes and wetlands supporting healthy fish populations are fundamental to the future of the Northern Forest Section. Lakes and streams with protected shoreland and restored watersheds will produce quality warm- and cold-water aquatic systems. Those resources will provide the aquatic habitat required to support excellent populations of fish and other aquatic organisms.

The Northern Forest Section is home to cherished and unique Minnesota wildlife populations. Wildlife habitat in this section must support those populations. Healthy wild rice wetlands and shallow lakes that provide important habitat for a wide range of game and nongame wildlife are front and center in the LSOHC's vision. These and other key habitats are envisioned to protect habitat for endangered or threatened species and species of special concern.

Priority Actions for the Northern Forest Section

1. Protect shoreland and restore or enhance critical habitat on wild rice lakes, shallow lakes, cold water lakes, streams and rivers, and spawning areas.
2. Protect forestland though acquisition or easement to prevent parcelization and fragmentation and to provide the ability to access and manage landlocked public properties.
3. Restore and enhance habitat on existing protected properties, with preference to habitat for rare, endangered, or threatened species identified by the Minnesota County Biological Survey.
4. Restore forest-based wildlife habitat that has experienced substantial decline in area in recent decades.

Forest/Prairie Transition Section Vision

For the Forest/Prairie Transition Section, the LSOHC envisions diverse and productive remnant tracts of native prairie, forests grasslands, wetlands, lakes and rivers, and associated fish and wildlife habitat.

The council sees a future in which ample grasses and other vegetation on shorelands and higher in the watershed keep water on the land. This will yield clean lakes and streams, steady lake and stream levels, and improved aquatic vegetation and provide plentiful

habitat for fish, game, and wildlife, especially waterfowl and upland birds.

Rivers and streams and their surrounding vegetation will provide corridors of habitat, including intact areas of forest cover in the eastern reaches of the section and large wetland/upland complexes in the more westerly areas. These wetland/upland complexes will consist of native prairies, restored prairies, quality grasslands, and restored shallow lakes and wetlands.

Priority Actions for the Forest/Prairie Transition Section

1. Protect, enhance, and restore wild rice wetlands, shallow lakes, wetland/grassland complexes, aspen parklands, and shoreland that provide critical habitat for game and nongame wildlife.
2. Protect, enhance, and restore rare native remnant prairie.
3. Protect, enhance, and restore migratory habitat for waterfowl and related species, so as to increase migratory and breeding success.

Metro Urbanizing Vision

The LSOHC's vision for the Metropolitan Urbanizing Section is a network of natural lands providing wildlife habitat, quality fisheries (especially cold-water fisheries) and a forestland base that contributes to the habitat picture.

Natural lands in the Metropolitan Urbanizing Section include complexes of restored and perpetually protected wetlands, prairies, and forests providing habitat benefits and access. These will have core areas with protected, highly biologically diverse wetlands and plant communities, including native prairies. Where possible, the habitats will connect, making corridors for wildlife and species in greatest need of conservation, and hold wetlands and shallow lakes open to public recreation and hunting. The section's game lakes will be significant contributors of waterfowl due to efforts to protect uplands adjacent to game lakes. In the corridors, the streams, rivers, and lakes will be protected by vegetative buffers along riparian areas. Remnant oak savanna will be protected and its health restored, as will forests contributing to quality fisheries. As a result, cold-water streams and lakes will provide high-quality fisheries within an hour's drive of most of the state's population. Where possible, invasive species will have been permanently eradicated.

Priority Actions for the Metropolitan Urbanizing Area

1. Protect, enhance, and restore remnant native prairie, Big Woods forests, and oak savanna with an emphasis on areas with high biological diversity.
2. Protect habitat corridors, with emphasis on the Minnesota, Mississippi, and St. Croix rivers (bluff to floodplain).
3. Enhance and restore coldwater fisheries systems.
4. Protect, enhance, and restore riparian and littoral habitats on lakes to benefit game and nongame fish species.

Southeast Forest Section Vision

The LSOHC recognizes the Southeast Forest Section is a unique place, largely untouched by recent glaciers that covered most of Minnesota. The underlying karst geology and overlying remnants of the Big Woods are not found elsewhere in Minnesota. The ages have left a legacy of warm- and cold-water streams and rivers, floodplains, hardwood forests, remnant bluffland prairies, and striking topographic relief that provides diverse habitat worthy of protection.

In the forested parts of the Southeast Forest Section, the council sees a future of restored and protected oak savanna and mixed deciduous forest lands making up large blocks of protected property, accessible for resource management.

The cold- and warm-water streams of the region will be protected and enhanced by work in and along streams to the top of the watershed to slow runoff and keep aquatic habitat clean and productive, with prolific fish, game, and wildlife.

Southeast Forest Section wildlife habitat will be established in large corridors and complexes of restored and protected, biologically diverse habitat typical of the un-glaciated region. As a result, the section's endangered or threatened species will find habitat, such as goat prairies, in which to survive, alongside more common species of interest to Minnesotans. The Mississippi River and associated floodplain and bluffs, as well as feeder streams, will be an important part of this network of corridors and complexes.

Priority Actions for the Southeast Forest Section

1. Protect forest habitat though acquisition in fee or easement to prevent parcelization and fragmentation and to provide the ability to access and manage landlocked public properties.
2. Protect, enhance, and restore habitat for fish, game, and nongame wildlife in rivers, cold-water streams, and associated upland habitat.
3. Protect, enhance, and restore remnant goat prairies.
4. Restore forest-based wildlife habitat that has experienced substantial decline in area in recent decades.

Prairie Section Vision

The LSOHC sees the future of the Prairie Section as vital to the future of waterfowl, grassland birds and other wildlife dependent on native and restored prairies, shallow lakes, wetlands, and grasslands. The prairie region of Minnesota was once home to some of the largest herds of grazing animals the world has ever known. It also contains a portion of the prairie pothole region, the birthplace of 70 percent of North America's waterfowl. Unique components of this section are the prairie rivers, large and small, from the Red and Minnesota rivers to their tributaries in adjacent watersheds. This section also contains some of the largest freshwater marshes in North America.

