



Final Conservation Template
September 2007

Acres in Conservation Region

5,304,790

Counties (All or part)

Core Counties: Beltrami, Koochiching, Lake of the Woods

Peripheral Counties: Clearwater, Itasca, Marshall, Roseau, St. Louis, Pennington

Population

37,409 (2000 Census)

29,197 (Employed in 2007 within Three Core Counties)

4.5 (People per Square Mile)

Population Change in Seven Core Counties

1980 – 2000 + 11.9%

2000 – 2030 + 24.4%

2000 – 2030 Increase in Individuals over 65 years of age +90.5%

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

52.7% = 2,794,332 acres

2.3% Federal = 123,647 acres

50.3% State = 2,667,303 acres

0.1% Local = 3,382 acres

Other Key Lands

Private Corporate Timberlands = 225,105 acres

Tribal Lands (Red Lake and Nett Lake but not BIA) = 508,665 acres

Ecological Classification System Subsections

Agassiz Lowlands

Littlefork Vermilion Uplands

Natural Characteristics

Lowland Coniferous Forest

Upland Coniferous Forest

Non-forest Wetlands

Aspen Deciduous Forests

I. Why We Live Here

Not many people reside in the Peatlands Conservation Region and many who do so live close to land. Most of the population lives in the rural countryside or small towns where social networks are strong. Many people have ties to the woods product industry or other natural resource businesses. The area offers outstanding outdoor recreational opportunities including Lake of the Woods, Rainy and Red Lakes, and the Rainy, Little Fork and Big Fork Rivers. Hunting, fishing, and more recently snowmobiling are a cultural tradition. The use of all terrain vehicles (ATVs) to access the land has become a popular activity. Generations of families take pride in earning a living from the region's natural resources through hard work and ingenuity. Its rural countryside, small towns and strong family traditions are major reasons why many residents stay and would live nowhere else.

II. Current Conditions and Trends

A. Demographics and Economy

This conservation region is the most sparsely settled of any in the state. Its density of 4.5 people per square mile is only about half of the next most sparsely inhabited region, the Aspen Parklands. The density is even lower on the large Indian reservations in the region. As defined by the U.S. Bureau of Primary Health Care in 1986, the Peatlands as a whole qualifies as "frontier" based on a criterion of six or fewer people per square mile. It is also one of the most remote regions of the state from major population centers. This low density and relative remoteness makes the Peatlands one of the least developed parts of the state and one of the most attractive to people who appreciate outdoor recreation and undisturbed natural ecosystems.

From 2000-2030, the population of the region as a whole is expected to show substantial growth of 24.4%. This is below the statewide average of 27.4% but higher than many other rural parts of Minnesota. Only Koochiching County is expected to show a significant loss at -9.8%. During this time period, the population of the Peatlands is also expected to age. The percentage of the population greater than 65 years of age will increase 90.5%.

There are only a few large to moderate sized towns in the region; International Falls with a population of approximately 6,700 is the largest community, followed by Warroad with 1,722 and Baudette with 1,104. All three are located on the northern edge of the region along the Canadian border and the Rainy River or Lake of the Woods. Red Lake Indian Reservation dominates the western part of the zone. Red Lake is a sovereign nation with its own government.

The region was settled initially due to the abundance of lake sturgeon, whitefish and walleye. Early settlers settled along the shores of the large lakes to harvest fish. Lake of the Woods supported a large commercial fishery from 1884-1940. After 1940, a policy of attrition for licenses gradually reduced the number of commercial operators. The harvest of game fish was slowly allocated to the sport fisherpersons of the state. In 1985, The State of Minnesota purchased the remaining thirteen licenses on Lake of the Woods and five licenses on Rainy Lake, thus allocating all game fish to the recreational fishery. Today, Lake of the Woods supports forty-one resorts generating over \$40 million a year in economic return. The walleye harvest is over 600,000 lbs, sauger 250,000 lbs, and 100,000 of northern pike. The lake sturgeon population is recovering from overexploitation and poor water quality and supports a very fast growing fishery.

