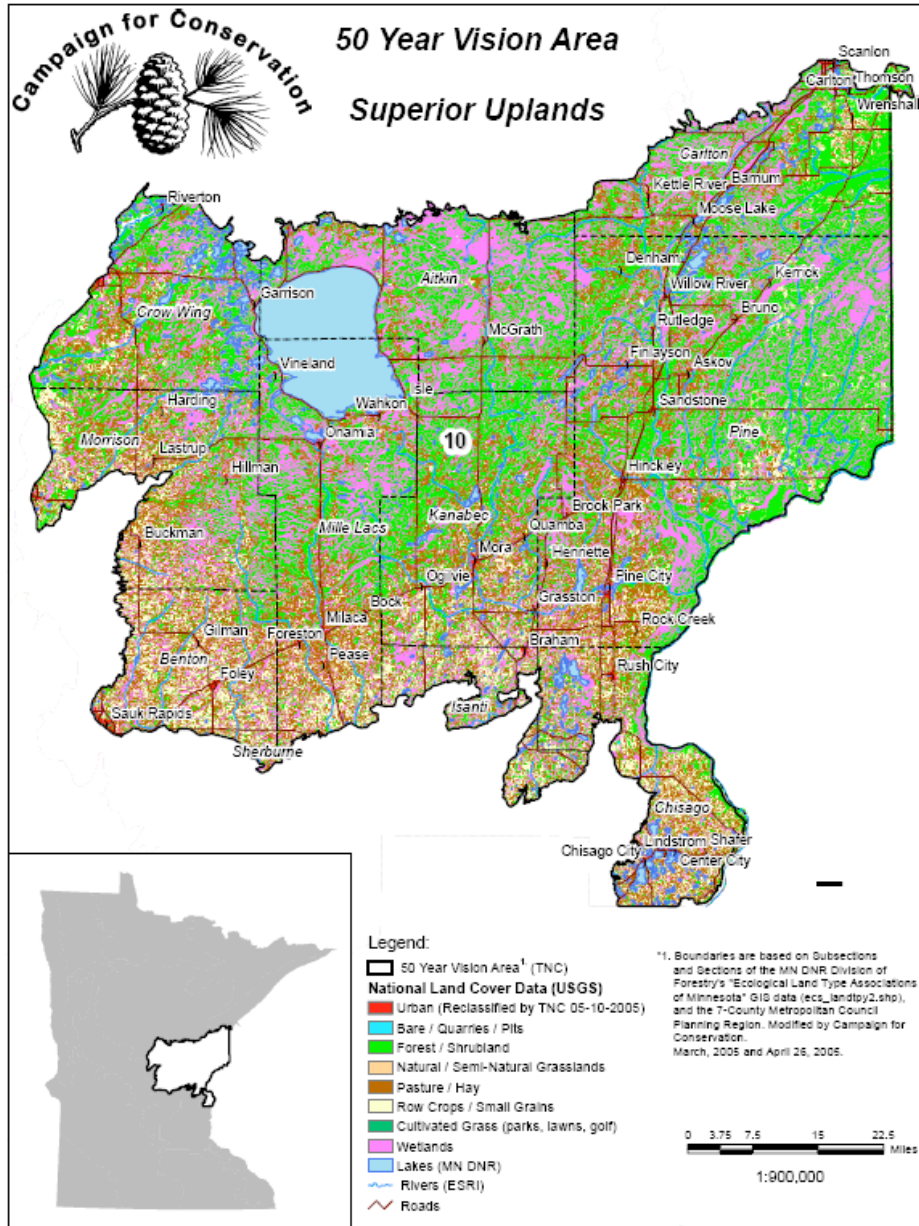


Superior Uplands Conservation Region

(Comprised of the Mille Lacs Uplands and
Glacial Lake Superior Plains Ecological Subsections)



Final Conservation Template
June 2007

Acres in Conservation Region

3,491,472

Population

202,566 (2000 Census)
113,376 (employed)
37 (people per square mile)

Population Change

1980 – 2000 +26.1%
2000 – 2030 +37.5%
2000 – 2030 Individuals over 65 years of age +136%

Percent of Land in Federal, State, or Local Public Ownership

18%

Counties

Aitkin, **Benton**, **Carlton**, **Chisago**, Crow Wing, Isanti, **Kanabec**, **Mille Lacs**, **Morrison**, **Pine**,
Sherburne (Bold are counties mostly in region)

Ecological Classification System Subsections

Mille Lacs Uplands
Glacial Lake Superior Plain

Natural Characteristics

Upland Deciduous Forest
Upland Coniferous Forest
Jack Pine Woodland
Lowland Coniferous Forest
Lowland Deciduous Forest
Wetland (non-forest)
Shoreline-dunes-talus-cliffs
Deep Lakes
River Headwaters
Very Large River (St. Croix)

I. Why We Live Here

The vast forestlands and numerous lakes are what characterize this region of east central Minnesota.