The Prairie Section is now one of the most altered rural landscapes in the world, with 90 percent of its native prairie and wetlands now under plow. The native prairie and wetlands that remain should be perpetually protected. Where possible these remnant

native prairies should be part of large complexes with a goal of nine-square-mile parcels. These parcels should include restored prairies, grasslands, and large and small wetlands that will create buffers to the native prairie and provide the density of habitat needed by fish, game, and wildlife. Key core parcels should be set aside as areas managed for game species as well as refuges for fish, game, or wildlife and endangered or threatened species. Special emphasis should be put on extremely uncommon Minnesota species with unique or specific habitat requirements.

Prairie Section waters, affected by agricultural practices that increase runoff over natural levels, will have benefited from revitalized and expanded shoreland buffers and work to enhance shallow lake productivity for a variety of shorebirds and waterfowl. As a result of concentrated work of this type, combined with restored and enhanced upland habitat, historically significant resources for migratory waterfowl, such as the Heron Lake and Swan Lake watersheds, will once again be important landscapes for many species of migrating birds. Likewise, the Red River Valley will provide abundant wildlife habitat while simultaneously keeping water on the land to reduce flood potential.

The Prairie Section is home to a critical portion of the state's wildlife-related lands. The council sees these being increasingly productive in the future as the result of restoration and enhancement of native prairie, grassland, and watersheds, including the shallow lakes of this section. Precious remnants of the Big Woods and oak savanna in the southeastern part of the section will also be targeted for protection.

Priority Actions for the Prairie Section

1. Protect, enhance, or restore existing wetland/upland complexes, or convert agricultural lands to new wetland/upland habitat complexes.
2. Protect, enhance, and restore remnant native prairie, Big Woods forests, and oak savanna.
3. Convert agricultural land to wetland/upland to protect, enhance, or restore existing habitat complexes, such as WMAs.
4. Restore or enhance habitat on public lands.
5. Protect, restore, and enhance shallow lakes.
6. Protect expiring CRP lands.
7. Protect, enhance, and restore migratory habitat for waterfowl and related species, so as to increase migratory and breeding success.

Results management framework

Background

Evaluating progress requires an understanding of what success looks like. A results management framework:

- defines success and theories of change.
- clarifies the relationships among investments, actions, and results achieved.
- defines intended outcomes and expected results.

The framework relates investments to outcomes in a tabular format:

Inputs	Activities/ Outputs	Outcomes	
		Short-term & intermediate results	Long-term & end results
What we invest.	What we do and what is produced.	What results in the shorter term – what changes we expect to see: ➢ Conditions of natural resources ➢ Satisfaction ➢ Awareness ➢ Behavior.	What is the legacy? What do we want to achieve, ultimately? These include meaningful results for people & natural resources (e.g., an informed public, healthy natural resources, high citizen satisfaction, effective and efficient government.)

Some further definitions of these terms are provided below:

Inputs—what we invest. Inputs are resources dedicated to achieving desired results. An organization uses inputs to support its activities. Some examples of inputs are:

- Staff or volunteer time
- Facilities and equipment
- Money allocated

Activities—what we do. Activities are what an organization does to fulfill its mission. An organization's activities result in specific outputs. Some activity examples:

- Acquiring land
- Restoring and enhancing landscapes

Outputs—what is produced. Outputs are specific products resulting from activities. Outputs can be described as the volume of work achieved (e.g., the "amount of service" or "amount of product" provided). Outputs are important because they lead to desired outcomes. Some output examples:

- Acres acquired
- Miles of shoreland protected
- Acres of prescribed burns completed

Outcomes—what results. Outcomes are benefits to people and natural resources resulting, directly or indirectly, from the outputs. They typically relate to changes in people (awareness, knowledge, attitudes, skills, behavior, and satisfaction) and changes in natural resources (conditions and quality). Some outcome examples:

- Healthy lands and waters, habitat, and fish populations.
- Desirable catch rates and fish sizes.
- High angler satisfaction.

Outcomes exist along a continuum—for example, initial or short-term outcomes, intermediate outcomes, and long-term outcomes. Some examples:

- An awareness of game and fish regulations is a shorter-term outcome.
- Voluntary compliance with those regulations is an intermediate outcome.
- Healthy game and fish populations and high hunter/angler satisfaction due to successful operation of the regulations is a long-term outcome.

Long-term outcomes are often the result of efforts of numerous agencies, nonprofit organizations and other entities working together. They are the most susceptible to change due to external social, environmental or political forces. For example, climate change might have an impact on Minnesota's landscape that is beyond the control of any entity.

Method and key to reading framework tables

The working group prepared draft results management framework tables for each of the LSOHC sections using the council's Statewide Priority Criteria and Ecological Section Vision and Priorities, as shown on pages 48-52 of this report. On the following pages,

- **Bold** text shows priority actions articulated by the council.
- Plain (not bolded) text shows the working group's suggestions for filling in gaps in the framework (not recommendations) for the council.
- *(Italicized text in parentheses)* show some suggested measures, based on practices in the conservation field.

Working group observations and recommendations

- The council's vision and priorities present clear outputs and long-term results, but lack short-term and immediate results that could lead to specific outcomes for council projects.
- Many long-term outcomes should be measured in cooperation with other entities working to achieve common or complementary outcomes, and are only achievable with joint effort and planning. These long-term outcomes tend to be the goals that are most desirable for Minnesota citizens.
- A few of the council's outcomes require specific goals, targets, or benchmarks. For example, specifically defining the council's goal of "ample" grasslands and vegetation would better guide allocation decisions. The more explicit the council can be in their goals, both in terms of quantifying outcomes and clarifying the spatial distribution of priorities, the easier it will be to determine success.