The timber industry has a long history within the Peatlands and continues to be a chief driver of the local economy. Over half of the area within the three core counties (56.9%) is timberland. Of the

2,860,670 acres of timberland in the three core counties, 925,123 are privately owned. Most of the public timber base comes from 12 State Forests. The acreage within the statutory boundaries of these forests (including non-forest habitats) totals 2,775,144 acres.

An average of 762,222 cords of wood in pulpwood and sawtimber were produced a year from 2002-2004 from the three core counties with a value of \$24,307,260. These timber products support \$1,011,182,000 of value-added economic activity to the state's economy.

A portion of the timber and pulp produced in the region is processed locally, but the region serves as a woodshed for mills and plants located outside the region including Norboard and Potlatch in Bemidji, UPM in Grand Rapids, Ainsworth in Cook, Rajala in Deer River and Big Fork, and other operators with plants near Duluth and as far away as Wisconsin Rapids, WI.

Boise Paper Company is located in International Falls and is a major employer in the region. Much of the local economy is tied to the Boise paper mill. Recently, the mill was sold to an investment group and the timberland was separated and sold to a different investment group. There is a good deal of uncertainty about how these two new investment groups will manage the mill and the land. There are other small local sawmills that provide some diversity for the region.

The largest secondary forest products company within the region is Marvin Windows. This Warroad company employs over 2500 people and is the single largest employer in the region.

Tourism is a growing economic activity in the Peatlands. The most intense activities are around the large lakes along the Canadian border. With the buyout of the commercial fisheries, resorts expanded their operations to a year round on Lake of the Woods. Anglers exert 2,000,000 hours of fishing pressure during the winter and 900,000 hours during the summer on Lake of the Woods. Workers at resorts changed from seasonal to full time. Similar changes are occurring on Rainy and Red Lakes.

During the summer and fall, the population of the region peaks as tourists join the permanent residents. Hunting and fishing have always drawn sportsmen to this region. Increasingly, individuals are visiting because of its history, culture, and the availability of large areas of public lands for non-consumptive recreational activities. Boating, canoeing, and camping are popular activities, especially around Lake of the Woods and the Rainy River. State Wildlife Management Areas, State Forests, and National Forests are also important draws for outdoor recreation. Plans to include electric and water camp sites at state parks will greatly increase use in the future.

Compared to most other parts of Minnesota, agriculture plays a lesser role in the economy of the region. The Peatlands short growing season and thin soils, which developed under peatland and forest conditions, has meant that farming is difficult. During the early 1900s, large areas of this region were ditched to create more farmland, but most of these efforts failed. Today, farming is restricted to the best soils and more land is used to grow livestock than crops. According to the 2002 Census of Agriculture, the three core counties of the Peatlands have 1.2% of the total cropland in the state (268,177 of 22,729,158 acres) yet only produce 0.3% of the total value of agricultural products sold (\$26,732,000 of \$8,575,627,000). More of this value is in livestock and poultry, \$16,329,000, as compared to only \$10,402,000 in crops. Government payments in various agricultural programs total only \$1,719,000. Based on the planted acres, the most important crops are hay and grass silage with 92,514 acres and wheat with 21,060 acres. The production of perennial grass seed in Roseau and Lake of the Woods Counties is also important to the region. The Northern Excellence Grass Seed Cooperative produces in excess of 1 million pounds of grass seed annually.

Unlike the Aspen Parklands conservation region to the west, little land is enrolled in conservation easement programs because many farms are ineligible and there is less farmland. Koochiching and Lake of the Woods counties both have less than 5% of their cropland acres in conservation enrollment (CRP, Continuous CRP, CREP, RIM, RIM WRP, and WRP). Beltrami County has more enrollment with 18,021 acres, 12.5% of the cropland, but most of these lands are in the southern portion of the county outside the Peatlands conservation region. The impact of possible reductions in CRP in the 2007 Farm Bill should be relatively minor in the Peatlands. One farm program with a relatively high rate of participation in this region is the Environmental Quality Incentive Program. EQIP provides contracts to farmers to cost share approved conservation practices in their agricultural operations.