This region is a recreational haven. The lakes, forests, rivers and wetlands are what brought people to this area and those attributes, along with the region's rural character, continue to be an attraction for many. The many state forests and state parks provide residents and visitors a like ample opportunities to fish, hunt, camping or simply enjoy the outdoors. The region boasts quality birding and coldwater fisheries. Mille Lacs Lake is famed for its walleye fishery and tourism is the cornerstone of the local economy. The region's proximity to the Twin Cities and easy access from I35 makes this region a popular one for summer cabins. The St. Croix River with the Upper and Lower Snake River provide additional waterway recreation.

II. Current Conditions and Trends

A. Demographics and Economy

Manufacturing and social services provide most of the jobs in this region with retail sales being the primary employment sector in Pine County; unusual for Minnesota.

Due to its close proximity to the Twin Cities and vast network of roads, this region is under increasing human activity, including the dramatic expansion of motorized recreation and residential development. All counties in this region are expected to see substantial growth between 2000 and 2030. Chisago, Kanabec, Mille Lacs and Aitkin counties are projected to see their population increase by more than 50% by 2030.

Unemployment for the counties (average of 5.1%) in the region exceeds that of the state (4.2%), especially in Pine and Mille Lacs counties where unemployment is among the highest in Minnesota -- in excess of 6%.

B. Land & Habitat

This Conservation Region is a large area located in east-central Minnesota and includes the St. Croix Moraines, a small area to the southeast along the St. Croix River. It encompasses two Ecological Classification Subsections: the Mille Lacs Uplands (Pine, Kanabec, Mille Lacs, Benton, Morrison, Crow Wing and Aitkin counties) and the Glacial Lake Superior Plain that occupies a small area just below Duluth (Pine County), and is part of a much larger area in Wisconsin.

Several substantial rivers run through the region including the Kettle, Snake, Rum, Ripple, and St. Croix, the latter forming part of the eastern boundary of the region. The region contains extensive wetlands and 100 lakes greater than 160 acres in size. Gently rolling hills are the dominant landform. Glaciation has had a major influence on the landscape, and the resulting moraines provide excellent salamander habitat today. The presence of salamanders is a general indication of healthy sensitive wetland habitat.

Before settlement by people of European descent, maple-basswood forests were prevalent in the south, and the north was a mix of conifer and hardwood forests.

Historically, this region was approximately 72% forested (2.5 million acres). The pine forests of

Pine and Carlton counties were extensively logged and burned throughout the 1800s, but there still remain several large areas of contiguous mature forest. In the early 1990s, the most current land cover inventory, forested lands covered 38% of the landscape or approximately 1.3 million acres of the region. The loss of forestland varies in the region with the greatest losses in the counties adjacent to the Twin Cities metropolitan area.

The 10 state forests in the region contain 305,000 acres in their boundaries with 74,514 acres of inholdings. Corporate timberland holdings total 21,850 acres, substantially less than regions to the north.

Agriculture is concentrated in the western and southern portions of the region. Large areas in eastern Pine County are still heavily forested and relatively undisturbed, although the once common stands of white pine are no longer present. The once common oak and jack pine barrens are all but gone in this area.

Public land ownership accounts for about 18% of the region, which is significantly less than the regions to the north. There are increasing pressures for shoreland and rural residential development. The area is also home to a significant number of major thoroughfares in Minnesota contributing to the increased development pressure in the region.

Current land cover composition is:

Forest/shrubland	33%
Wetlands	32
Pasture/hay	22
Row crops/small grain	12
Urban	0.7
Bare rock/quarries/gravel pits	0.2
Cultivated grasses	<u>0.1</u>
	100%

Areas important for wildlife include the following State Forests, Parks and Waterways: Father Hennepin, Mille-Lacs Kathio, St. Croix, and Wild River State Parks; St. Croix Scenic Waterway; Sandstone NWR; Mille Lacs Wildlife Management Area; and Nemadji, St. Croix, and Chengwatana State Forests.