PROPOSED FINAL

RESULTS MANAGEMENT FRAMEWORK – LSOHC Section: Northern Forest

Inputs (what we invest)	**Activities / Outputs** (what we do)	**Northern Forest Outcomes** (what success looks like)	
		Short-term and intermediate results	**Long-term and end results**
Investment for Acquisition **Dollars** $ for fee acquisition (per acre and associated fees) $ for conservation easements $ for easement stewardship **Human Capital** Number of employees FTE personnel expenses devoted to acquisition (including reimbursements such as travel) $ for other professional services (appraisals, surveys) **Investment for Restoration and Enhancement (R/E)** **Dollars** $ spent on R/E contracted services $ spent on capital equipment $ spent on equipment/tools $ spent on materials (seeds, water control structures) **Human Capital** Number of employees $ spent on R/E personnel (including reimbursements) $ for other professional services	*(acres of acquisitions, acres easements, projects/acres by habitat)* ➢ **Protect forestland through acquisition or easement, to prevent parcelization and fragmentation and to provide the ability to access and manage landlocked public properties** *(Acres acquired; acres of permanent forest conservation easements)* ➢ **Restore and enhance habitat on existing protected properties, with preference to habitat for rare, endangered, or threatened species identified by the Minnesota County Biological Survey (MCBS)** *(acres of key habitats restored/enhanced; distribution of R/E acres; acres or % of MCBS sites restored/enhanced)* ➢ **Restore forest-based wildlife habitat that has experienced substantial decline in aerial extent in recent decades** (e.g., North Shore hardwood restoration, moose habitat improvement, deer thermal cover, wetland complexes of habitat in forests) *(Extent, distribution, type)*	*What do we expect to see?* ❖ Forestlands are protected from development and fragmentation *(acres protected from development and fragmentation; average size protected complex; acres of forestlands with high connectivity to other forestlands protected)* ❖ Landlocked public properties are accessible with increased access for land managers *(# of landlocked properties accessed, % decrease in landlocked properties)* ❖ Greater public access for wildlife and outdoors-related recreation *(# of access points, % population with access within distance)* ❖ Healthy populations of endangered, threatened, or special concern species, species in greatest conservation need, and more common species – emphasis on unique species *(Population levels of focal forest game species, focal species in greatest conservation need; number and acreage of native plant communities with high biodiversity significance)* ❖ Increased availability and improved condition of riparian forests and other habitat corridors *(acres, habitat connectivity)*	*What's the legacy? Natural resource conservation…* ❖ Forestlands provide multiple enduring conservation benefits in the face of climate change and other major stressors: ○ healthy terrestrial and aquatic habitat for fish, game, and other wildlife species ○ abundant access to forestlands for outdoor recreation ○ healthy watersheds and clean water *(Extent and distribution of high-quality habitat complexes; evidence for high-quality habitats; Populations/distributions or observations of indicator species; hunter and angler satisfaction, forest recreational user satisfaction, water quality)*

Inputs (what we invest)	**Activities / Outputs** (what we do)	**Northern Forest Outcomes** (what success looks like)	
		Short-term and intermediate results	**Long-term and end results**
		❖ Increased availability and improved condition of habitats that have experienced substantial decline *(e.g., acres of pine and brushland)*	
	➢ **Protect shoreland and restore or enhance critical habitat on wild rice lakes, shallow lakes, cold-water lakes, streams and rivers, and spawning areas** *(miles, acres, distribution and type, # lakes, streams, spawning areas…acres, miles)*	❖ **Improved aquatic habitat indicators** *(index of biotic integrity and other aquatic habitat indicators)*	

PROPOSED FINAL

RESULTS MANAGEMENT FRAMEWORK – LSOHC Section: Forest/Prairie Transition

Inputs (what we invest)	**Activities / Outputs** (what we do)	**Forest/Prairie Transition Outcomes** (what success looks like)	
		Short-term and intermediate results	**Long-term and end results**
Investment for Acquisition **Dollars** $ for fee acquisition (per acre and associated fees) $ for conservation easements $ for easement stewardship **Human Capital** Number of employees FTE personnel expenses devoted to acquisition (including reimbursements such as travel) $ for other professional services (appraisals, surveys) **Investment for Restoration and Enhancement (R/E)** **Dollars** $ spent on R/E contracted services $ spent on capital equipment $ spent on equipment/tools $ spent on materials (seeds, water control structures) **Human Capital** Number of employees $ spent on R/E personnel (including reimbursements) $ for other professional services	*(#/acres of acquisitions, # /acres easements # projects/acres by habitat)* ➢ **Protect, enhance and restore wild rice wetlands, shallow lakes, wetland/ grassland complexes, aspen parklands, and shoreland that provide critical habitat for game and nongame wildlife** *(Extent and distribution, # wild rice wetlands and shallow lakes, miles of shoreland)* ➢ **Protect, enhance and restore rare native remnant prairie.** *(Extent and distribution, % native prairie protected)* *(see next page)*	*What do we expect to see?* ❖ Wetland/upland complexes will consist of native prairies, restored prairies, quality grasslands, and restored shallow lakes and wetlands *(# and type grassland bird conservation areas protected and restored; average size of complex, grassland and wetland acres; ratio grassland:upland; Increased grass cover %; # protected sites connected via corridor)* ❖ Protected, restored, and enhanced aspen parklands and riparian areas *(evidence of successful projects, connectivity of protected habitats, connectivity of forest habitats via corridors)* ❖ Water is kept on the land *(due to abundant grasses and other vegetation on shorelands and higher in the watershed); (#/miles protected floodplain, saturated, and fen wetlands; # protected high-gradient stream reaches; evidence of restored natural hydrology)* ❖ Improved aquatic vegetation *(Evidence of healthy aquatic vegetation, low turbidity)*	*What's the legacy? Natural resource conservation...* ❖ Diverse and productive remnant tracts of native prairie, forests, grasslands, brushlands, wetlands, lakes and rivers, and their associated fish and wildlife habitat exist in the Forest/Prairie Transition Section and are connected by corridors, providing multiple benefits in the face of climate change and other major stressors: ○ A healthy and plentiful supply of habitat for fish, game, and wildlife, especially for waterfowl and upland birds ○ Abundant access for outdoor recreation ○ Healthy watersheds and clean water *(Extent and distribution of habitats, ecotypes maintained; early succession forest landscapes, populations/ distributions or observations of indicator species; hunter and angler satisfaction, # of access points; % population with access within distance; water quality measures such as # Impaired waters, index of biotic integrity)*

