

# METRO GREENPRINT

*Planning for nature  
in the face of urban growth*



December 1997

**Greenways and  
Natural Areas  
Collaborative**

---

# Table of contents

Executive summary . . . . .	7
The need for greenspaces . . . . .	11
Vision for the future . . . . .	13
Building blocks . . . . .	17
Putting the pieces together . . . . .	22
Long-term dividends . . . . .	23
Goals and strategies . . . . .	25
Next steps and recommendations . . . . .	30
Appendix A: Glossary of terms . . . . .	32
Appendix B: County natural resources maps . . . . .	33
Appendix C: Local greenways and natural areas initiatives . . . . .	41
Appendix D: Toolbox for land protection . . . . .	44
Bibliography . . . . .	47

**For more information, contact:**

Metro Region MN-DNR  
1200 Warner Road  
St. Paul, MN 55106  
Metro Area: 612-772-7900  
Toll free: 1-888-MINNDNR

TTY & TDD: 612-296-5484,  
TDD Toll free: 1-800-657-3929

© Copyright 1997, State of Minnesota,  
Department of Natural Resources.

Funding for this project approved by the  
Minnesota Legislature, ML 1996, Chapter 407,  
Sec. 8, Subd. 4, as recommended by the  
Legislative Commission on Minnesota  
Resources from the Minnesota Futures  
Resources Fund.

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

Printed on recycled paper containing a  
minimum of 10 percent post-consumer waste  
and soy-based ink.

Cover painting by George Pfeifer, cover photos  
by Carrol Henderson and Lawrence Duke.

**This document can be made available in alternative formats by calling  
voice: 612-296-6157 or TTY & TDD: 612-296-5484.**

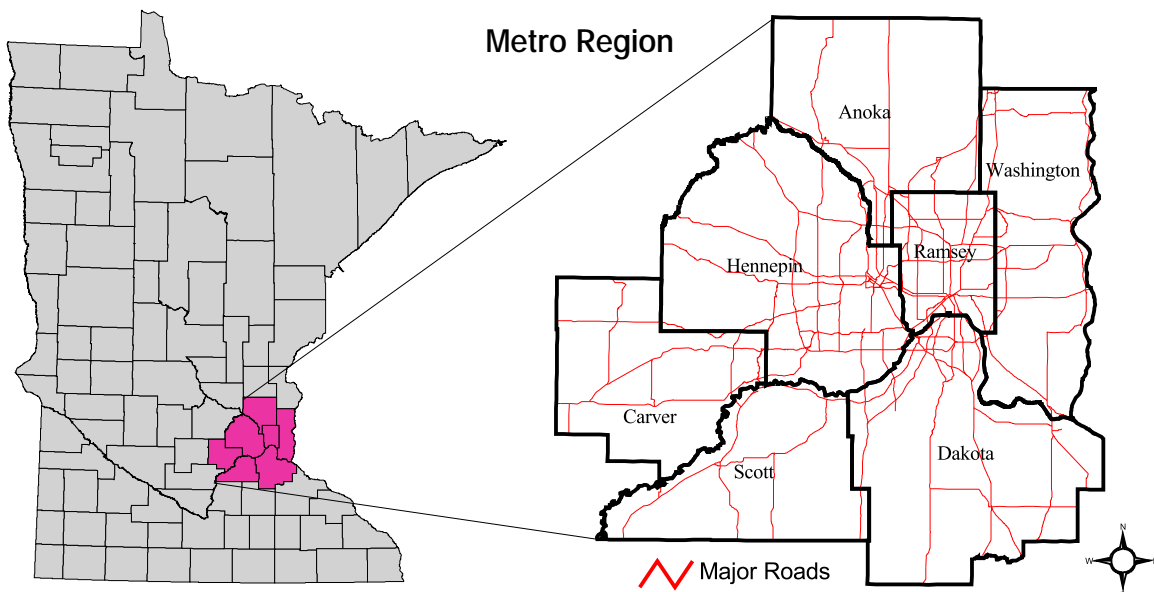
## Acknowledgments

Special thanks go to John Pauley, former DNR Metro planner, DNR Metro's regional managers, and technical staff who organized the first meetings in 1995 to brainstorm about the whereabouts of remaining patches of green space in the seven-county metro area. It is as a result of these initial efforts by DNR Metro, in conjunction with outside natural resource professionals, that a "map" was created with the able assistance of consultant Liz Anderson to show the locations of remaining metro green spaces and some generalized greenways to connect these green spaces together into a regional network.

The early Greenways and Natural Areas "map" was a strong visual tool and captured the imaginations of some key people. With the interest and support of Minnesota Representative Tom Ostoff, the Greenways and Natural Areas Project was recommended to

the Legislative Commission on Natural Resources for funding from the Minnesota Futures Resources Fund. This funding supported a year long collaborative process to explore how a regional concept for greenways and natural areas might become a reality.

After months of work, this report is the culmination of many meetings by the Greenways and Natural Areas (GNA) Collaborative, which was organized and facilitated by Sharon Pfeifer, DNR Metro, and the Collaborative Steering Committee. The Collaborative also was aided by additional efforts of the Technical Advisory Group. Kathleen Wallace, Metro Regional Administrator, provided critical support and guidance for this project throughout, from the concept stage in 1995 to completion of this report. Great appreciation goes to all DNR staff, who provided technical and administrative support.



---

# Greenways and natural areas collaborative

*Highest commendations go to all the Collaborative members who took time from their very busy schedules to provide input and help shape this effort.*

---

## Greenways and Natural Areas Collaborative

Cliff Aichinger, Ramsey-  
Washington Metro Watershed  
District

Gina Bonsignore, University of  
Minnesota Design Center for  
American Urban Landscape

Rob Buffler, St. Paul Foundation

Craig Churchward, Barton-  
Aschman Associates

Whitney Clark, Friends of the  
Mississippi River

Jean Coleman, Biko Associates

Kimberly Shoe-Corrigan,  
Rosemount

Dave Drealan, Carver County

Robert Engstrom, Engstrom  
Companies

Eric Evenson, Dakota County

Jane Harper, Washington County

Mary Hauser, Washington County

Barbara Johnson, Metropolitan  
Parks and Open Space Commission

Dean Johnson, Resource Strategies  
Corporation

John Kari, Metropolitan Council

Barbara Lukermann, University of  
Minnesota, Humphrey Center of  
Public Policy

Peggy Lynch, Friends of the Parks  
and Trails of St. Paul and Ramsey  
County

Greg Mack, Ramsey County

Amy Middleton, Citizens for a  
Better Environment

Del Miller, Hennepin Parks

Cordelia Pierson, Trust for Public  
Land

Michael Pressman, Land  
Stewardship Project

George Puzak, Minneapolis Park  
and Recreation Board

Dan Ray, McKnight Foundation

Shelley Shreffler, St. Paul  
Neighborhood Energy Consortium

John VonDeLinde, Anoka County

Dorothy Waltz, National Audubon  
Society

---

## GNA Steering Committee

Barbara Lukermann, Chair

Rob Buffler

Whitney Clark

Jean Coleman

Harland Hiemstra

Sharon Pfeifer

Cordelia Pierson

---

## DNR Technical Advisory Group

Hannah Dunevitz, Ecological  
Services

Joan Galli, Nongame Wildlife

Harland Hiemstra, Public Affairs

Lloyd Knudson, Wildlife

Peter Leete, Waters

Sharon Pfeifer, Planning

Bart Richardson, GIS

Peggy Sand, Forestry

---

## Ex Officios

Liz Anderson, MN House staff

Anne Haines, Friends of the  
Minnesota Valley

Alice Hausman, MN Representative

Tom Osthoff, MN Representative

Susan Overson, National Park  
Service

Matt Seltzer, Attorney's General  
Office

Susan Thornton, Legislative  
Commission on Natural Resources

Kathleen Wallace, DNR Metro  
Administrator

---

## Project Contributor

Mary Kroll, Kroll Communications

---

## Final Report Design and Production

Amy Beyer, Information and  
Education Bureau, DNR

---

## Public Affairs/ Communications/Final Report

Harland Hiemstra, DNR Metro

---

## Administrative Support

Nancy Flis, DNR Metro

---

## Project Coordinator/ Facilitator/Final Report

Sharon Pfeifer, DNR Metro

---

## A letter from the commissioner

On a recent tour of the Twin Cities Metro Region, I was struck by the phenomenal natural beauty of the country's 15th most populous urban area. From ancient oaks perched on sunny knolls in the broad Minnesota River valley to the cold clear gurglings of Washington County's trout streams, from Hennepin's lakes and pockets of shady Big Woods to the sand-dune prairies of Cottage Grove, and from Minnehaha's frothy tumble to the Father of Waters' slower surge, the Twin Cities region has inherited a wealth of scenic and natural treasures.

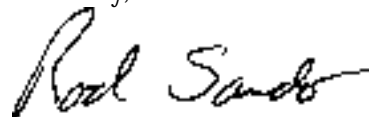
It's an enviable position for an urban area to be in. Our rich natural heritage figures prominently in consistently high marks on national quality-of-life surveys. We're blessed with local opportunities to fish, hunt, hike, bike, boat, birdwatch—to take a deep breath and appreciate our relationship with the natural world around us. This outdoors connection rewards us with social, economic and environmental benefits that make the Cities a popular place to do business and raise families, and to enjoy what's precious along the way.

Such popularity could turn into a mixed blessing, though, if we neglect to leave room for nature in the face of ongoing rapid urbanization. The 650,000 new residents expected to make their homes in the seven-county region over the next 22 years will need housing, offices, shopping centers, schools and roads. They'll also expect a network of parks, trails and natural areas to meet their recreational and aesthetic needs. Our challenge is to plan wisely for this growth and to work to preserve a key part of what makes the area so appealing in the first place.