B. Land and Habitat

The Peatlands Conservation Region is co-terminus with the Northern Minnesota and Ontario Peatlands ecological section and captures two ecological subsections, the Agassiz Lowlands to the west and Littlefork Vermillion Uplands on the east. The region is delineated to the north by Rainy River and Lake of the Woods, on the east by the Vermillion River.

The Agassiz Lowland portion is a very flat, poorly drained area that was once covered by Glacial Lake Agassiz. As the lake receded within the last 10,000 years, peat covered nearly 75% of the lowland basin. These peatlands are either forested, dominated by black spruce and tamarack, or fens dominated by sedges. The higher ground was originally sand ridges formed under Glacial Lake Agassiz or low moraines. These uplands are now mostly covered by aspen-birch and jack pine forests. The three large lakes of this subsection, Lake of the Woods and Upper and Lower Red Lakes are remnants of Lake Agassiz. Most of the agricultural land in the region is found in the northwest part of the Agassiz Lowlands.

The Littlefork Vermillion Uplands subsection is more rolling and has many meandering streams and rivers. Presettlement plant communities included aspen-birch forests in the higher areas and sedge-fen, black spruce-sphagnum bog, and white cedar black ash swamp in the lowlands. This subsection lacks the large recreational lakes found in the Agassiz Lowlands.

The most dominant natural feature in the Peatlands Region is the “Big Bog”. This area of sphagnum peat covers at least 500 square miles in the central part of the region. For many years it was a communication and transportation barrier that helped create a sense of isolation for most of the human population along the northern edge of the region.

The vast majority of land in the Peatlands region was designated as Indian Reservation in the mid-1800s. Following the Nelson Act of 1889, the reservations were reduced in size and some of the newly available land was sold to private individuals for homesteading. The federal government gave the remaining non-reservation land to the state as either school or swamp trust lands and the state then sold many of these acres to private interests.

In the early 20th Century, large tracts of private land in the western and southern part of this region were ditched in attempts of make the land suitable for agriculture. When the attempts at agriculture failed, the lands went tax-forfeit for unpaid ditch bonds, sometimes repeatedly. To prevent county losses on the ditch bonds, the state assumed the payment on the ditch bonds in exchange for the lands. Much of this land was referred to as “Consolidated Conservation” or “Con-Con” land. The Con-Con law of 1929 gave the purpose of the land as “preserving, protecting, propagating and breeding wildlife of all suitable kinds”. Because of this public wildlife purpose, Con-Con lands were placed in various management units including Red Lake Game Preserve in 1929, Pine Island and Beltrami

Island State Forests in 1931, and numerous State Parks, Scientific and Natural Areas, Wildlife Management Areas and other State Forests in the time since.

Although the attempts at ditching are visible, remnants of presettlement vegetation are more common and in larger blocks than in many other parts of the state. Some of the largest undisturbed landscapes in the state are located in the Peatlands region.

Current land cover composition is:

Row crops/small grain	05.4%
Pasture/hay	04.7
Wetlands	67.8
Forest/shrubland	20.8
Bare rock/quarries/gravel pits	00.9
Urban	<u>00.4</u>
	100%

A number of large, high quality examples of the region's natural heritage still exist. Among the most notable are 19 Scientific and Natural Areas including Pine and Curry Island, Red Lake, Pine Creek, Luxemburg, Mulligan Lake, Norris Camp, Sprague Creek, and Winter Road Lake Peatland in the Agassiz Lowlands subsection and Nett Lake, Myrtle Lake, Lost Lake, and Caldwell Brook in the Littlefork Vermillion Uplands. Together these SNAs comprise 163,478 acres and 75.9% of all of the SNA acreage in the state. The largest of the SNAs are Red Lake at 87,580 acres, Myrtle Lake at 22,950, Lost River at 11,888 and North Black River with 10,793 acres. All of these areas contain important natural communities of high biodiversity significance. Most notable are massive raised bogs, patterned peatlands, ribbed fens, and water tracks.