PROPOSED FINAL

Inputs (what we invest)	**Activities / Outputs** (what we do)	**Forest/Prairie Transition Outcomes** (what success looks like)	
		Short-term and intermediate results	**Long-term and end results**
	➢ **Protect, enhance, and restore migratory habitat for waterfowl and related species so as to increase migratory and breeding success.** - Prairie/wetland complexes - Shallow lakes, wild rice lakes - Riparian corridors *(Extent and distribution)*	❖ Rivers and streams (and surrounding vegetation) provide corridors of habitat (including intact areas of forest cover in the east and large wetland/upland complexes in the west) *(Evidence of use in migration, connectivity of protected lands, # and extent of complexes; acres restored riparian vegetation)* ❖ Increased waterfowl and upland bird migratory and breeding success *(Population levels of focal game species and species in greatest conservation need, # small basins and permanent wetlands, wetlands in high density nesting areas, wetlands with adjacent grassland)* ❖ Protected, restored, and enhanced habitat for waterfowl, upland birds, and species of greatest conservation need *(evidence of successful projects, connectivity of protected habitats, # MCBS sites)*	

RESULTS MANAGEMENT FRAMEWORK – LSOHC Section: Metropolitan/Urbanizing Area

Inputs (what we invest)	**Activities / Outputs** (what we do)	**Metropolitan Urbanizing Outcomes** (what success looks like)	
		Short-term and intermediate results	**Long-term and end results**
Investment for Acquisition **Dollars** $ for fee acquisition (per acre and associated fees) $ for conservation easements $ for easement stewardship **Human Capital** Number of employees FTE personnel expenses devoted to acquisition (including reimbursements such as travel) $ for other professional services (appraisals, surveys) **Investment for Restoration and Enhancement (R/E)** **Dollars** $ spent on R/E contracted services $ spent on capital equipment $ spent on equipment/tools $ spent on materials (seeds, water control structures) **Human Capital** Number of employees $ spent on R/E personnel (including reimbursements) $ for other professional services	*(acres of acquisitions, acres easements, projects/acres by habitat)* ➢ **Protect, enhance and restore remnant native prairie, Big Woods forests and oak savanna with an emphasis on areas with high biological diversity.** *(Acres acquired, acres of permanent conservation easements)* ➢ **Protect habitat corridors, with emphasis on the Minnesota, Mississippi and St. Croix rivers (bluff to floodplain.)** *(Acres, shoreline miles protected …particularly within priority corridors)*	*What do we expect to see?* ❖ Core areas protected with highly biologically diverse wetlands and plant communities including native prairies. *(% of 2010 remaining prairie and oak savanna protected, % protected sites that are MCBS sites, % adequately buffered/connected, average size of core complexes, evidence of successful R/E projects)* ❖ A forest land base that contributes to the habitat picture *(High quality forests, including oak savanna and Big Woods complexes are restored/protected, evidence of use by species dependent on these habitats, particularly SGCN, evidence of successful watershed approaches…e.g., reduced erosion)* ❖ A network of natural land habitats will connect, making corridors for wildlife and species in greatest need of conservation *(Corridors connecting protected areas, evidence of SGCN and other wildlife using corridors, acres of "green infrastructure" corridors protected)* ❖ Protected habitats will hold wetlands and shallow lakes open to public recreation and hunting. *(# access points, user satisfaction)*	*What's the legacy? Natural resource conservation…* ❖ Large complexes and corridors of biologically diverse habitat provide multiple enduring conservation benefits in the face of climate change, invasive species and other major stressors: ○ Healthy terrestrial and aquatic habitat for fish, game and other wildlife species ○ Abundant access for outdoor recreation ○ Healthy watersheds and clean water ○ Prolific fish, game and other wildlife populations *(Extent and distribution of high quality habitats and habitat complexes, evidence for high quality habitats, Populations/distributions or observations of indicator species, hunter and angler satisfaction, recreational user satisfaction, water quality, # impaired waters)*

PROPOSED FINAL

Inputs (what we invest)	**Activities / Outputs** (what we do)	**Metropolitan Urbanizing Outcomes** (what success looks like)	
		Short-term and intermediate results	**Long-term and end results**
	➢ **Enhance and restore coldwater fisheries systems.** *(Acres, miles of coldwater stream shoreland protected, enhanced, and restored; acres reforested in riparian areas); # projects on designated trout streams, # projects in priority lakes)*	❖ High quality aquatic habitat *(streams, rivers and lakes protected by vegetative buffers along riparian areas, aquatic indicators…mussels, fish populations, increased water quality and water on a site)*	
	➢ **Protect, enhance and restore riparian and littoral habitats on lakes to benefit game and non-game fish species.** *(Extent and distribution, shoreline miles protected in watershed)*	➢ Game lakes are significant contributors of waterfowl, due to efforts to protect uplands adjacent to game lakes *(# Impaired lakes, evidence of lake use/success….nesting success, etc.)*	