For the past year a collaborative of nearly three dozen individuals from across the region has been tackling that challenge head-on. This document is a summary of their reasoning and recommendations. Building upon an existing network of open spaces and conservation efforts, it outlines a plan for assuring the continued high quality of our ecological infrastructure. *Metro Greenprint: Planning for Nature in the Face of Urban Growth* deserves the close consideration of anyone committed to maintaining the Twin Cities' liveability in the years ahead, policymakers and citizens alike.

Our good fortune in having so many fine natural amenities to enjoy is largely the result of foresight and stewardship on the part of our predecessors. Today we have an opportunity to build on their efforts through a renewed vision that draws upon a better understanding of the links between natural systems and healthy human communities. To miss this opportunity would be to leave our children less of a natural legacy than is their right.

Sincerely,



Rodney W. Sando  
Commissioner, Minnesota Department of  
Natural Resources

## Executive summary

When early pioneers settled in what was to become the Twin Cities, a major factor in their decision to locate here was the region's wealth of natural resources. Situated at the confluence of three major river systems, lavished with lakes and a variety of habitats, the area abounded with timber, fish and wildlife, fertile prairie soils and scenic splendor.

That rich natural heritage continues to provide the backbone for a healthy culture and economy. Unlike those early settlers, though, we can no longer afford to take for granted the natural amenities around us. In the past 150 years, the area's popularity and its consequent urban growth have led to a radical alteration of the landscape. Less than 6 percent of the native habitat that greeted pioneers survives in the seven-county metro region. With more than ½ million new residents expected to settle here over the next two decades, much of what's left could also disappear.

Such a loss would compromise the region's quality of life, because natural areas provide a wide range of benefits prized by metro residents. These areas enhance property values by making communities more attractive. They protect water quality and fuel a multi-billion dollar outdoors recreation industry. They provide habitat for animals and a storehouse of biological diversity. In a number of recent polls, Twin Citians have made it clear that such benefits and the natural areas that yield them are a critical part of what they look for in a place to call home.



Two roads  
diverged in a  
wood, and I—  
I took the one  
less traveled by,  
And that has  
made all the  
difference.

—Robert Frost

### The Greenways and Natural Areas Collaborative

In January of 1997 a group of nearly three dozen dedicated individuals from around the Twin Cities gathered in St. Paul to develop a vision and a framework for preserving and restoring key ecological features and functions

while accommodating growth in the metro region. Representing a diversity of interests from county planners and developers to conservationists, the Greenways and Natural Areas Collaborative worked for the next 12 months to outline strategies for creating a network of natural areas and open spaces connected via greenways. Their efforts parallel similar projects undertaken in a number of urban areas in other states, including Maryland, Florida, Oregon, Colorado and Illinois. This trend reflects a growing national awareness that communities anticipating growth must plan not only for traditional systems such as roads and utilities; they also need to plan for nature and draft a blueprint for their ecological infrastructure.

### Building On Efforts Past and Present

Creating such a network might seem like an overwhelming task were the seven-county metro area starting from scratch. But throughout the region's history, visionary leaders such as Horace Cleveland and Theodore Wirth have seen the importance of leaving room for nature. Minneapolis' widely noted parks and tree-lined boulevards are a testament to that foresight. And since 1974 the Metropolitan Council and local counties have worked to develop a regional park system that currently includes 45,000 acres of land and 80 miles of public trails.

These popular amenities have admirably served the purposes they were designed for: To provide outdoor recreation and to offer aesthetic relief in an urban landscape. While they've also afforded islands of increasingly rare habitat for plants and animals, their primary focus has not been on protection and enhancement of biological integrity.

Now we have an opportunity to broaden those efforts through a better understanding of the interdependent workings of natural systems. By promptly acting to protect remaining significant natural areas in developing parts of the region, we will be banking resources that future generations will value as part of their outdoor heritage. By connecting those areas with each other and existing facilities, we will create a living web assuring the region's ecological health and enhancing the well-being of humans and wildlife.

Surveys affirming public support for conservation indicate that the time is ripe for such plans. A growing number of grassroots efforts throughout the region are focusing local efforts on environmental stewardship. From the Phalen Watershed Project's efforts to restore degraded riparian habitat to Washington and Chisago Counties' plans for a green corridor to preserve open space, people are working to maintain and enhance the functional integrity of the natural world around them.

An ongoing metrowide Greenways and Natural Areas program would support these local efforts with financial and technical assistance while coordinating individual projects within the framework of a regional network of natural systems.



Doug Shelley

### Next Steps

The real groundwork for the Metro region's green infrastructure was laid down centuries ago by hands greater than ours. Through stewardship and luck we've inherited a good sampling of what opened our ancestors' eyes in awe. As part of its charge from the Legislative Commission on Minnesota Resources, the Greenways and Natural Areas Collaborative has assembled a set of tools, strategies and recommendations for assuring that we in turn can transmit these amenities to our heirs.

The recommendations include:

- **Create a metro Greenways and Natural Areas program with an advisory committee appointed by the commissioner of the Department of Natural Resources in collaboration with the chair of the Metropolitan Council.**

This committee would be charged with creation of a metro Greenways and Natural Areas network aimed at conserving and restoring native ecosystems and connecting them with other cultural and outdoor amenities across the seven-county area. It would be comprised of representatives of local units of government, nonprofit and neighborhood organizations, and other interests, with support from a technical committee.



- 
- **Appropriate \$20 million as an initial measure for the prompt protection and enhancement of high priority natural areas.**

As one of its first tasks, the technical committee would immediately set about ranking known natural areas of high biological diversity and regional or statewide significance. Priority would be given to sites demonstrating an urgent need for protection before critical ecological features and functions are lost. Concurrently, the advisory committee would develop a grant program to help individual communities identify and protect locally significant areas.

Appropriated funds would be used to obtain protection for significant natural areas, greenways providing biological connections, and essential buffers to protect natural areas from adverse impacts. All protection efforts would be undertaken in cooperation with willing landowners and local units of government, using techniques that could range from conservation easements to acquisition.

- 
- **Appropriate \$500,000 for a grants program to encourage communities to develop local greenways and natural areas plans and educational projects which complement the regional framework established by the advisory committee.**

- 
- **Appropriate \$250,000 for operational support to the advisory committee and to coordinate greenways planning and implementation with other federal, state, regional and local units of government.**

Operational funds would be leveraged by the commitment of additional staff time and resources from the Department of Natural Resources and the Metropolitan Council.

### **A Green Legacy**

In a famous poem Robert Frost describes a traveler who arrives at a fork on a forest road. Like that woodland hiker, the seven-county Twin Cities Metro Region is at a critical juncture, and the path we take will make all the difference in terms of the area's character and quality of life for decades to come. If we choose wisely, our natural environment will continue to yield an abundance of benefits.

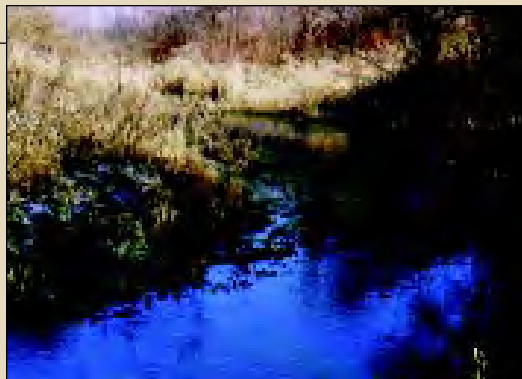
Just as the region has earned a national reputation for leadership in education, health care and the arts, we now have an opportunity to put ourselves in the vanguard of ecological stewardship and sustainability. That accomplishment would amount to the most enduring and irreplaceable legacy of all.

## *Waters Worth Saving*

Four years ago when the city of Savage received a proposal to build housing and offices on the banks of Eagle Creek, battle lines were quickly drawn between pro-development interests and conservationists hoping to save one of the region's few remaining trout streams.

Trout need cold, clean water to survive, but urban runoff from pavement and rooftops warms and pollutes streams. As a result, only 15 waterways in the seven-county metro region still remain pristine enough to support this sensitive species.

Today Eagle Creek is an ongoing experiment in community-based resource protection. Working together, city officials, builders, conservation interests and the DNR have assembled a management plan that minimizes the impacts of development on the stream. The plan includes storm water diversion, restoration of native vegetation, and acquisition of a buffer strip along the waterway. As a result, fami-



Mary Melchior

lies moving into the houses being built there will have a nearby place to fish, go for walks and enjoy nature.

In the aftermath of Eagle Creek, a group of biologists and anglers issued a report documenting the threatened status of other metro trout streams. Now a number of communities, recognizing the value of what's rare, are working to preserve this unique part of their natural heritage while accommodating urban growth. Drawing upon a range of tools, including alternative development designs, stormwater diversion, conservation easements, acquisition of stream corridors and hydrological research, people in cities such as Stillwater, Lakeville and Marine-On-St. Croix are trying to come up with local strategies to protect water quality, enhance recreational opportunities and assure a healthier environment for humans and wildlife. Those actions represents a growing awareness that natural areas help make a community an appealing place to live.

## The need for greenspaces

In the brief span of time since the Twin Cities metro region was settled, 94 percent of its original habitat has disappeared. The Big Woods, a vast hardwood forest of towering old trees, once blanketed much of Hennepin County; fewer than 1,000 acres remain. Less than 1 percent of the area's prairie is left. Once abundant species have vanished due to habitat loss and fragmentation.