Zippel Bay, Hayes Lake, Franz Jevne, Scenic, and McCarthy Beach State Parks and Big Bog and Garden Island State Recreation Areas also preserve important biodiversity features. Many Wildlife Management Areas contain extensive areas of native vegetation as well, and can add to the habitat base of nongame native species as well as game species.

Although most of the area has not been inventoried yet, the Minnesota County Biological Survey has identified 10 important natural community locations totaling 6,538 acres. Using another type of biodiversity planning analysis, The Nature Conservancy identified 10 areas of 2,460,619 acres within this conservation region that are part of the Superior Mixed Forest ecoregional portfolio. Not all land within these areas need to be protected but important conservation targets are present that do merit preservation.

The Peatlands region has one of the highest percentage public ownership of any region in the state at 52.7%. Only the Arrowhead region at 73.2% has substantially more. The State of Minnesota is the largest public landowner in the region with 2,667,303 acres, while the federal government owns another 123,647. The federal land includes 33,335 acres managed by the US Forest Service in the Chippewa National Forest. The Bureau of Indian Affairs manages 48,486 and the Bureau of Land Management 29,222 of the remaining federal acres.

C. Lakes, Rivers, Wetlands, and Groundwater

There are 9,561 miles of streams and rivers that flow through the Peatlands Conservation Region. About 27.7% of them have been ditched, one of the highest percentages in the state. Many of the large-scale ditch projects of the past have failed, but their legacy remains. Many of these ditches have

a network of beaver dams in them that have developed over the past 60 years. Opportunities to abandon ditches should be pursued where the ditches serve no valuable drainage function and natural resources could be enhanced through abandonment. Too much water is still flowing through these ditches drawing down water tables and drying vegetation. The extensive ditch system has increased flood peaks and reduced base flows of area streams. The increase conveyance of flows has destabilized and eroded stream banks. The Rainy River has lost its ability to transport its sediment bed loads in some of its reaches of river thus creating the future possibility of a braided channel.

Three of Minnesota's large walleye lakes (there are 10 over 25,000 acres) are in this landscape. There are also 20 lakes greater than 150 acres in size in the region but many smaller ones in addition to the extensive fens, bogs, peatlands and other wetland types are also present. There are at least four managed trout streams in the Peatlands region.

Water quality is less of a concern in this region than in most parts of the state. However, the Minnesota Pollution Control Agency has labeled 11 streams and rivers at 33 sites and 11 lakes in the Peatlands Region as impaired. These numbers reflect only part of the true picture because the agency has surveyed only a portion of Minnesota's waters. As is true in much of northern Minnesota, most of the identified rivers and streams have been impaired by mercury contamination. The identified rivers include the Big Fork, Black, Clearwater, Little Fork, Rainy, Red Lake, Roseau, and Sturgeon Rivers. A few streams and rivers have been impacted by low dissolved oxygen levels. Those with low dissolved oxygen include the Baudette and Moose Rivers and Williams Creek.

Unlike many parts of Minnesota, this region has retained most of the wetlands it had in European presettlement times in spite of (or perhaps because of) the failed drainage attempts early in the 20th century. The National Wetland Inventory has identified over 70% of the region's surface area, (3,766,581 acres) as wetlands. Nearly half of this total is classified as bogs, but peatlands would fall in the bog category. Anderson and Craig estimated in 1984 that Lake of the Woods and Koochiching Counties have lost less than 10% of their original wetlands and Beltrami County less than 50%. The bulk of the lost wetlands in Beltrami County probably occurred in its southern portion outside of the Peatlands Conservation Region.

Most of the Peatlands region is underlain by Precambrian greenstone, granite, and shists. These hard crystalline rocks hold little water and largely prevent the movement of water except through fractures. As a result, they are poor aquifers. Overlying the crystalline basement rock is glacial till. The till reaches up to 200 feet thick in northern Beltrami and southern Lake of the Woods Counties but in the rest of the Peatlands the till is less than 100 feet thick. Surficial deposits are mostly lacustrine in origin from the time when much of the region was covered by glacial Lake Agassiz.