There are four Scientific and Natural Areas (SNAs) encompassing 2,545 acres. The Minnesota County Biological Survey (MCBS) identified 161 sites with over 161,329 acres worthy of protection. Of these, 31% are protected and 44% are in public ownership, with the remaining acres on private lands. In total, approximately 4% of the total area in the region is currently protected for conservation.

Sixty-four Reinvest in Minnesota (RIM) easements covering 1,675 acres protect important habitat in the area.

Approximately 18% of the region, 622,235 acres, is publicly owned. Of that, only 4,844 acres are owned by the federal government with most, 3,300 acres, owned by the U.S. Fish and Wildlife Service at the Sandstone National Wildlife Refuge.

Of the 1.3 million acres of forestland, approximately 75% is privately owned.

C. Lakes, Rivers, Wetlands & Groundwater

The Kettle, Mississippi, Ripple, Rum, Snake, St. Croix run their way either through or adjacent to this region. The Nemadji River, which flows northerly to Lake Superior and is predominantly forested, contains soils that are prone to erosion.

There are 98 lakes greater than 150 acres in size within the region. There are also 6,303 miles of waterways with approximately 16% (1,008 miles) of these waterways ditched.

Seventy-eight streams and 49 lakes in the region are listed as impaired, primarily for high nutrient loads and mercury. In all, 149,573 acres of lakes are categorized as exceeding pollution standards. Land development and vegetative cover changes including timber harvesting can greatly increase sedimentation in the rivers and lakes.

A large portion, nearly one million acres (or one quarter of the region), of is wetland. Ditching, historic timber harvesting or development has impacted many of these wetlands. The most extensive ditching and draining is in the northern half of the region. Despite the efforts, agriculture has proven less successful in the northern half as well.

Contamination of shallow aquifers by agricultural runoff is an ongoing concern for the region. Failing or unmanaged septics are also a problem, especially in the clay rich soils of the Superior Uplands which are poorly suited to treat on-site wastewater disposal.

D. Fish and Wildlife

This region serves as one of the most important migratory routes in the state, providing important corridors for all forms of wildlife. Migratory water birds, raptors and neotropical migrants rely upon the riparian corridors to guide their way. Additionally, the forest composition and structure is vital to maintaining viable habitat for the neotropical migrants and their habitat has been compromised by increased forest fragmentation.

The rich assemblage of wetlands, some of the highest densities of wetland habitat in the state, afford habitat for a number plant and animal species. 128 Species in Greatest Conservation Need (SGCN) are known or predicted to occur within the region, the third most of all regions in Minnesota. These SGCN include 57 species that are federal or state endangered, threatened, or of special concern. For example, 6 mammal SGCNs are known or predicted to occur in the Mille Lacs Uplands, or approximately 27% of all mammal SGCN in the state.

Extensive forestlands, riparian forests and open waters characterize the area. This mix of habitats supports Bald Eagles, Common Terns, Sandhill Cranes, Ospreys, Trumpeter Swans, Yellow Rails, and Nelson's Sharp-tailed Sparrows, wood turtles, as well as rare mussels like the winged mapleleaf, spike, and round pigtoe. Sand terraces and rock outcrops along the St. Croix River provide habitat for bull snakes. It is also one of the most important regions for forest-dwelling salamanders, such as four-toed and spotted salamanders, which use fishless, seasonal wetlands as breeding habitat.

E. Recreation

The Mississippi and St. Croix rivers border the region to the west and east respectively and provide abundant recreation opportunities. Parks and trails are concentrated in the eastern half of this region and include Wild River, St. Croix, and Jay Cooke State Parks, as well as the Willard

Munger Trail. The State Park Land Study noted a need for more recreational opportunities in the western half of this region and in the area south of the Duluth Metropolitan area, but did not recommend any additional state parks for the region.

There are ten state parks and recreational areas in the region encompassing 69,456 acres within their boundaries. There are 9,295 acres of private inholdings in the various state parks.

More than 150 miles of hiking and biking trails are available for outdoor enthusiasts with an additional 64 miles of trail authorized by the state legislature but not yet developed. The snowmobile trail system is expansive in this part of the state.

An abundance of canoeing opportunities exists with 332 miles of canoe routes and the St. Croix River National Scenic Waterway along the region's eastern boundary. The river is an enormous asset and provides the region with a feature of enormous historical and cultural importance.

The region supports diverse wildlife populations. Mille Lacs Lake is one of the finest walleye fishing lakes in the world. Ruffed and Sharptail Grouse, woodcock and deer hunting are important recreational uses. Approximately 17% of the land is open to hunting.