In spite of those losses, the area still boasts a wide range of natural amenities. The Minnesota, Mississippi and St. Croix Rivers meander through green valleys. Our landscape is sprinkled with wetlands and lakes. Remnant patches of prairie and woods remind us of the region's natural history and our role in the masterfully woven tapestry of life.

These natural resources exert a strong pull on people today, just as they did in the past. As a result, the region's population is expected to continue growing by 650,000 in the next 22 years. These new residents will need homes, roads and all the other amenities of modern civilization, amenities that could seriously degrade and diminish what little of our natural heritage is left if we're not careful.

That situation poses a clear and compelling choice for communities as they plan for the growth that's sure to continue in the metro region. Will they develop in a fashion that destroys the very things people love? Or will they recognize a fundamental law of economics: that what is rare is precious? If the choice is the latter, then we need to act now to identify, inventory and protect remaining resources in a way that guides growth to minimize environmental impacts.



1953



1990

These two photographs show the fragmentation of dry oak savanna and dry prairie barrens near Bunker Lake in Anoka County between 1953 and 1990. With the progressive loss of habitat in the Bunker Lake area there has been a significant decline in plants and animals as well.

## Metro Area Natural Resources [\(click here for map\)](#)

**Metro Area Natural Resources map:** Distribution of natural resources throughout the seven-county metro area. Aquatic and terrestrial areas of high biological importance are shown in bright green. Areas which could be restored to better biological quality are in hatched yellow. The parks data layer includes the regional parks system and natural resource management areas, including wildlife management units, scientific and natural areas, and private preserves.

## Vision for the future

Throughout most of 1997 a group of citizens from around the seven-county metro region met monthly to explore the feasibility of protecting, restoring, and connecting remaining natural areas and open spaces as the backbone of a healthy environment in a rapidly urbanizing area. Their conclusions: Not only is that goal feasible, but a future network is essential to the region's continued high quality of life; and, numerous current opportunities make this the right time to pursue a vision of a network of greenspaces.

Starting with a map of the region's natural resources and its river valleys, the Greenways and Natural Areas Collaborative developed a vision for a network of natural lands and open spaces interconnected by green corridors for the movement of humans and wildlife. Reviewing similar efforts from Portland, Chicago, and Chattanooga, the group learned that such a network can provide a range of tangible social, environmental and economic benefits. As the collaborative worked to refine maps of how such a network might look on the ground, they also began identifying the growing number of locally oriented grassroots efforts focused on protecting and enhancing natural resources in the Twin Cities region—individual projects that could readily be incorporated into a broader regional effort. And they began assembling a toolbox of conservation techniques aimed at maximizing local control, respecting property rights, and achieving the most protection in the least costly way.

### Vision Statement

*“The Twin Cities Metropolitan area is successful in protecting, restoring, connecting, and managing a metrowide network of regionally and locally significant terrestrial and aquatic natural areas and open spaces composed of a wide array of native plant and animal species, interconnected by a system of greenway corridors. This regional network of greenspaces, by virtue of its size, quality, and connectivity, provides wildlife habitat, sustains ecological diversity, and improves water quality and ecosystem functions. It contributes to the economic well-being of the metropolitan area and provides for public enjoyment and education where appropriate while maintaining high quality natural areas.”*

—Greenways and Natural Areas  
Collaborative 1997

The Collaborative learned that the concept they were exploring was not wholly new to the metro region. As early as 1888 landscape architect Horace Cleveland urged Twin Cities leaders to create an extensive network of lakes, streams, wooded corridors and other open spaces for the aesthetic and recreational benefit of future residents. Out of that vision grew the Twin Cities' existing system of parks, preserves and trails. What sets the Collaborative's work apart is its emphasis on the use of new knowledge to focus on preserving and enhancing the ecological integrity of natural systems by integrating past and present efforts into a regionwide web. The group's work amounts to a blueprint for the region's ecological future—“A Metro Greenprint.”

With the 21st century at our doorstep, the Greenways and Natural Areas Collaborative believes metro residents are ready to embrace a renewed vision for a network of interconnected open spaces and natural areas that provide public enjoyment and education, protect wildlife habitat, sustain ecological diversity and improve water quality.

Ultimately, that means a healthier environment for plants, animals and humans alike.

## Original Concept Map—1995

### Potential Greenways and Natural Area [\(click here for map\)](#)

**Original Concept Map—1995:** A future vision of greenways and natural areas in the metro region. Generated in 1995 by natural resource professionals, this regional map shows the existing parks system in relation to important habitats with substantial natural resource attributes or good wildlife habitat value. Potential greenways were drawn to connect the natural areas in to a regional network.

## Legend definitions:

**Potential Natural Areas:** A natural area is a site where native vegetation is distributed in naturally-occurring patterns across the landscape. This category here includes areas identified by the Minnesota County Biological Survey, and others areas identified by natural resource professionals familiar with the region. This is not an all-inclusive or precise map, but a working draft subject to revision.

**Greenways:** Corridors of protected open space managed for conservation and/or recreation purposes. They often follow natural land or water features, and link natural areas, parks, cultural features, and historic sites with each other and sometimes with populated areas. The mapped potential greenways, drafted by natural resource professionals, are a preliminary draft subject to revision.

**Scientific and Natural Areas:** Public nature preserves that protect natural features of exceptional biological significance; owned and managed by the DNR's Scientific & Natural Areas Program.

**Parks:** Parks and Recreation Areas is a land use classification from the Metropolitan Council's land use map. It includes publicly owned park land and preserves, playgrounds, cemeteries and golf courses.

**MUSA:** The Metropolitan Urban Service Area is the area in the metropolitan region that has been designated for development and where urban services are provided. The central portion of the MUSA area is where the most dense development occurs.



“Nature offers us such advantages as no other city could rival.... If we fail to secure these natural features and suffer them to be destroyed, no power on earth can restore them.”

—Horace  
Cleveland, 1888

## *Big Woods, Big City*

The 60-acre maple-basswood forest on Lloyd and Evelyn Henry's farm would make a nice place to live. Tall, stately maples, some 150 years old, tower above Dutchman's

breeches, wood anemones, and other wildflowers that carpet the forest floor each spring. Recognizing the area's potential for homesites, developers have been knocking on the couple's door since the 1980s, when suburban growth began spreading rapidly into northwestern Hennepin County.

The Henry's would rather see the forest continue in a natural state, the way it's been for the three generations of Lloyd's family who have tapped its maples for syrup each spring. It's one of the region's best preserved remnants of the Big Woods, a vast hardwood forest that once covered much of east central Minnesota. Just after the Civil War, when Lloyd's grandparents bought the farm, the Big Woods covered some 150,000 acres of Hennepin County. Today less than 1,000 acres remain in scattered islands, and much of it is considered prime real estate for development.



DNR Photo

In the past three years, at least 300 acres of the county's Big Woods have been lost. Only about 500 acres of what's left is protected in any way.

The Henry's are exploring the possibility of having their woods designated a park so that future generations might enjoy the tranquility and sense of history old forests provide. The couple also has been considering placing the land under a conservation easement, a title restriction that prohibits development but preserves other private property rights. Meanwhile, assessments on surrounding land have been climbing as a result of rapid development, and the Henry's are worried that their place might be next.

"I realize I could sell my land and make all kinds of money," says Lloyd Henry, who is in his 80s. "But I'd rather have my nieces and nephews come by it when they're older and see it intact, instead of just a bunch of houses.

"When you stay this long in one place you get attached to it. It's more than just money."



---

## Building blocks

**A**cross the country, from Maryland in the east to Oregon and California in the west, from breadbasket states such as Illinois and Wisconsin to the southern reaches of Florida, communities are beginning to lay the groundwork for networks of greenspaces. This national trend reflects a growing awareness of people's dependence on their natural environment, and the benefits that arise when the environment exists in a healthy condition.

Compared to many communities, the metro area is at an advantage when it comes to establishing such a network. Many high quality natural areas representing rare ecosystems remain around the region. Open spaces, lakes and parks dot the landscape. Three major rivers and their tributaries provide natural corridors or greenways for the movement of humans and wildlife.

*These three elements—natural areas, open spaces and greenways—comprise the primary building blocks, along with parks, to create a network of greenspaces.*



### Natural Areas

Sites that are largely undisturbed by humans. Native vegetation is distributed in naturally occurring patterns across the landscape. These patterns change over time under the influence of drought, flooding, fires and the interactions between plants and wildlife.



### Open Spaces

Undeveloped sites that don't meet the criteria for natural areas because of human disturbance, but still provide habitat, scenery and other benefits. Open spaces can include areas such as farm land, vacant city lots, high-use parks, golf courses and utility corridors.



### Greenways

Continuous or patchy areas of vegetation that provide corridors for the movement of humans and wildlife. They often follow natural waterways or land features, and they may connect natural areas or other community resources such as cultural institutions.