The geology described means that most water supplies come from either surface sources or shallow wells. Water often moves through glacial till easily, making glacial aquifers closely connected to surface wetlands and susceptible to contamination from surface sources. Groundwater resident times may be very short and recharge and discharge may take place over relatively short distances. Many household wells in the area are less than 100 feet deep. Failing septic systems pose a real threat to local water supplies. In spite of the potential for groundwater contamination, the overall quality of groundwater appears to be good.

D. Fish and Wildlife

The focal game species in this landscape are deer, ruffed grouse, spruce grouse, bear, waterfowl, and sharp-tailed grouse. Because of the proximity of large state forests, wildlife areas, and other areas open to public hunting, this region is renowned for its exceptional hunting opportunities.

One of the most interesting big game species historically native to the region is the Woodland Caribou. Although now extirpated from Minnesota, this region in general and the Big Bog specifically once supported a large population. A combination of over-hunting, habitat fragmentation that altered migratory patterns, and diseases carried by the expanding whitetailed deer population led to the caribou's demise. Although reintroduction of caribou would be a notable conservation achievement, a warming climate and the continued presence of disease may make such an achievement unreasonable.

Elk is another big game species that was once common in the area, but has suffered a large decline. There is still a small herd of approximately 50-55 animals near Grygla that is intensively managed by the DNR. In addition, an expanding population exists in a range encompassing both sides of the international border between northern Kittson County and southern Manitoba. This population is currently in the range of 100-125 animals. Vegetation change caused by a warming climate may increase habitat suitability for elk in the central and eastern portion of the peatlands ecoregion if elk are offered some level of protection.

The third big game species of note is moose. With the impact of climate change and the continued presence of parasites and disease, the moose population in this area has undergone a steep decline. Moose once used the Big Bog extensively, but their numbers are at such low levels now that there is concern for their continued existence in the region.

Trapping is an important cultural tradition in the Peatlands Region. The principal species taken are fisher, martin, and beaver.

Fishing on Lake of the Woods and Rainy Lake is considered "World Class" for walleye. As Red Lake's walleye population recovers from over-exploitation it will attain that status as well. Lake of the Woods is also the best northern pike fishery in the Midwest. Nearly all of the region's lakes and streams of any size support walleye, sauger, northern pike, muskie, sturgeon, smallmouth bass, perch, and crappie.

The Peatlands Region is the site of three of the most important conservation successes in Minnesota history. Due to over-harvest and other factors, three of the state's premier fisheries collapsed in the latter half of the 20th century. The Lake of the Woods and Rainy River were once claimed to be the "greatest sturgeon water in the world", but over-fishing and pollution nearly extirpated the population. Since lake sturgeon are long-lived (60-100 years), a remnant population of fish continued to exist until the Rainy River was cleaned in the late 1960s. The improvement of water quality allowed spawning and nursery areas to cleanse themselves. Natural reproduction has been consistent since about 1968. Efforts by the Minnesota DNR to keep lake sturgeon harvest within recovery goals have allowed the population to recover. The existing lake sturgeon population is supporting a very fast growing fishery.

The second conservation success was the recovery of the Rainy Lake walleye fishery from over-harvest. A commercial buyout and implementation of special walleye regulations has restored this fishery to world class status. The third success story is the walleye population recovery of the Red Lakes. Due primarily to over-harvest, the population collapsed in the 1990s, but a complete fishing closure from 1999 until the spring of 2006 and intensive fishery management has led to a resumption of fishing and a restoration of a healthy reproducing population.

Wildlife species most characteristic of the region are northern forest/peatland adapted species. The highlights of species with forest and peatland affinities include gray wolves, Canada lynx,

Connecticut warblers, sandhill cranes, black-backed woodpeckers, boreal chickadees, trumpeter swan, boreal owls, great gray owls, and northern bog lemmings.

There are a total of 90 wildlife species of greatest conservation need in this region, 65 that are found in both subsections, 23 that are restricted to the Agassiz Lowlands subsection and only 2 that only found in the Littlefork Vermillion portion of the region. The species that are restricted to the Agassiz Lowland tend to be species with western prairie affinities such as short-eared owls, upland sandpipers, avocets, white pelicans, and Franklin's ground squirrel.