PROPOSED FINAL

RESULTS MANAGEMENT FRAMEWORK – LSOHC Section: Southeast Forest

Inputs (what we invest)	**Activities / Outputs** (what we do)	**Southeast Forest Outcomes** (what success looks like)	
		Short-term and intermediate results	**Long-term and end results**
Investment for Acquisition **Dollars** $ for fee acquisition (per acre and associated fees) $ for conservation easements $ for easement stewardship **Human Capital** Number of employees FTE personnel expenses devoted to acquisition (including reimbursements such as travel) $ for other professional services (appraisals, surveys) **Investment for Restoration and Enhancement (R/E)** **Dollars** $ spent on R/E contracted services $ spent on capital equipment $ spent on equipment/tools $ spent on materials (seeds, water control structures) **Human Capital** Number of employees $ spent on R/E personnel (including reimbursements) $ for other professional services	*(#/acres of acquisitions, #/acres easements # projects/acres by habitat)* ➢ **Protect forest habitat through acquisition in fee or easement, to prevent parcelization and fragmentation and to provide the ability to access and manage landlocked private properties** *(Acres acquired, acres of permanent conservation easements)* ➢ **Protect, enhance, and restore habitat for fish, game and nongame wildlife in rivers, cold-water streams and associated upland habitat** *(Miles of cold and warm water streams protected, enhanced, and restored; acres reforested in riparian areas)* ➢ **Protect, enhance, or restore remnant goat prairies** *(Acres of remnant goat prairie protected, restored, enhanced)*	*What do we expect to see?* ❖ Forestlands and savannas are protected from parcelization and fragmentation and accessible for resource management purposes *(acres protected from development and fragmentation, acres of forestlands with high connectivity to other forestlands protected, # landlocked properties accessed, % decrease in landlocked properties)* ❖ High priority riparian lands are protected from parcelization and fragmentation (acres protected) ❖ Stream to bluff habitat restoration and enhancement will keep water on the land to slow runoff and degradation of aquatic habitat *(index of biotic integrity and other aquatic and shoreline habitat indicators, acres of riparian forest, increased water infiltration)* ❖ Rivers, streams and surrounding vegetation provide corridors of habitat *(Evidence of use in migration, connectivity of protected lands, # and extent of complexes)* ❖ Remnant goat prairies are perpetually protected *(% of remnant goat prairies protected, evidence of increased goat prairie habitat quality)*	*What's the legacy? Natural resource conservation...* ❖ Large corridors and complexes of biologically diverse habitat provide multiple enduring conservation benefits in the face of climate change, invasive species and other major stressors: ○ Healthy terrestrial and aquatic habitat for fish, game and other wildlife species ○ Abundant access for outdoor recreation ○ Healthy watersheds and clean water ○ Prolific fish, game, and other wildlife populations ❖ The suite of southeastern Minnesota habitats is maintained, including: ○ Big Woods forests ○ Oak savannas ○ Goat prairies ○ Cold- and warm-water streams *(Extent and distribution of high-quality habitats and habitat complexes, evidence for high quality habitats, populations/ distributions or observations of indicator species, hunter and angler satisfaction, recreational user satisfaction, water quality, # impaired waters)*

Inputs (what we invest)	**Activities / Outputs** (what we do)	**Southeast Forest Outcomes** (what success looks like)	
		Short-term and intermediate results	**Long-term and end results**
	➢ **Restore forest-based wildlife habitat that has experienced substantial decline in areal extent in recent decades** *(Acres of and distribution of lost forest-based wildlife habitat restored)*	❖ Large corridors and complexes of biologically diverse wildlife habitat typical of the unglaciated region are restored and protected *(Connectivity of wildlife habitat, average size protected complex, # and acreage of native plant communities with high biodiversity significance, evidence of migratory success)* ❖ Healthy populations of endangered, threatened, and special concern species as well as more common species *(population levels of focal game species, focal species in greatest conservation need)*	

PROPOSED FINAL

RESULTS MANAGEMENT FRAMEWORK – LSOHC Section: Prairie

Inputs (what we invest)	**Activities / Outputs** (what we do)	**Prairie Outcomes** (what success looks like)	
		Short-term and intermediate results	**Long-term and end results**
Investment for Acquisition **Dollars** $ for fee acquisition (per acre and associated fees) $ for conservation easements $ for easement stewardship **Human Capital** Number of employees FTE personnel expenses devoted to acquisition (including reimbursements such as travel) $ for other professional services (appraisals, surveys) **Investment for Restoration and Enhancement (R/E)** **Dollars** $ spent on R/E contracted services $ spent on capital equipment $ spent on equipment/tools $ spent on materials (seeds, water control structures) **Human Capital** Number of employees $ spent on R/E personnel (including reimbursements) $ for other professional services	*(#/acres of acquisitions, # /acres easements # projects/acres by habitat)* ➢ **Protect, enhance, or restore existing wetland/upland complexes, or convert agricultural lands to new wetland/upland habitat complexes** *(Acres of existing wetland/upland complexes protected, restored, enhanced; acres of agricultural lands converted to new wetland/upland habitat complexes)* ➢ **Protect, enhance and restore remnant native prairie, Big Woods forests and oak savanna** *(Acres of remnant prairie protected, restored, enhanced; acres of Big Woods prairie protected, restored, enhanced; acres of oak savanna prairie protected, restored, enhanced)*	*What do we expect to see?* ❖ Key core parcels are protected for fish, game and other wildlife *(Acres/percent of priority key parcels protected in fee or permanent easement)* ❖ Increased participation of private landowners in habitat projects *(acres habitat P/R/E in private adjacent/near projects)* ❖ Improved condition of habitat on public lands *(evidence of successful R/E projects)* ❖ Restored and enhanced upland habitat *(evidence of successful restoration/enhancement projects)* ❖ Protected, enhanced and restored remnants of big woods and oak savanna *(% of large remnants (>500 acres) of big woods and oak savanna protected)* ❖ Remnant native prairie and wetlands are perpetually protected and adequately buffered *(Percent of remnant native prairie and wetlands protected, acres of remnant prairies with adequate buffers)* ❖ Remnant native prairies are part of large complexes of restored prairies, grasslands, and large and small wetlands *(Acres/percent of priority prairie wetland complexes protected under conservation*	*What's the legacy? Natural resource conservation...* ❖ Diverse and productive complexes of native prairie, grasslands, Big Wood forests, and oak savanna, and shallow lakes in the Prairie Section provide multiple enduring conservation benefits in the face of climate change and other major stressors: ○ Healthy, resilient ecosystems that provide habitat maintenance for migratory waterfowl and other species. Abundant access for public recreation *(Extent and distribution of high quality prairie-wetland complexes and habitat for waterfowl; hunter satisfaction, # of access points; % population with access within distance; water quality measures such as #impaired waters, index of biotic integrity; # of private acres under conservation; stable or increasing key indicator species; stable or increasing native plant communities on remaining native prairies)*