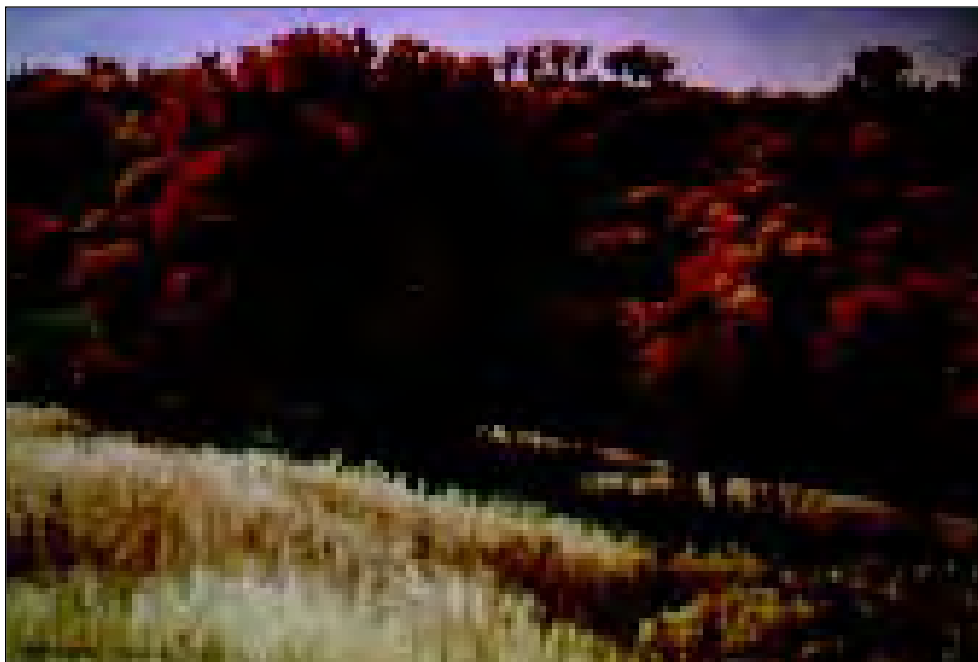
**Natural areas** are sites that are largely undisturbed by human activity. Native vegetation is distributed in naturally occurring patterns across the landscape. These patterns change over time under the influence of drought, flooding, fires and the interactions among plants and wildlife.

High quality natural areas sustain numerous plant and animal species. Interactions among these communities play a critical role in supporting other forms of life beyond the boundaries of the natural areas themselves, maintaining the complex web of life upon which all organisms rely.

Representing the healthiest pieces of the metro landscape, natural areas are increasingly rare. Regionwide, less than 6 percent of the natural communities that existed at the time of European settlement have survived. The scenic quality of these remaining natural areas makes them prime candidates

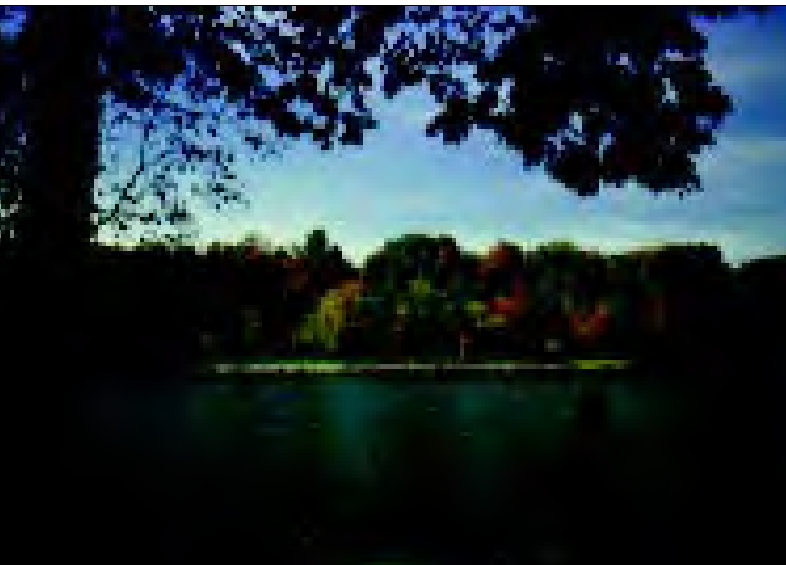
for development. In Hennepin County, for instance, at least 300 acres of the old-growth forest ecosystem known as the Big Woods have been lost to urbanization in the past three years. Only about 1,000 acres remain—less than 1 percent of the county’s original Big Woods—and only about half of that is under any type of protection.

Continued loss of high quality natural areas would diminish or eliminate the wide range of benefits they create. Such areas provide habitat for plants and animals, maintaining a storehouse of biological diversity. They purify air and water, help control stormwater runoff, flooding and erosion. They enhance nearby property values, and provide sites for environmental education, research and passive recreation such as birdwatching. These areas represent the critical ecological hubs of a greenspace network.

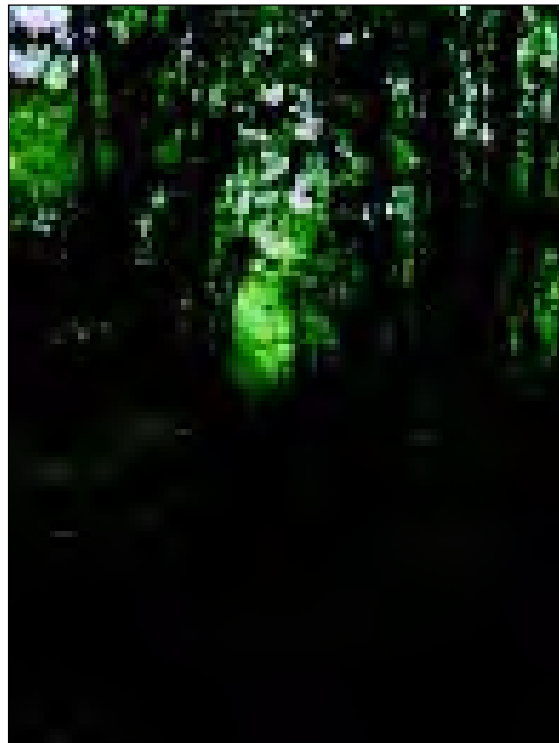


George Pfeifer

**Open spaces** are undeveloped sites that don't meet the criteria for natural areas because they've been altered and disturbed by human activities. Open spaces still may provide habitat, scenery, recreational opportunities and other benefits. They can serve as a buffer around higher quality natural areas, and they offer potential as sites for habitat restoration and re-establishment of native plants. Open spaces can include areas such as farm land, vacant city lots, high-use parks, golf courses and utility corridors. Preservation of open space may be encouraged by local zoning ordinances.



Joe Niznik



DNR Photo

**Greenways** are continuous or patchy areas of vegetation that provide corridors for the movement of humans and wildlife. Generally linear in shape, they often follow waterways or land features such as steep slopes and ravines. They may connect natural areas, parks and other community resources and cultural institutions.

Greenways can take a range of forms, from a high-use trail along an urban thoroughfare such as Minnehaha Parkway, to a more pristine natural corridor along the St. Croix River. The highest quality greenways provide habitat and allow for the movement of wildlife, plants and water from one area to another. Such greenways enhance the value and ecological function of natural areas and open space by interconnecting them, thereby counteracting habitat fragmentation as well as habitat loss.

Greenways also offer numerous opportunities for recreation and alternative forms of transportation. They can enhance adjacent property values and buffer waterways from pollution and erosion caused by runoff. They serve as a focus for community identity and pride.

Greenways and open spaces can be of particular value in developed urban areas, where high population densities afford opportunities for extending environmental values and the benefits of nature to a large number of people. Habitat improvements and restoration in such areas make these core city neighborhoods more attractive, and promote Metropolitan Council goals for accommodating a good portion of the region’s anticipated growth in already developed locales. Green enhancement of the urban core would complement the existing system of parks and trails, building upon the natural corridor provided by the Mississippi River, which flows through the heart of the central cities.



Lawrence Duke

*Natural areas, greenways, and open space all contribute to a better quality of life and can provide similar environmental, social, and economic benefits. Below are a few key benefits that characterize each building block:*

**Natural Areas**

- Provide a wide range of “free” ecological services such as efficient nutrient cycling, soil enrichment, flood control
- Contain many species with potentially useful genetic material
- Provide suitable wildlife habitat
- Increase environmental flexibility in the face of natural disasters such as fire, drought, and flooding

**Greenways**

- Function as linkages and increase habitat connectivity and availability
- Provide alternative transportation options
- Stimulate business development focused around recreation and tourism

**Open Space**

- Provides human sources of food (farms, orchards) and fiber (woodlots)
- Provides areas for restoration to buffer natural areas
- Creates a sense of community identity

## *Green to the Core*

As Minneapolis Parks Commissioner George Puzak talks about the Midtown Greenway Coalition (MGC), he refers back to the words of Horace Cleveland.

A 19th century landscape architect, Cleveland is considered the conceptual grandfather of Minneapolis' system of parks and boulevards. In 1888 he urged city leaders to create a parkway down Lake Street connecting the Minneapolis chain of lakes with the Mississippi River. Failure to attend to such natural amenities, he predicted, would lead to a "hideous scene of desolation"—an early warning of urban blight.

Puzak finds both prophecy and prospects in those remarks. He and others with the MGC hope that a modern rendering of Cleveland's vision might now help revitalize Lake Street and surrounding neighborhoods by creating a greenway one block away along an old rail corridor, finally linking Minneapolis' lakes with the Mississippi. Plans call for the 5.5 mile stretch to include paths for hiking and



Rob Buffler

biking, as well as landscaping with native vegetation.

Such attempts to make the core cities a more appealing place to live through green spaces aren't re-

stricted to Lake Street or Minneapolis. Across the river, the Greening the Great River Park project has been working for three years on a goal of planting 30,000 native trees and shrubs, 60 acres of prairies and thousands of wildflower seedlings along the Mississippi River valley through downtown St. Paul. Drawing upon numerous partnerships with businesses, neighborhood associations and local volunteers, the project is well on its way toward a mission of restoring the area's ecological functions by connecting song bird corridors, reducing chemical runoff and increasing the diversity of river valley vegetation.

As part of a metrowide network of greenways and natural areas, efforts such as these will help assure the center cities' role as a vital core for an environmentally healthy region.

## Putting the pieces together

The metro area is fortunate in still possessing the basic building blocks for a network of greenspaces. Equally important, the region has demonstrated a growing commitment to preserving and enhancing the natural resources upon which our culture and economy are founded.