The most protected species in the region are those that are threatened and endangered. The only two federally listed species are the Canada lynx and piping plover. The Peatlands Region is not optimal habitat for either species. This region is considered a secondary recovery area for lynx and only a small population of plovers nest along the beaches of Pine and Curry Island and Morris and Rocky Points in the Lake of the Woods.

Like nearly every other part of Minnesota, the Peatlands has its complement of exotic species that are impacting natural communities. The species of greatest concern include such weeds as: purple loosestrife, common tansy, and spotted knapweed and animals such as the rusty crayfish and spiny waterflea.

E. Recreation

Tourism has been helping to diversify local economies. Five state parks, Zippel Bay, Hayes Lake, Franz Jevne, Scenic, and McCarthy Beach, and two state recreation areas, Garden Island and Big Bog, draw visitors to the area. These park units contain 6,458 acres within their statutory boundaries, but only 5,966 acres are actually owned by the state. The remaining 492 acres are inholdings that need to be added to the state park system.

The 2000 State Park System Land Study called for the creation of a new state park in the Littlefork Vermillion Uplands subsection. There are only four subsections in the state that do not have at least one state park and the Littlefork Vermillion Uplands is one of them. Regional representation insures that a full range of the state's biology and geology are captured within the state park system.

The Peatlands Conservation Region has only 37.8 miles of legislatively designated State Trail. The one existing trail, the Arrowhead State Trail, starts south of International Falls and heads east into the Arrowhead Conservation Region. Despite the lack of formal multipurpose trails, there are many more snowmobile, hiking and skiing routes. There is opportunity to establish more designated state trails if local residents see the need and advocate for them.

Much of the land in the 12 State Forests in the Peatlands Conservation Region is open to hiking, cross-country skiing and motorized recreation. These forests are currently involved in a state forest planning effort concerning the extent of motorized use on state forest trails or roads. These forests are currently open to off-highway as well as highway licensed vehicle travel unless routes or areas have been posted to ban their use.

Boating is also an important part of the recreational tradition of the Peatlands. Besides a myriad of motorized recreational opportunities on the big lakes and the Rainy River, there are 413 miles of the Big Fork, Little Fork, and Red Lake Rivers that have been designated as state canoe routes.

Nearly 300 species of birds occur in Lake of the Woods County. Of particular interest are boreal bird species that are uncommon in the rest of Minnesota and the US. Included are Great Grey Owls,

Gyrfalcons, Boreal Owls, Snowy Owls, Northern Hawk Owls, and Northern Saw - whet Owls. Other northern species such as Three-toed and Black-backed woodpeckers can also be found.

For serious birders, the Peatlands can be a national destination in certain winters. When there is a population decline of voles and other rodents in Canada during hard winters, there can be a southerly dispersal of great gray owls and snowy owls searching for food. During exceptional years, bird watchers will travel from all over the US to see these irruptions of boreal and arctic owls.

Waters of the Dancing Sky Scenic Byway extends across the region from Voyageur's National Park to Warroad along Highway 11. The portion from Greenbush to Baudette has been called the "wildflower route". There are claims that more than two million orchids can be found along the way including over 800,000 Showy Lady Slippers, the Minnesota state flower. Another attraction for flower enthusiasts are the carnivorous plants found in the nitrogen poor habitats of the peatlands. Such plants as pitcher plants and sundews capture small insects and digest them for the nutrients they contain.

Viewers can see lake sturgeon jumping on the Rainy River during the months of June through September. The best time is late evening.

The low density of people in this region and its isolation, create ideal conditions for night listening activities. Whippoorwills, wolves, woodcock, owls and frogs all contribute to the night sounds. The lack of lights also makes viewing of the northern lights and stars easier than many places in the state.

The Peatlands Conservation Region offers one of the most intriguing conservation opportunities in the state. Large expanses of peatlands still exist and within them is some of the least accessible habitat in Minnesota. These wildlands retain more wilderness attributes than some popular official wilderness areas because they are visited so infrequently. The Big Bog in particular is hard to visit except in winter, but it is one of the state's most extensive wild areas.