The region holds 60,561 acres of WMA land at 72 different locations. The WMA plan calls for an additional 4,000 acres to be acquired.

There are 599 miles of identified trout streams in the region.

There are no plans for restoration of land in the Duck Plan for this region, but there are 136,593 acres identified for conservation action in the Living Lakes initiative.

The Pheasant Plan calls for 76,000 acres to be restored to pheasant habitat in the region.

III. Conservation Challenges

A. Demographics and Economy

This region has seen a great deal of development in the past ten years resulting in the conversion of thousands of acres of agricultural lands to rural residential. As land prices have escalated in the Twin Cities Metro, more people are establishing commuter communities in the Superior Uplands. Much of this growth has occurred without the benefit of long-term plans to ensure a sustainable balance of residential and commercial development that also preserves the natural character of this region. Furthermore, the loss of agricultural lands places even greater pressure for production on the remaining farmland. This pressure is exacerbated by the increased demand for corn and water resources as ethanol production in the area increases.

This region, as so with many others in Minnesota, will also face a dramatic change in the age structure of its residents. Besides the increasing number of retirees that are moving into the area, the resident population continues to age with a total projection of a 136% increase in residents over the age of 65 in the next 25 years. This shift will put an enormous burden on the human services infrastructure.

B. Land & Habitat

While the dominant land cover is still forestland, this region has seen a dramatic shift from large tracts of contiguous forest and wetland to one fragmented by development and agriculture. Gone are the large stands of mature timber and this has led to a loss of species that depend upon vast expanses of interior forest such as the Red-shouldered Hawk. Changes in forest composition and integrity have also made it conducive for invasive species to take root.

C. Lakes, Rivers, Wetlands & Groundwater

Wetland loss and fragmentation, besides the loss of valuable wildlife habitat, have compromised the ecological processes that help to maintain our lakes and streams. Water quality of our lakes and streams is also greatly impacted by nutrient and sediment runoff from development and farmland.

D. Fish and Wildlife

The plant and animal species of this region have been deeply impacted by the acts of man over the past 150 years. These actions have created a disconnected landscape that excludes species needing large and intact blocks of habitat and invites species that thrive on disturbed and narrow bands of forest or wetland. Many of the latter are invasive species that out compete the native species and are difficult to eradicate. This invasion holds true for aquatic species as well as we have seen with everything from the zebra mussel to Eurasian milfoil. With the specter of climate change looming in our future, the stress on our native systems will only be greater in years to come.

The source of these problems is the interruption of natural processes that would allow the native species to persist. Whether its fire suppression in our forests or the loss of nutrient filtering wetlands that keep our lakes and streams clean, man's perturbation of our natural world has degraded their ability to heal and sustain themselves.

E. Recreation

Lack of access to public hunting and fishing areas combined with overuse of the existing public lands are the primary threats to future recreation. Striking a balance among incompatible recreational activities (e.g. ATV use and bird watching) is a constant struggle that can only be resolved by providing more opportunities for resource-appropriate recreation. The trail system itself creates a more efficient means to spread exotic and invasive species.

Hunting and fishing is also threatened by the same habitat degradation that affects non-game species, as mentioned previously. Trout streams are responding negatively to water quality decline.

IV. Status of Current Planning Efforts

Beyond those statewide plans that include this conservation region in their plans, there has been some effort at the local level to develop land use plans for the area. The Minnesota Forest Resources Council teamed with DNR to perform a screen of regionally significant ecological sites as part of their effort to develop a landscape-scale resource management plan. Chisago County has explored using the transfer of development rights (TDRs) as a means of orchestrating growth in a manner that maintains important natural resource features, but this technique has not

been systematically employed. Below are several key conservation plans that pertain to this region:

- East Central Landscape Ecological Assessment, DNR, 2005
- East Central Landscape Plan, Minnesota Forest Resources Council, 2005
- Minnesota Comprehensive Wildlife Conservation Strategy, DNR, 2006
- Minnesota Forest Legacy Program, DNR
- Potlatch Corp.,
- Local government and NGOs,
- 2006 Minnesota State Comprehensive Outdoor Recreation Plan (SCORP)
- Minnesota Pheasant Plan, DNR, 2005
- Minnesota State Park System Land Study, DNR, 2000
- Minnesota Wetlands Conservation Plan, BWSR, DNR and other MN state agencies, 1997
- Minnesota Wildlife Management Area Acquisition, DNR, 2002
- LCCMR

V. Goals

Forest management activities integrated with other land and natural resource management efforts will be essential to long-term conservation of this area's resources. The East Central Landscape Plan lays out a number of goals for this region's forests and natural systems and the other plans reviewed had compatible goals.