Across the region, a variety of grassroots efforts are focusing on environmental stewardship as a key to livability. In St. Paul and Maplewood, the Phalen Watershed Project has adopted a local approach toward improving water quality and community pride by restoring degraded riparian habitat and native vegetation. The rapidly growing city of Cottage Grove recently completed an inventory of its natural resources as a first step toward identifying what's worth saving. Voters in Plymouth, Eden Prairie and Maplewood have approved multi-million dollar referenda to preserve open space. A public-private partnership hopes to establish a green corridor to protect farm land and natural areas in Washington and Chisago Counties. Efforts such as Greening the Great River Park, the Bassett Creek project and the Midtown Greenway Coalition aim to revitalize center city neighborhoods through the enhancement of open space. And a number of communities around the area are pulling together to save the region's few streams still cold and clean enough to support trout.

Such efforts validate the findings of recent opinion polls. In a 1996 survey for the Office of Environmental Assistance, Minnesotans cited the environment as the most important factor contributing to their quality of life. Some 78 percent of Dakota County residents polled in 1997 said it's very impor-

tant to protect natural resources when planning for growth. And in Washington County, open space preservation was identified by survey respondents as their top environmental priority, posing a significant challenge for local officials trying to balance the county's rapid development with preservation of its natural beauty and rural character.

An ongoing greenways and natural areas program could tap into this strong public support for environmental stewardship. It would further local efforts by providing technical and financial assistance while coordinating individual projects within the framework of a regional network of greenspaces. By promptly protecting remaining natural areas and interconnecting them with parks and open spaces, it would help assure a sound ecological foundation for the region's continued health and prosperity.



DNR Photo

## Long-term dividends

Locally and nationally, many communities are investing in greenspace networks because a growing body of evidence shows that nature pays dividends.

Several studies indicate natural areas, open space, and greenways raise nearby property values and enhance local tax revenue. In Lake Elmo, lots bordering land under a conservation easement recently sold for \$5,000 more than similar lots across the street. Roughly 60 percent of homeowners along the Luce Line Trail in western Hennepin County report higher property values as a result of living next to a greenway. And in Portland, Oregon, the increased value of land near natural areas offset any reduction in the tax base—a factor that helped persuade voters to support a \$136 million referendum to purchase and protect such lands.

Natural areas, greenways and open spaces fuel outdoor recreation and tourism industries. According to the President's Commission on Americans Outdoors, scenic beauty is the top criterion when tourists make their travel plans. Statewide, increasingly popular non-consumptive activities such as birdwatching and wildlife photography generate \$400 million annually. When hunting and fishing are added to the mix, the figure mounts to \$1.5 billion each year.

Greenspaces can also reduce the cost of public services by providing stormwater storage, erosion control and water purification. When combined with aesthetic and environmental contributions, these paybacks make for a compelling prospectus.



## *Conservation Community*

On a wall of Robert Engstrom's Bloomington office is a plaque that more or less sums up his approach to residential development.

"Communities," the plaque reads, "should be gardens in which people grow."

For Engstrom, creating such communities is more than just a matter of building comfortable houses. It means respecting the environment and leaving room for nature.

On the edge of Lake Elmo, 20 minutes from downtown St. Paul, Engstrom has been focusing his efforts on creating what he calls a conservation community. Rather than dividing his 226 acres of rural land into five- and 10-acre lots, the Fields of St. Croix features houses clustered together along narrow streets, with 60 percent of the total parcel left in open space protected by a conservation easement. Paths meander around ponds, past restored prairie, connecting with other trails and open spaces. Stormwater and wastewater is handled on-site. And an organic farm included in the development offers residents the opportunity to purchase fresh locally grown produce.



Harland Hiemstra

The idea, says Engstrom, is to create a neighborhood where people can live close to the land and enjoy the benefits of nature, providing residents with an opportunity to protect, enhance and learn about the environment. That a third of his proposed development

has already been sold with little by way of advertisement is a strong indication that people want those natural features nearby.

Such alternative approaches to development could also provide an important component in a regional network of natural areas, open spaces and greenways, Engstrom says. By clustering houses together rather than spreading them out on large lots, open space is preserved, habitat fragmentation is avoided and opportunities are created for establishing corridors to link ecosystems and natural areas and provide recreational opportunities for residents.

"A lot of people are critical of the ways development patterns have proceeded," Engstrom says. "We need a change that encourages a more community-building design that preserves the environment."



## Goals and strategies

The effort to establish a regional network of greenways and natural areas began with a map. Its first phase concludes with a similar product.

Three years ago resource experts from the DNR, the U.S. Fish and Wildlife Service, the Nature Conservancy and other groups gathered around maps of the metro region to identify natural resources not yet lost to urban growth. Their hand-written scribbles were compiled into a Geographic Information System database and used to generate a seven-county outline of significant areas and potential greenways linking them.

That map provided the starting vision for the metro Greenways and Natural Areas Collaborative. Over the past year, the group has refined its vision, added numerous layers of data and produced a preliminary series of maps identifying some potential opportunities to begin work on a regional network of greenspaces. Of equal importance, the Collaborative also drafted a set of goals and strategies for sustaining our ecological infrastructure.



L. Hühn

### Goal 1:

#### Create and manage a Greenways and Natural Areas Network by:

- Completing a regional plan to provide guidance and support for local efforts;
- Developing a framework to support “greenways efforts” that cross jurisdictional boundaries;
- Holding workshops to gather input from citizens and local officials and to rally support for the Greenways and Natural Areas Network.

### **Goal 2:**

**Conserve and restore natural areas in the seven-county metropolitan area in order to maintain a dynamic, functioning natural landscape that provides ecological, aesthetic, and economic benefits while allowing for adaptation to future environmental changes by:**

- Using a variety of voluntary, incentive-based protection tools as well as acquisition to encourage landowners to protect natural areas and important open spaces;
- Involving citizens in the management and restoration of natural areas, greenways, and open space;
- Providing technical assistance to local units of government for the development of more environmentally sensitive local comprehensive plans and development approaches;
- Restoring greenspaces, where needed, to improve their ecological health;
- Identifying, protecting, and restoring key regional ecological linkages where needed;
- Monitoring the ecological health of components of the network.

### **Goal 3:**

**Connect and enhance existing open spaces, outdoor recreational amenities, and cultural resources to the regional Greenways and Natural Areas Network by:**

- Linking up with existing metropolitan parks, open spaces, outdoor recreational amenities, and cultural resources;
- Encouraging private land owners with working landscapes to contribute to the regional network through voluntary, incentive-based approaches;
- Identifying key regional outdoor recreational linkages that are missing and including them in the regionwide network;
- Coordinating greenways and trail planning efforts among the various entities (local councils, non-profits, neighborhood groups, the Met Council, National Park Service, DNR).

**Goal 4:**

**Ensure that the Greenways and Natural Areas Network serves all metro area residents by:**

- Encouraging connections between newly created greenways and existing communities and transportation corridors;
- Providing a wider range of educational, scientific, and recreational opportunities.

**Goal 5:**

**Build public and political support for the Greenways and Natural Areas Network by:**

- Involving the public in the planning, development, active management, and restoration of the Greenways and Natural Areas Network;
- Developing and implementing a promotional/marketing strategy to illustrate the ecological, economic, and social benefits of a regional Greenways and Natural Areas Network;
- Creating awareness of the value and importance of natural areas, greenways, and open spaces through citizen stewardship activities;
- Providing technical assistance and needed information.

**Goal 6:**

**Fund the creation and maintenance of the regional Greenways and Natural Areas Network through public and private sources by:**

- Establishing a public information strategy to obtain input for and to create public awareness of the Greenways and Natural Areas planning and implementation effort;
- Creating a private trust fund to support Greenways and Natural Areas planning, advocacy, education, and outreach.

## Opportunities for Protection and Restoration [\(click here for map\)](#)

**Opportunities for Protection and Restoration:** This map represents a preliminary analysis of the relationship between the existing regional parks system and high quality natural areas, and how they might connect. After additional analysis and application of ecological, social and economic criteria, this map will be refined.

## *Countryside Connections*

A big part of the reason that Washington County is one of the region's fastest growing areas is its natural beauty. Bounded on the east by the scenic St. Croix

River and to the southwest by the Mississippi, the county's rolling farm fields, wooded hillsides and cool trout streams make it an appealing place.

That appeal, however, could lead to destruction of the very things people love if the county's growth isn't wisely managed.

Under the banner of the Green Corridor Project, a group of area farmers, conservationists, county officials and other residents are now working to prevent that from happening. Spearheaded by the Land Stewardship Project's 1,000 Friends of Minnesota, the project is aimed at protecting environmentally sensitive lands, maintaining scenic and rural character, providing wildlife habitat and saving productive farms by preserving and linking open spaces throughout Washington and Chisago Counties.



George Pfeifer

Project members are currently conducting an inventory of open spaces to identify what areas should be protected and how they might be linked with al-

ready protected lands. Over the next 1½ years extensive public input will help shape the corridors' design and location. Rather than relying on acquisition as a primary means of protection, the Green Corridor Project will emphasize use of conservation easements and purchase and transfer of development rights, voluntary programs that allow participants to retain ownership and control of their property while imposing specific restrictions on further subdivision of the land.

"Around the Midwest and throughout the country, green corridors have worked to help communities keep the landscape they love while accommodating growth," says Michael Pressman, Green Corridor Project coordinator. "This is a way to protect important open spaces while improving the appeal of neighborhoods and supporting their long term tax base."

---

## Next steps and recommendations

The region's natural landscape formed over thousands of years. In less than two centuries, much of it has disappeared. Knowing what we now know about the values and functions of natural systems, we have an opportunity to protect, restore and reconnect what remains.