Inputs (what we invest)	**Activities / Outputs** (what we do)	**Prairie Outcomes** (what success looks like)	
		Short-term and intermediate results	**Long-term and end results**
		management; # and type Grassland bird conservation areas protected and restored; average size of complex, grassland and wetland acre (minimum of 40% grass and 20% water in prairie core areas); % and # protected sites connected via corridor)	
	➢ **Convert agricultural land to wetland/upland to protect, enhance, or restore existing habitat complexes, such as existing WMAs** *(Acres of agricultural land converted to wetland/upland to protect, restore, or enhance existing complexes)* ➢ **Restore or enhance habitat on public lands.** *(Acres of public land restored, enhanced)* ➢ **Protect, restore and enhance shallow lakes.** *(Acres of shallow lakes protected, restored, enhanced)*	❖ Agricultural lands are converted to grasslands to sustain functioning prairie systems. (*Acres/percent of priority key parcels are converted)* ❖ Improved access to public lands*(# access points, acres of protected lands open for public access, % population with access within distance)* ❖ Water is kept on the land to reduce flood potential and degradation of aquatic habitat *(Watershed yield (indic. in dev.); evidence of restored natural hydrology; #/area/miles of protected floodplain, saturated, and fen wetlands)* ❖ Protected, restored and enhanced shallow lakes *(% of priority shallow lakes protected, evidence of successful restoration/ enhancement projects)* ❖ Improved aquatic vegetation *(Evidence healthy aquatic vegetation, low turbidity)* ❖ Enhanced shallow lake productivity *(degree of use by shorebirds and waterfowl)*	

PROPOSED FINAL

Inputs (what we invest)	**Activities / Outputs** (what we do)	**Prairie Outcomes** (what success looks like)	
		Short-term and intermediate results	**Long-term and end results**
	➢ **Protect expiring CRP lands** *(# projects with matching private land work; # of prairie stewardship plans; # of prairie stewardship management projects, #/acres enrolled CRP and in expiring CRP expiring lands protected)*	❖ Increased wildlife productivity *(evidence of increased productivity on specific lands; populations levels of focal game and Species in Greatest Conservation Need)* ❖ Key core parcels are protected for fish, game and other wildlife *(Acres/percent of priority key parcels protected in fee or permanent easement)*	
	➢ **Protect, enhance and restore migratory habitat for waterfowl and related species, so as to increase migratory and breeding success** - Prairie/wetland complexes - Shallow lakes - Riparian corridors *(Extent and distribution)*	❖ Protected, restored, and enhanced habitat for migratory and unique Minnesota species *(degree of fall use of significant resources by migratory waterfowl; evidence of successful projects, connectivity of protected areas via riparian corridors)*	

Appendix D: Leadership, advisory, and working groups

Leadership group

Julie Blackburn, assistant director, Minnesota Board of Water and Soil Resources (BWSR)
Leann Buck, Minnesota Association of Soil and Water Conservation Districts (MASWCD)
Rebecca Flood, assistant commissioner, Minnesota Pollution Control Agency (MPCA)
Steve Hirsch, director, Division of Ecological Resources, Department of Natural Resources (DNR)
Mark Holsten, commissioner, DNR
John Jaschke, executive director, BWSR
Jim Leach, refuge supervisor, Minnesota/Wisconsin, U.S. Fish and Wildlife Service (USFWS)
Allen Levine, dean, College of Food, Agricultural and Natural Resource Sciences (CFANS), University of Minnesota (U of M)
Joe Martin, assistant commissioner, Minnesota Department of Agriculture (MDA)
Laurie Martinson, deputy commissioner; DNR
Dave Schad, director, Division of Fish and Wildlife, DNR
Dave Zumeta, executive director, Minnesota Forest Resources Council (MFRC)

Advisory group

Brian Buhr, professor and head, Department of Applied Economics, CFANS, U of M
Alan Ek, professor and head, Department of Forest Resources, CFANS, U of M
Tabor Hoek, private lands coordinator, BWSR (Marshall Office)
Paul Flynn, state resource conservationist, Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture (USDA)
Rex Johnson, supervisor, Habitat and Population Evaluation Team (HAPET) and Barb Pardo, chief, Division of Bird Habitat Conservation, USFWS
Darren Newville, district manager, East Otter Tail Soil and Water Conservation District
Jeff Risberg, impaired waters program coordinator, MPCA
Dennis Simon, Wildlife Section chief, Division of Fish and Wildlife, DNR
Rob Sip, environmental policy specialist, MDA
Dave Zumeta, executive director, MFRC

Working group

Bill Becker, executive director, Lessard-Sams Outdoor Heritage Council (LSOHC)
Peter Butler, senior management consultant, Management Analysis & Development (MAD), Minnesota Management & Budget (MMB)
Ryan Drum, wildlife biologist, USFWS-HAPET
Annalee Garletz, environmental and natural resources policy analyst and Joe Mathews, general government policy Analyst, Association of Minnesota Counties (AMC)
Judy Grew, senior management consultant, MAD, MMB
Tabor Hoek, private lands coordinator, BWSR (Marshall Office)
Andy Holdsworth, science policy coordinator, Office of Management and Budget Services, DNR
Heather Koop, project analyst manager, LSOHC
Leslie McInenly, information specialist, MFRC
Jeff Risberg, impaired waters program coordinator, MPCA
Sandy Smith, council assistant, LSOHC
Aaron Spence, GIS Specialist, BWSR