A. Demographics and Economy

1. Promote economic activity that sustains the natural resource base.
 - Identify, assess and document the specific locations of remaining forest resources in the region
 - Promote industries that have a relatively low impact on the environment.
 - Promote provisions within new Farm Bill to incent conservation and sustainable agricultural practices.
 - Provide assistance to local communities in developing economic strategies that promote sustainable growth.
 - Using examples from around the country as a guide, establish ordinances and guidelines at the local level that promote low-impact development.
 - Within 10 years, 10% of economy for the region is involved in the development and production of sustainable renewable energy.

B. Land and Habitat

1. Ensure that residential and commercial development does not jeopardize the quality of life unique to this region.
 - Concentrate residential and commercial growth in community centers helping to control public service costs and preserve the valuable wild and undeveloped character of the area.
 - √ Enable robust and farsighted planning for growth in all communities, but particularly in unincorporated townships.
 - Continue emphasis on conservation ownership (public and private) in the remote, rural areas with most private ownership near existing infrastructure and services.
 - Increase the component of white pine in the forested areas.
2. Identify and protect high priority natural areas
 - Complete finely focused natural resource inventory and identify stressors to ecological function.
 - √ Evaluate need for acquisition of 3,491 acres of SNAs recommended by SNA plan.
 - Develop strategies for the effects of climate change upon the flora and fauna of the region.
 - Use the full spectrum of protective tools to ensure critical areas are conserved.
 - Identify restoration targets and form necessary partnerships to restore ecological functions.
 - √ Protect and restore common oak and jack pine barrens
 - √ Develop additional funding for conservation easements
 - Develop conservation plans for each county.
 - √ Fund conservation plans through state matched funds
3. Control spread and infestation of exotic species (e.g. zebra mussels, purple loosestrife, etc.)
 - Ensure adequate funding for research and implementation of exotic species control techniques.

4. Monitor and prepare for impacts of climatic change on the region's native flora and fauna

C. *Lakes, Rivers, Wetlands and Groundwater*

1. Reduce pollutants load of streams and rivers
 - Decrease sediment loads by use of best management practices on residential, silvicultural, agricultural and commercial lands.
 - Look for and implement opportunities to restore drained areas.
 - Ensure that functional buffers are along all ditches.
 - Complete impaired waters analysis for all lakes and streams in the region.
 - Develop Total Maximum Daily Load (TMDL) studies for all impaired waters in the region and implement actions for remediation of affected waters.
 - Reduce peak flows in streams that result from excess stormwater runoff.
 - Minimize recreational activities that harm streambeds.
 - Enforce and enhance regulations regarding private septic systems.
 - Educate landowners as to landscaping options that are sensitive to the environment and provide financial incentives for implementation of these restorative alternatives.
2. Inventory area wetlands and assess ecological function
 - Develop targets for wetland protection and restoration.
3. Determine groundwater systems and identify sources of potential contamination
 - Develop groundwater flow models.
 - Develop targets for groundwater protection.
 - Assess capacity in light of growth demands and direct growth away from areas of fragile or limited groundwater supplies.

D. *Fish and Wildlife*

1. Develop incentives and regulations for enhanced protection of shoreline and stream restoration.

2. Ensure that suitable habitat for species of concern is a primary focus of land and water conservation efforts.

E. Recreation

1. Acquire additional 9,295 acres of state park inholdings.
2. Investigate possible establishment of additional state park and proceed accordingly.
3. Explore opportunities to enlarge state trail to the 64 miles authorized by legislature.
4. Promote opportunities for passive, non-motorized recreation in the area.
5. Ensure that full range of diverse ethnic groups in Minnesota is represented in surveys regarding outdoor recreation uses.
6. Develop and instill outdoor recreation programs as part of the standard curricula in our schools.
7. Coordinate Pheasant Plan, Duck Plan, WMA Plan conservation activities so they are not redundant.
8. Restore and protect 76,100 acres of as called for in the Pheasant Plan
9. Restore and protect 137,000 acres called for in the Living Lakes Plan.
10. Identify key trout habitat and protect and restore necessary land.
11. Maintain consistent strategy for harvest limits and adjust as needs of species demands.
12. Acquire additional 4,000 acres of WMA lands called for in WMA plan.
13. Teach children and adults about the importance of outdoor experiences to our physical and mental health.