The groundwork for this task has been laid down over the past year by the metro region Greenways and Natural Areas Collaborative. But much remains to be done.

The next phase of this effort will seek to stimulate broader involvement by the general public. Attempts to establish greenspace networks in other parts of the country indicate that this public involvement is critical. There's also opportunity to strengthen and expand partnerships with local units of government, the level at which many decisions affecting the fate of natural resources are made. Further coordination of efforts with other federal, state and regional agencies will lead to greater effectiveness. In particular, coordination with the Metropolitan Council on local comprehensive plan updates presents a significant window of opportunity for sound community planning that emphasizes protection of natural resources. Continued database development and analysis will facilitate the refinement of maps of areas considered for inclusion in a greenspace network. Analysis will include ranking such areas for their statewide, regional and local significance according to established criteria.



DNR Photo

The Greenways and Natural Areas Collaborative believes these measures are necessary to protect the natural treasures that form the basis of the region's high quality of life. What was laid down for us by the creator's hands can no longer be taken for granted in a rapidly growing area that's already home to half the state's population. The environment is a vital part of our communities and our infrastructure, and it must be carefully planned for and managed if we are to continue enjoying its benefits.

At a time when many decry the national debt as an unfair burden on future generations, we should also take stock of the balance in our ecological account. Having drawn it down so far, should we take on further debt? Or should we act decisively to save what's left and begin the work of replenishing our rich natural endowment?

---

*To assure the continued health of our natural world, the Collaborative addresses the following recommendations to state, regional and local decision makers:*

- **Create a metro Greenways and Natural Areas program with an advisory committee appointed by the commissioner of the Department of Natural Resources in collaboration with the chair of the Metropolitan Council.**

This committee would be charged with creation of a metro Greenways and Natural Areas network aimed at conserving and restoring native ecosystems and connecting them with other cultural and outdoor amenities across the seven-county area. It would be comprised of representatives of local units of government, nonprofit and neighborhood organizations, and other interests, with support from a technical committee.

- **Appropriate \$20 million as an initial measure for the prompt protection and enhancement of high priority natural areas.**

As one of its first tasks, the advisory committee would immediately set about ranking known natural areas of high biological diversity and statewide or regional significance. Priority would be given to sites demonstrating an urgent need for protection before critical ecological features and functions are lost. Concurrently, the committee would develop a grant program for individual communities to identify and protect locally significant areas.

Appropriated funds would be used to obtain protection for these significant natural areas, greenways providing biological connections among them, and essential buffers to protect sites from adverse impacts. All protection efforts would be undertaken in cooperation with willing landowners and local units of government, using techniques that could range from conservation easements to acquisition.

- **Appropriate \$500,000 for a grants program aimed at encouraging communities to develop local greenways and natural areas plans and educational projects to complement the regional framework established by the advisory committee.**
- **Appropriate \$250,000 for staff to provide operational support to the advisory committee and to coordinate greenways planning and implementation with other federal, state, regional and local units of government.**

Operational funds would be leveraged by the commitment of additional staff time and resources from the Department of Natural Resources and the Metropolitan Council.

---

## Appendix A: Glossary of terms

### **Biodiversity**

the variety of plant and animal life living together in a specific habitat

### **Buffer**

an area of preferably native vegetation surrounding a natural area or open space which provides additional protection from development impacts

### **Connectivity**

linkage of habitats by buffer zones, open space, greenways, and/or trails that increases ecological integrity of part of the landscape

### **Conservation easement**

a mutually binding contract between a landowner and an individual or organization that has requested a special right to the land; the landowner who voluntarily sells an easement gives up some rights to the property; the easement defines boundaries, uses, and management obligations for the land

### **Fee simple acquisition**

acquiring title and all rights to a property without restriction

### **Greenspaces**

natural areas, open spaces, and greenways that function both for people and wildlife

### **Greenways**

Continuous or patchy areas of vegetation that provide corridors for the movement of humans and wildlife. They often follow natural waterways or land features, and they may connect natural areas or other community resources such as cultural institutions.

### **Landscape**

a large land area that contains different habitats (land and/or water) arranged in a mosaic

### **Locally important or locally significant area**

natural areas, open spaces, or greenways valued by local communities

### **MUSA**

The Metropolitan Urban Service Area (MUSA) is the area in the metropolitan region that has been designated for development and where urban services are provided; the central portion of the MUSA area is where the densest development occurs (as defined by the Met Council)

### **Natural area**

Sites that are largely undisturbed by humans. Native vegetation is distributed in naturally occurring patterns across the landscape. These patterns change over time under the influence of drought, flooding, fires and the interactions between plants and wildlife.

### **Network**

system of open spaces, natural areas, greenways, trails, parks, wildlife management units, private nature preserves, and scientific and natural areas which provides social, ecological, and economic benefits

### **Open space**

Undeveloped sites that don't meet the criteria for natural areas because of human disturbance, but still provide habitat, scenery and other benefits. Open spaces can include areas such as farm land, vacant city lots, high-use parks, golf courses and utility corridors.

### **Park**

as defined in this report, lands held in public or private ownership and designated for recreation use or natural resource management uses

### **Permanent agricultural area**

permanent agricultural areas are outside the urban reserve and intended to be kept in agricultural uses indefinitely (as defined by the Met Council)

### **Permanent rural area**

permanent rural areas are sparsely developed with a mix of farm and nonfarm uses that do/will not require urban levels of service for the foreseeable future (as defined by the Met Council)

### **Potential natural area**

a natural area that retains some features of its original native communities, but has been altered by human activities and requires restoration

### **Regionally significant natural area**

a natural area of importance to the region as a whole for its unique ecological value

### **Riparian area or zone**

vegetated border along a stream, river, or lake including the flood plain, banks, and upland areas

### **Scientific and Natural Area**

a public nature preserve that protects natural features of exceptional biological significance, which is owned and managed by the DNR's Scientific and Natural Areas Program

### **Urban area**

that part of the region bounded by the MUSA line which is actively becoming urbanized and within which local and regional services are committed during specified time periods (as defined by the Met Council)

### **Urban core**

Twin Cities downtown areas, their immediate neighborhoods, and the University Avenue corridor connecting them (as defined by the Met Council)

### **Urban reserve**

the rural-to-urban transition area between the current MUSA line and the urban reserve boundary line; this area will remain rural until it is included in the urban area (as defined by the Met Council)



---

## Appendix B: County natural resources maps

The series of county maps in this appendix were created through the compilation of many different data sources obtained from the Metropolitan Council, counties, and MN DNR. The county natural resource maps produced by the Collaborative and DNR Metro have been made available to counties and the Met Council in larger scale (24" x 36") than shown here. To illustrate the degree of detail of natural resource data contained on the larger scale county maps, a small scale map of Scott County is shown below.

In addition to a change in map size for purposes of this report, a second change was made to the county maps contained in this appendix: all natural resource information (wetlands, wooded areas, steep slopes, aquatic habitats, and high quality natural areas) was combined and shown in a single color for purposes of readability. Due to report production constraints, it was necessary to reproduce the county maps in 8½ x 11" format, which was too small to show the resource detail well for each county.

### Scott County Natural Resources [\(click here for map\)](#)

*The county maps in this report represent works-in-progress. In the future, other data layers will be added to these maps for further analysis.*

**Anoka County Natural Resources** ([click here for map](#))

**Carver County Natural Resources** ([click here for map](#))

**Dakota County Natural Resources** ([click here for map](#))

**Hennepin County Natural Resources** ([click here for map](#))

**Ramsey County Natural Resources** ([click here for map](#))

**Scott County Natural Resources** ([click here for map](#))

**Washington County Natural Resources** ([click here for map](#))



---

## Appendix C: Local level greenway and natural areas initiatives to build on

*The following list represents a sampling of greening projects in the metro region which focus on the protection, restoration, connection, or better management of natural areas, open space, parks, trails, and greenways. These are efforts with which the Greenways and Natural Areas initiative could partner to develop a regional network of greenways and natural areas.*

### Greening the Great River Park Project

The goal of this project is to reintroduce native trees, shrubs, and wild flower plantings to the downtown Mississippi River Valley in the St. Paul area at a scale which creates an urban forest for migratory birds and for people. The project expects to plant over 30,000 trees and shrubs over 5 years and to recreate 60 acres of native prairie. This community-based project relies on volunteers to plant and care for the restored areas. The project spans the river valley between the High Bridge and Holman Field on both sides of the river, bluff to bluff, where the impacts of urbanization and industrialization have most changed the valley and degraded its natural vegetation.

Information: Contact Rob Buffler, St. Paul Foundation, 224-5463

### Washington-Chisago Green Corridor Project

The Land Stewardship Project is working with Washington and Chisago counties to inventory and plan for a permanently protected green corridor of 10,000 acres. This effort tests new land protection tools, including purchase of development rights (PDRs) and transfer of development rights (TDRs). It also relies on donation, acquisition, and conservation easements to implement a green corridor plan. Wildlife management areas, farm lands, Scientific and Natural Areas, environmentally sensitive areas, and other open spaces are proposed to be linked together by this effort.

Information: Contact Michael Pressman, Land Stewardship Project, 653-0618

### Trout Stream Watershed Initiative

In an effort to protect 15 metro trout streams threatened by the impacts of urbanization, the DNR is collaborating with local interests to develop local trout stream protection approaches that consider economic, social, and ecological factors.