Appendix E: Conservation estate – technical summary

Methodology of GIS analysis

The objective of the analysis was to calculate the acreage of Minnesota's terrestrial and aquatic habitat within each of the LSOHC sections. Four separate acreage calculations were made:

- Protected terrestrial habitat (including publicly owned lands and private lands that are permanently protected)
- Private terrestrial habitat (not permanently protected)
- Public (protected) aquatic habitat
- Private (unprotected) aquatic habitat

Public & permanent fee or easement title terrestrial habitat

Statewide GIS layers that were determined to represent areas of publicly protected wildlife habitat were assembled into one working space. These include lands publicly owned as well as privately owned land under permanent conservation easement or owned in fee title for conservation purposes. Although easement and fee title lands are technically privately owned, if they have permanent status they are considered protected habitat and were therefore included in this portion of the analysis. The layers included were:

State lands

- RIM Conservation Easements (metadata are outdated)
- State-owned Lands - Easement Interests
- State-owned Lands - Fee (and other) Interests
- State Lands – Acquired
- State Lands - Consolidated Conservation
- State Lands - Federal Lease
- State Lands - Trust Fund
- State Lands - Tax Forfeit
- State Lands – Volstead
- State Wildlife Management Area Boundaries
- State Park Statutory Boundaries
- State Forest Boundaries
- Scientific and Natural Area Boundaries
- Prairie Bank Easement Boundaries

Federal lands

- USFWS Wetland Management District Conservation Easements
- Voyageurs National Park
- USFWS Waterfowl Production Areas (Current)
- National Wildlife Refuges
- BWCAW Boundary based on the 1978 legislation
- National Forest Boundaries
- Military Bases (Camp Ripley)

County lands

- State Lands by Administrator – County (tax forfeit land)
- Gap Analysis Program (GAP) Stewardship – County Lands

Other lands

- The Nature Conservancy Preserves and Managed Areas

These layers were merged to form one layer. Since these areas are primarily administrative boundaries and there are sometimes private, and therefore unprotected, holdings within these boundaries (in the permanent sense), private holdings that exist within this assembled layer were removed. This was done using GAP stewardship data

(2008), [37] which classifies the landscape by ownership type (e.g., federal, state, county, private). GAP stewardship data are mapped by 40-acre parcel. All 40-acre parcels classified as private ownership were erased from the merged administrative layer.

To ensure that county-administered lands did not include lands without terrestrial habitat (e.g., baseball parks or public pools) the National Land Cover Database (NLCD) was used (see discussion below in private terrestrial habitat for a more detailed description of the NLCD). NLCD classes representing potentially existing terrestrial habitat were used to extract those areas from the county-administered lands layer before inclusion into the larger public, terrestrial habitat estate.

Since aquatic habitat is being addressed separately for this project, all lakes within the DNR 24k lakes layer were also erased from the merged administrative layer. The resulting layer represents the public terrestrial habitat estate.

This public terrestrial habitat estate layer was then intersected with the LSOHC planning areas boundary layer. This facilitated the summary of public, terrestrial habitat estate acreage by LSOHC planning area.

Private terrestrial habitat

Private terrestrial habitat was determined using the following data sources:

- Minnesota CRP (CRP 2007)
- NLCD 2001 - Land Cover (modified by DNR)
- USDA 2009 Cropland Data Layer (CDL)

To determine lands that may contain some amount of potentially existing terrestrial wildlife habitat, a modified version of the NLCD was used. This layer classes the landscape by land cover type. The original NLCD layer was modified by the DNR in order to update and better reflect lands classified as wetland as well as those classified as partially or fully developed. This product was used in the DNR's Metro Conservation Corridors project.

The NLCD was further refined using current cropland data from the USDA 2009 Cropland Data Layer (CDL). The CDL contains cropped cover classes determined from 2009 satellite imagery. Since the NLCD data are from 2001, this was necessary to update the NLCD with current cropping practices. All cropped classes within the CDL were erased from the NLCD data so as not to be included in this analysis.

The cover type classes that exist in the NLCD data are as follows:

- 5–10% Impervious
- 26–50% Impervious
- 51–75% Impervious
- 76–100% Impervious
- Agricultural Land
- Maintained Tall Grass
- Upland Coniferous Forest *
- Upland Deciduous Forest *
- Upland Mixed Forest *
- Woody Wetlands *
- Upland Shrubs *
- Wetland Shrubs *
- Tall Grasses*
- Wetland Emergent Vegetation*
- Barren Land
- Open Water
- Wetland - Open Water*

[37] The date of source material ranges from 1976 to 2007.

The asterisked classes indicate cover types considered to be potentially existing wildlife habitat; these were extracted from the data to create a layer that represents an approximation of Minnesota's total terrestrial habitat estate.

Even though agricultural classes, including hay and pasture land, were excluded from the habitat layer, these land use types may provide some degree of habitat. Similarly, developed (impervious) areas and barren land provide some degree of habitat but could require extensive restoration to provide an acceptable level of wildlife habitat for OHF purposes and were eliminated from the habitat layer. The working group is continuing to evaluate which of these classes should be included in the habitat layer.[38]

The previously described public terrestrial habitat was then used to erase publicly protected terrestrial habitat from the total terrestrial habitat estate. The resulting layer is all privately held, potentially existing terrestrial habitat that likely meets a minimum threshold for OHF purposes. As with the public, terrestrial habitat, all 24k lakes were erased from the layer since aquatic habitat will be reported separately.