Outdoor recreation including hunting and fishing are important activities in this region and are increasingly helping to diversify local economies. Although not broken down by region, as of 2001 there were over 1.6 million anglers in Minnesota who expended \$1.3 billion dollars in fishing related activities. Since the Northern Lakes region contains such high quality fisheries resources, it is safe to assume that a significant portion of this activity took place in the region.

The Wildlife Management Area Acquisition Plan estimates that at least 62% of total Peatlands Region is open to public hunting. There are about 49 Wildlife Management Areas in the region consisting of 429,978 acres. Some of these WMAs are among the largest in the state, especially the Red Lake WMA main unit at 209,908 acres and its supplemental unit at 110,914 acres.

The Wildlife Management Plan Acquisition Plan sets a 50-year goal of maintaining sustainable populations of forested landscape dependent wildlife, increasing the huntable population of moose, and increasing sharp-tailed grouse populations to levels large enough to sustain a statewide annual harvest of 30,000 to 40,000 birds. The WMA report notes that because of the large public ownership, most wildlife habitat and population needs can be met by collaboration and cooperative management efforts with county, state, and federal agencies. However some land acquisition is needed including an estimated 8,000 acres of new WMA lands in the Parklands as well as acquiring 18,700 acres of inholdings in existing WMAs.

The State Forests of the region offer even more public hunting opportunities. There are over 1,795,296 acres within State Forest boundaries in the Peatlands Region, but only 993,723 acres are

owned by the state and the rest is not necessarily open to public hunting. There are no plans to acquire more of these state forest inholdings, but in special cases the Department of Natural Resources may deem it appropriate to expand the owned acreage. The DNR Division of Forestry is in the process of identifying lands to purchase from willing sellers. For the first time in many years, the Forestry Division has funding to purchase tracts in northern areas.

One clear need for aquatic recreation opportunities are more public accesses on the Lake of the Woods and the Rainy River. There are only a handful of public access sites on each currently and more would open more habitat to anglers, canoeists, kayakers, and water based sports participants.

IV. Conservation Challenges

A. Forest Fragmentation

There is an increasing industry trend to sell large contiguous blocks of industrial forest lands. Within the Peatlands Conservation Region there are about 225,105 acres of land owned by industrial forest owners. Sale for development of these lands may lead to division and fragmentation of the large tracts of forest.

B. Land Acquisition

More than a dozen counties in Minnesota have adopted *no net gain of public land* resolutions which inhibit the ability of public agencies to acquire key tracts of habitat. Minnesota DNR should provide comprehensive information to the counties regarding the fiscal as well as the environmental value of public lands and work with counties to reverse this trend.

In addition, there is increasing pressure to sell tax-forfeited lands and trust fund lands. Many of these lands have significant natural resource values, provide recreational opportunities for the public, and therefore should be retained in public ownership. Efforts to consolidate public land assets should be pursued as long as overall natural resource values and public opportunities are not compromised in the process.

C. Fire suppression

Although fire was less frequent in this region than in prairies to the west, it was a natural occurrence. Today, because fire suppression has been so successful, woodlands have developed from what once were oak openings or brush prairies. With climate changes, droughts are likely to become more common. When this occurs, vegetation and peat can dry out, creating the opportunity of mega-fires. Fires in the peatlands could burn hundreds of thousands, if not millions of acres, and would be very difficult to control.

In addition, the parcelization of both industrial and non-industrial forest lands frequently leads to the construction of new buildings that add to the forest/urban interface. These often isolated structures created additional challenges in managing wildfires.

D. Mining

The mining of peat for horticultural or energy biomass uses is a relatively minor endeavor currently, but there is potential for greatly expanding the industry. Hundreds of thousands of acres of peatlands that are currently untouched could be impacted as peat operations harvest the top 6-12 inches then

wait for the peat column to rise before the next harvest. Over much of the Big Bog and other peat areas the average peat depth can reach 10 feet.

Many available gravel resources are located on former beach ridges where remnant native prairies occur. Conservation of these prairies while still meeting the needs for aggregate is major concern.