Information: Contact Annette Drewes, DNR Metro Regional Office, 772-7938

### Metro Mississippi Trails and Open Space Partnership, Mississippi National River and Recreation Area

In 1988, the federal government declared a 72-mile reach of the Mississippi River a National River and Recreation Area because the river is “a nationally significant historical, recreation, scenic, cultural, natural, economic, and scientific resource.” The MNRRA corridor, from the confluence of the Crow River and the Mississippi to just south of Hastings, encompasses 54,000 acres of the river and adjacent land, much in private ownership. The National Park Service helps to coordinate the various agencies and governmental units that have on-going management responsibility, but manages only 5,000 acres of land in the MNRRA corridor. As part of its coordination role, MNRRA staff organized and facilitated the Trails and Open Space Partnership, which recently completed an inventory of the major recreational trails and parks along or that connect to the natural corridors of the Mississippi and Minnesota rivers.

Information: Contact Susan Overson, National Park Service, 290-4160

### **Minnesota Valley National Wildlife Refuge**

Friends of the Minnesota Valley have been working for 25 years to protect and preserve the biodiversity of the Lower Minnesota River Valley. Through the Friends' efforts, the Minnesota Valley National Wildlife Refuge was established in 1976 and now stretches for 34 miles along the river corridor from Bloomington to Jordan. Within its boundaries are marsh, grassland, and forest. Future efforts include expansion of a network of valley residents who serve as active stewards of the Minnesota valley.

Information: Contact Nelson French, Friends of the Minnesota Valley, 858-0706

### **Restoring Lower Phalen Creek**

This restoration effort focuses on Lower Phalen Creek corridor between Swede Hollow Park and the Mississippi River, an area that includes Phalen Creek's confluence with Trout Brook. The residents of three St. Paul neighborhoods (Dayton's Bluff, Railroad Island and Lowertown) have adopted a watershed approach to planning with the goal of improving water quality of the area's streams by clearing streets of debris, minimizing fertilizer and pesticide use, decreasing impervious surface area, and restoring Phalen Creek and its wetlands on the Mississippi River floodplain.

Information: Contact Karin DuPaul, Friends of Swede Hollow, 771-2659

### **Redefining a River Corridor as a River Community, University of Minnesota Design Center for American Urban Landscape**

The Design Center for American Urban Landscape has put together a framework plan and process for delineating connections to the Mississippi River in the metropolitan area. The Center's case study series includes "corridor" connections as a major component of urban planning and suggests priority projects. The six newsletters are available as a resource for communities. Collaborators on the project include the DNR, MNRRA, Metropolitan Council, and 72 metropolitan communities that contributed information, attended sessions and provided feedback.

Information: Contact Gina Bonsignore, Design Center, University of Minnesota, 627-1850

### **Friends of the Parks and Trails of St. Paul and Ramsey County**

This friends group helps to preserve blufflands in St. Paul, promotes bikeway and trail connections along scenic open spaces, and organizes local action to protect natural areas in St. Paul and Ramsey County.

Information: Contact Peggy Lynch, Friends of the Parks and Trails of St. Paul and Ramsey County, 698-4543

### **Hennepin Community Works**

Hennepin Community Works is a program that incorporates infrastructure, transportation, and overall system needs into one vision. The program consists of members from Hennepin County, the City of Minneapolis, the Greater Minneapolis Area Chamber of Commerce, Minneapolis Park and Recreation Board, and other public/private partners. One effort which involves Hennepin Community Works as a partner is the Humboldt Greenway Project in Minneapolis. This project aims to expand and extend the Grand Round Parkway along Humboldt Avenue and Shingle Creek in Hennepin County. Residents have provided "groundtruthing" about the neighborhood and refined the greenway plans.

Information: Contact Hennepin County Planning, 348-3081.

### **Maplewood Open Space Committee**

The City of Maplewood was the first city in Minnesota to pass a referendum for \$5 million in 1993 to purchase natural open space and protect it in perpetuity. Over 180 acres (11 tracts) of habitat, including wooded wetlands, some prairie, and oak savanna in need of restoration, have been purchased for inclusion in the city's design.

Information: Contact Michael McGuire, City of Maplewood, 770-4524

### **Scientific and Natural Areas Program**

Natural areas which have exceptional natural features and/or rare resources of scientific and educational value may be acquired for protection by the DNR as a Scientific and Natural Area (SNA). There currently are 10 SNAs in the metro area.

Information: Contact Bob Djupstrom, DNR, 297-2357

### **Neighborhood Revitalization Plans**

As part of a long-term commitment by the City of Minneapolis, School Board, Park Board, Library Board, Hennepin County, and other organizations, neighborhoods in Minneapolis have been awarded funds to improve livability by addressing community concerns. Several communities have identified natural resources issues as areas they want to address. For example, the Seward neighborhood is involved in repairing, stabilizing, and preventing erosion along the Winchell Trail as well as planting native plant species and removing weedy, non-native species. This program allows neighborhood groups to provide environmental education and practical assistance to residents to help them green up their communities and improve the environment.

Information: Contact City of Minneapolis, Neighborhood Revitalization Program, 673-5140

### **Bassett Creek Park Extension, Northside Community, Minneapolis**

Collaborators on this project include the Minneapolis Park Board, Friends of Bassett Creek, Minneapolis Public Housing Authority, and the Design Center for the American Urban Landscape. As part of a collaborative effort, a public housing project will be converted to Bassett Creek Wetland Park. With the removal of the housing, the new wetland and park will become part of the neighborhood's vision to enhance quality of life and investment potential in the surrounding neighborhoods.

Information: Contact Amy Middleton, Citizens for a Better Environment, 824-8637

### **Cottage Grove Community Planning**

The City of Cottage Grove is situated above the bluff terraces of the Mississippi River, mostly within the MUSA boundary. Working under the premise that "people are part of nature," the city and its citizens completed a thorough city inventory of significant natural areas and identified important natural resources for protection. Natural communities also were ranked according to their ecological and local values and recommendations for management and protection were developed. Alternatives to protect and link natural areas were also identified.

Information: Contact Tony DeMars, Bonestroo, Rosene, Anderlik & Associates, 636-4600

### **Crystal Greenway Neighborhood, Crystal, Brooklyn Park, and Brooklyn Center**

The Design Center for the American Urban Landscape, City of Crystal Planning Department, and Citizens Environmental Quality Board have developed a useful blueprint that details the planning process and critical site factors to be considered when redeveloping land around a wetland and other greenway corridors. A case study report detailing the planning process is available (*Crystal Greenway Neighborhood: A High Amenity Mixed Use Development*).

Information: Contact Amy Middleton, Citizens for a Better Environment, 824-8637

### **Kenny Bicycle Planning Group, Kenny Park, Minneapolis**

The goal of the Kenny Neighborhood Task Force is to plan safe greenways and trails that link with other trails in Hennepin county. Other similar community groups also are funded under the Minneapolis Neighborhood Revitalization Program, including the Bryn Mawr Neighborhood Association, Cedar Isles Dean Neighborhood, Tangletown Neighborhood Association, and Lynnhurst Neighborhood Association. The primary goal of these neighborhood associations is to protect and enhance the environmental features of their communities with projects that address water quality, environmental education, and parks and trails as priorities.

Information: Contact Carol Frey, Kenny Neighborhood Association, 827-9438

## Appendix D: Toolbox for land protection (adapted from Allman, 1997)

This appendix provides an overview of land protection approaches available to local units of government to conserve natural areas and open space in their communities. Selection of appropriate tools will depend on quality of the habitat, ownership status, wishes of the landowner, and financial considerations.

The tools in this matrix include both regulatory and voluntary, incentive-based approaches. Each tool provides a different level of land protection, ranging from

temporary to permanent and formal to informal. The best tools for land protection are those that protect an area's biological structure and ecological functions in perpetuity, and this longer-term goal usually requires a combination of tools.

Selection and implementation of a package of land protection tools often require cooperation and partnerships among local officials, private landowners, technical resource professionals, and nonprofits to succeed.

Tool	Applicability for Local Governments	Notes
<p><b>Transfer of Development Rights (TDR)</b></p> <p>In a TDR program, two zones are established in a given geographic area; a “sending” (preservation) zone and a “receiving” zone. Landowners with property in the sending zone may sell their (unused) development rights on the open market to land developers and brokers, who then use the purchased rights to increase their allowable building density in the receiving zone.</p>	<ul style="list-style-type: none"> <li>• To work effectively, TDR programs require:               <ol style="list-style-type: none"> <li>1) a high demand for housing or other development in the receiving zone,</li> <li>2) capability of the administering government unit to set up and oversee the program on an ongoing basis, and</li> <li>3) residents in receiving zone amenable to higher density.</li> </ol> </li> <li>• Appropriate for large-scale efforts where keeping land in private ownership is desirable.</li> </ul>	<ul style="list-style-type: none"> <li>• Minnesota recently passed enabling legislation which allows for TDR programs. For information on TDR programs in Minnesota, contact The Land Stewardship Project (LSP) at (612) 653-0618.</li> </ul>
<p><b>Purchase of Development Rights (PDR)</b></p> <p>A PDR program typically involves the purchase of development rights by a local government unit or nonprofit organization in order to accomplish protection of natural features, open space, or agricultural values. PDR programs are generally applied as part of a formal program with specific criteria used to select acquisitions. A PDR program may be viewed as a systematic use of conservation easements.</p>	<ul style="list-style-type: none"> <li>• PDR programs require:               <ol style="list-style-type: none"> <li>1) the capability of the administering government unit to set up and oversee the program on an ongoing basis, and</li> <li>2) a funding mechanism to finance the acquisitions of development rights.</li> </ol> </li> <li>• Appropriate for large-scale efforts where keeping land in private ownership is desirable.</li> </ul>	<ul style="list-style-type: none"> <li>• The Land Stewardship Project is spearheading a conservation project in Washington-Chisago counties which employs the use of PDRs, TDRs, conservation easements, and acquisition. Contact LSP at (612) 653-0618.</li> </ul>

## Tool

## Applicability for Local Governments

## Notes

### Registry Programs

Registry programs are a way to acknowledge and encourage the voluntary protection of natural features by private citizens. Landowners make a non-binding agreement to protect their land by enrolling in a registry. In turn, they are provided with information and technical assistance regarding appropriate conservation practices for their particular site.