Publicly protected aquatic habitat

The layer used for this part of the analysis was the Public Waters Inventory (PWI). All lakes within the PWI were considered to be publicly protected aquatic habitat. While it is the best available statewide data source for the scope of this framework, it is important to note some caveats and assumptions regarding the use of the PWI for protected aquatic habitat:

Although the State owns public waters and their associated lake bottoms and vegetation, protection of aquatic habitat is not assured for a couple of significant reasons:

- All public waters exist within a watershed and the condition of *water quality habitat* is greatly influenced by land use practices within that watershed. Regardless of what activities occur within the wetted perimeter of a given lake or stream, legally authorized activities and legacy land uses occurring on adjacent lands or those within the overall watershed may negatively impact water quality habitat of the aquatic conservation estate. Water quality habitat can best be thought of as oxygenated water although other parameters, for example turbidity and chemical ions such as chlorine, are important as well.
- Permanent protection of *physical habitat* within the aquatic conservation estate is not necessarily assured by the Public Water designation. The destruction of aquatic habitat is authorized in statute and rule, which is a significant difference from the terrestrial protected lands. Destruction of habitat can occur through directed activities that reduce or remove habitat (e.g., aquatic plant control, sand blankets, dredging, surface water appropriation) or indirect activities that have a similar end result (e.g., boating activities, shading by docks, groundwater withdrawals). Some destruction of habitat is authorized only by permit while other aspects are allowed by rule or statutory exemption.

[38] The working group is evaluating whether the classification of "maintained tall grass" should be included to better represent grassland wildlife habitat in the conservation estate.

Aquatic habitat not publicly protected

Layers used for this part of the analysis were:

- DNR 24k lakes
- The above described publicly protected aquatic habitat layer

The publicly protected aquatic habitat layer was used to erase those lakes from the complete DNR 24k lakes. This effectively leaves behind the non-publicly-protected potentially existing aquatic habitat.

Appendix F: Scenario 2 detail

This appendix shows the step-by-step adjustments to the OHF's 2010 and 2011 acres for the Forest for the Future's Upper Mississippi Forest Project and the resulting two-year average.

1) Actual OHF funding decisions

A. Protect	2010	2011
Wetlands	5,038	2,786
Prairies	9,815	8,129
Forests	95,000	96,813
Habitats	2,618	3,745
Total	112,471	111,473

B. Enhance and Restore	2010	2011
Wetlands	6,519	11,731
Prairies	7,327	26,867
Forests	3,310	4,252
Habitats	1,191	4,494
Total	18,347	47,344

Forest Legacy	$18,000,000	$18,000,000
All other projects	$48,652,000	$58,164,000
Total allocation	$66,652,000	$76,164,000

2) Annualize future Forest Legacy acres

Program goal (acres)	530,000	
Protected FY2000 to 2011	253,740	
Remaining acres to protect	276,260	
Annual goal for next 23 years	12,010	(rounded)
Cost per acre (2010)	$500	
Annual cost (2010)	$6,005,000	

The $500/acre was recommended by the DNR Forest Legacy coordinator.

3) Re-allocate Forest Legacy funds

	2010	2011
Forest Legacy 2010-11	$18,000,000	$18,000,000
Forest Legacy annualized	($6,005,000)	($6,005,000)
Available for other projects	$11,995,000	$11,995,000

Current project funding	$48,652,000	$58,164,000
Percent increase with newly available Forest Legacy funds	25%	21%

4) Increase 2010-11 acres by preceding percentages

2010 acres

A. Protect	Funded acres	Increase by	Adjusted Acres
Wetlands	5,038	25%	6,280
Prairies	9,815	25%	12,230
Forests	95,000	Not appl.	12,010
Habitats	2,618	25%	3,260
Total	112,471		33,780
B. Enhance and Restore			
Wetlands	6,519	25%	8,130
Prairies	7,327	25%	9,130
Forests	3,310	25%	4,130
Habitats	1,191	25%	1,480
Total	18,347		22,870

2011 acres

A. Protect	Funded acres	Increase by	Adjusted Acres
Wetlands	2,786	21%	3,360
Prairies	8,129	21%	9,810
Forests	96,813	Not appl.	12,010
Habitats	3,745	21%	4,520
Total	111,473		29,700
B. Enhance and Restore			
Wetlands	11,731	21%	14,150
Prairies	26,867	21%	32,410
Forests	4,252	21%	5,130
Habitats	4,494	21%	5,420
Total	47,344		57,110

5) Average the 2010-11 adjusted acres

A. Protect	Adjusted 2010	Adjusted 2011	2010-11 average
Wetlands	6,280	3,360	4,820
Prairies	12,230	9,810	11,020
Forests	12,010	12,010	12,010
Habitats	3,260	4,520	3,890
Total	33,780	29,700	31,740
B. Enhance and Restore			
Wetlands	8,130	14,150	11,140
Prairies	9,130	32,410	20,770
Forests	4,130	5,130	4,630
Habitats	1,480	5,420	3,450
Total	22,870	57,110	39,990

Appendix G: Scenario 3 detail

Scenario 3 answers the question, "How much does $80 million per year fund in conservation activity for one type of habitat?" The answer requires assuming a typical or average cost per acre for protection, restoration and enhancement.

In summer 2009, the LSOHC hosted five all-day meetings with conservation professionals representing different organizations and expertise. At these meetings, participants reviewed various conservation plans' spatial goals and discussed 25-year spatial targets (acres or shoreline miles) for each LSOHC section's prairie, wetland, forest, and aquatic habitats. The professionals also provided an average cost per acre or mile so spatial targets could be measured monetarily. The following tables show the average cost per acre derived from the 2009 sessions and used for Scenario 3.

A. Protect	Average cost per acre	Maximum annual acres
Wetlands	$4,000	20,000
Prairies/Grasslands	$3,500	22,857
Forests	$750	106,667
Aquatic	$5,000	16,000

B. Enhance and Restore		
Wetlands	$800	100,000
Prairies/Grasslands	$700	114,286
Forests	$900	88,889
Aquatic	$10,000	8,000

Some averages were weighted to reflect the cost differences between the sections, working easements and fee acquisition prices, and native prairie and restored grasslands (former agriculture lands). For example, the conservation professionals estimated that native prairie costs $2,700 per acre in the Prairie Section and farmland costs $4,000 per acre. But most of the spatial targets are restored grasslands, so the weighted average is closer to $3,500.