- Local governments may either start their own registry program (if they have qualified natural resource staff) or may instead educate citizens about the availability of registry programs offered by other government agencies or private, non-profit conservation organizations.

- The MN Chapter of the Nature Conservancy administers a registry program. Contact Lisa Mueller, Land Protection Specialist, at (612) 331-0733.
- “Friends of the Minnesota Valley” administers a Heritage Registry for landowners in the Lower Minnesota River Valley. Call (612) 858-0706.

### Special Designation

High quality natural areas may qualify for special designation under a state or federal program such as the National Register of Historic Places or the state Scientific and Natural Areas Program, administered by the DNR. Special designation generally requires public access to land.

- Special designation may increase legal protection and potential for financial support for acquisitions and management of selected sites.
- With sites appropriate for special designation, an outside agency may be interested in acquiring the property and managing it for protection of its natural features. This allows the local community to benefit from protection of a site without being obligated for the cost of acquisitions or management.
- Appropriate options only for natural areas with features of state/national significance.

- If a natural area has historic or cultural significance, call the State Historical Preservation Office, (612) 296-5434.
- To find out whether a natural area might qualify for designation as a state Scientific and Natural Area, call (612) 297-2357.

### Outright Purchase

Also known as “fee simple acquisition,” the outright purchase of land gives a local government unit full control over all rights to a property.

- Outright purchase by a unit of government requires:
  - 1) a determination that the land serves a public purpose. Natural areas can be said to serve public purposes (e.g., flood control, enhancement of air and water quality) even when public access to a site is not feasible, desirable, or practical;
  - 2) necessary funding to finance the purchase. Acquisition may be financed through general revenue funds, bond referenda, lend-lease programs, special taxation, and government grants, trust funds, and matching programs. Cost of acquisitions may be reduced by use of “bargain sale,” in which the seller agrees to sell at below market value (the difference is recognized by the IRS as a charitable contribution for the seller’s income tax purposes); and
  - 3) financial and staffing resources to provide for site management and maintenance.

- Washington County used a lease-purchase arrangement to finance an acquisitions of park land in the St. Croix Valley. For information, contact Dave Engstrom, County Commission, at (612) 430-6215.
- The DNR administers a matching grant program to assist local governments with acquisitions of natural and scenic areas.
- The Trust for Public Land (TPL) is a nonprofit land conservation organization that applies its expertise in negotiation, public finance, and law to help local governments acquire public open space. Contact TPL at (612) 338-8494.

## Tool

## Applicability for Local Governments

## Notes

### Perpetual Conservation Easements

These easements are legally binding agreements made between a landowner and a qualifying organization, in which permanent limits are placed on a property's use and development.

Conservation easements achieve a number of goals:

- 1) they protect natural and open space values of public land available for sale;
- 2) they provide permanent protection of required open space in developments;
- 3) they promote voluntary conservation by landowners;
- 4) they provide protection for highly sensitive areas on public land;
- 5) they ensure private ownership rights.

Easements may be sold or donated by a landowner; a local government may require an easement to protect a natural or open space area; easements can keep land in private ownership and on the tax rolls.

### Official Land Use Controls

Zoning and subdivision ordinances are the most common tools used by local governments; many land use controls fail to address the protection of high quality natural areas on public and private land; a preservation overlay zone is a flexible tool which supplements existing zoning; open space zoning mandates or encourages protection of blocks of open space in subdivisions.

St. Cloud is in the process of drafting a "sensitive natural areas overlay zone ordinance" to protect environmentally important areas; developers that employ open space zoning may receive density bonuses for dedicated open space in a subdivision, which may be managed by a homeowners organization.

---

## Bibliography

- Allman, L. 1997. Natural Areas: Protecting a Vital Community Asset. MN DNR Natural Heritage and Nongame Research Program.
- Brabec, E. and K. Kirby. 1992. The Value of Nature and Scenery. Scenic America Technical Information Series 1 (3).
- Brabec, E. 1994. The Economics of Preserving Open Space. *IN* Rural by Design: Maintaining Small Town Character (R. Arendt, ed.), pp. 280-288.
- Decision Resources, Ltd. 1997. Dakota County 1997 Residential Study. 96pp.
- Fausold, C.J. and R.J. Lillieholm. 1996. The Economic Value of Open Space: A Review and Synthesis. Lincoln Institute of Land Policy Research Paper.
- Florida Greenways Commission. 1995. Creating a Statewide Greenways System. 1000 Friends of Florida.
- Gobster, P.H. 1997. The Other Side: A Survey of the Arguments. Restoration and Management Notes 15:32-37.
- Green, J.C. 1995. Birds and Forests. MN DNR. 182 pp.
- Harney, K.R. 1995. "Community Living: Look for Bike Paths, Not Golf Courses" Washington Post, 7 January.
- Himle Horner, Inc. 1996. Summary and Report on Research Conducted on Sustainable Development. 16 pp.
- Land Stewardship Project Fact Sheet. 1997. Why Minnesota Needs Community-Based Planning
- Mazour, L.P. 1988. Converted Railroad Trails: The Impact on Adjacent Property. Master's thesis, Kansas State University, Manhattan. KS.
- Metro, Portland. 1992. Metropolitan Greenspaces: Master Plan Summary. 22 pp.
- Minnesota Public Interest Research Group. 1997. State Parks in Minnesota MPIRG Student Opinion Poll. 13 pp.
- National Park Service. 1995. Greenways for the Southeast Tennessee River Valley.
- Nectar, L. 1995. Fast-tracking Culture and Landscape: Horace William Shaler Cleveland and The Gardens in the Midwest. *IN* Regional Garden Design in the United States. (T. O'Malley and M. Treibs eds.) Dumbarton Oaks Research Library and Collection, Washington, DC, pp. 69-93.
- Rivers and Trails Conservation Assistance. 1995. Economic Impact of Protecting Rivers, Trails, and Greenways Corridors. USDI National Park Service, 4th ed., Washington, DC. 150 pp.
- Ross, L.M. 1997. The Chicago Wilderness. Restoration and Management Notes 15:17-23.
- Smith, D.S. and P.C. Hellmund. 1993. Ecology of Greenways. University of Minnesota Press, Minneapolis, MN.
- Tilman, D. and J.A. Downing. 1994. Biodiversity and Stability in Grasslands. Nature Volume 367: 363-365.
- University of Michigan. 1997. Greenway Implementation in Metropolitan Regions: A Comparative Case Study of North American Examples. 39 pp.
- Washington County letter dated 14 November 1996 re: County Survey.

## Of Prairies and Kids

Growing up in St. Paul Park, Bill Penning used to love exploring the woods and prairie hillsides that stretched south along the Mississippi River valley through Grey Cloud Island into Cottage Grove. It was, he believes, the kind of childhood a boy is meant to have, full of outdoor adventures and healthy fun.

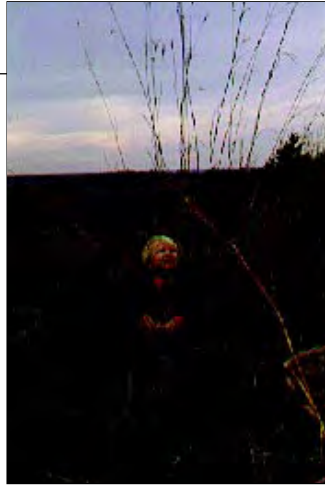
A DNR biologist who now lives in Cottage Grove, Penning has seen many of those boyhood haunts disappear.

“I’ve slowly watched the areas I played in as a kid either get developed or be bought up, fenced and posted,” he says. “Kids need a place to go, some wild and natural areas to mess around in. Otherwise, how will they know what nature is?”

While much has been lost, Penning notes that there’s much left worth saving. One of his favorite local spots is the dry sand prairie in southwestern Cottage Grove.

Perched on a broad slope overlooking panoramic Mississippi backwaters, the prairie hums with birds and bugs in June. Come October it’s a glowing mix of reddish browns and grassy gold, a rustling tweed. A family of eastern bluebirds wings from an oak tree to a clump of shrubs. Ducks glide along a narrow slough.

The 220-acre site, known to some as Grey Cloud Dunes, has been identified as a top prospect for protection under the state’s



Harland Hiemsira

Scientific and Natural Areas program. Statewide, less than 1 percent of the prairies that existed prior to European settlement remain today. A rare ecosystem not found elsewhere in the metro region, it sits on deep layers of fine sand deposited centuries ago by an ancient river much

broader than today’s Mississippi. Here and there, bare patches drift in the wind. Tufts of big bluestem and Indian grass mingle with several species of rare and threatened plants. Protection of this unique resource could be complicated by its location in an area of high land values.

Identified as a site of statewide significance, Cottage Grove’s sand dune prairie is also gaining local recognition. In a 1997 inventory of the city’s natural resources, the prairie was highlighted as a unique asset in a community that still retains a fair amount of open space.

That such an inventory was done is a positive sign, Penning says. It’s a first step toward preserving remaining resources, and it indicates a growing awareness of the long-term contributions natural areas make to a community’s quality of life.

“I didn’t realize how valuable these places were until I moved to Detroit for awhile,” Penning says. “Saving these places—sure, it’s not necessarily easy or cheap. But what kind of a city do we want to live in, and what price do we put on a future for our kids?”