Mineral mining is not a threat in most of the Peatlands region, but there are mining operations within the Little Fork watershed that could contribute pollutants to water flowing into the region.

E. Climate Change

Within the last several years, there has been increasing recognition that a warming climate could have major impacts in the Peatlands. Most important will be the impact on stream flows and water tables. If water tables are lowered substantially, much of the bog vegetation that relies on permanent water will not be able to survive. Most of the peatlands could convert to prairie vegetation over time. This same process is expected to drive the boundary of the Boreal Forest and the species it supports further north.

Climate change will have other potential impacts as well. There will likely be a shift in fisheries species composition and there is a potential for the collapse of some key fisheries. Increased cyanobacteria blooms are likely and with it low dissolved oxygen levels.

F. Invasive Species

Like most parts of Minnesota, invasive species have the potential to severely impact native species, the function of ecosystems, and human activities. The challenge in the future will be in minimize and contain the impacts.

G. Working across Borders

The premier aquatic resources of this region, Lake of the Woods, Rainy River, and Upper and Lower Red Lakes are all international bodies of water. Their ecosystem health is dependent on the viability of their watersheds on both sides of the border. For Lake of the Woods and the Rainy River coordination is needed with the Canadian and US Federal governments as well as the provincial governments of Manitoba and Ontario. For the Red Lakes, coordination is needed with Red Lake Nation and several federal agencies.

V. Status of Current Planning Efforts

The following plans or studies were reviewed and incorporated into this summary:

- Experiment in Rural Cooperation, University of MN, 2006 (ongoing)
- Minnesota Comprehensive Wildlife Conservation Strategy, DNR, 2006
- Minnesota Sales Tax Statistics for Tourism, MN Dept. of Revenue, 2004
- Minnesota State Comprehensive Outdoor Recreation Plan (SCORP), DNR, 2002
- 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
- Superior Mixed Forest Ecoregional Plan, TNC 1998

Further Planning should consult these additional planning efforts:

- Roseau River Watershed District Natural Resource Assessments
- Red River and Rainy River Water Quality Plan, MPCA
- County Comprehensive Water Plans for each county in region
- Northern Landscape Plan of the Forest Resource Council
- Lake of the Woods, Koochiching, and Itasca Counties Comprehensive Plans
- State Forest OHV Plans
- Big Fork, Little Fork, Rainy/Rapid Rivers Management Plans
- Lake of the Woods, Beltrami, Koochiching, and northern St. Louis Counties Wetland Management Plans
- Red Lake Integrated Resources Management Plan
- State Forest Resource Management Plans
- Koochiching County Forest Plan

VI. Goals

The overarching goal is to develop a vibrant economy capable of sustaining the region's population and communities and maintain a viable, healthy functioning ecosystem. Goals include: 1. Stabilize and improve employment and incomes by sustainable use of natural resources. 2. Maintain or increase timber harvest in a sustainable manner. 3. Protect large contiguous blocks of forest. 4. Maintain viable populations of wildlife species. 5. Protect existing peatlands and protect their watersheds. 6. Protect some additional high quality examples of the regions natural communities, especially underrepresented habitats.

Working together with Department of Natural Resources staff, County Land Departments, County Commissioners, Red Lake Tribe and others to diversify the economy and maintain a sustainable wood supply provide a major opportunity. This can be started by:

- Encouraging economic development through existing organizations.
- Promote the marketing of locally crafted forest products.
- Promote businesses that complement existing businesses.
- Promote tourism and recreational economies.
- Encourage retention of private forest lands through tax incentives, stewardship plans, and other programs.

A. *Demographics and Economy*

1. Promote economic activity that sustains the natural resource base.
 - Promote sustainable development that has a relatively low impact on the environment.
 - Provide assistance to local communities in developing economic strategies that promote sustainable growth.
 - Establish ordinances and guidelines at the local level that promote low-impact development.
 - Promote sustainable agricultural activities to reduce soil loss, energy use, and pesticide and fertilizer application while increasing local foods production and encourage enrollment in federal programs such as CRP and EQIP.

2. Promote the retention and expansion of the forest products industry, both primary and secondary. In core forest areas, retain large parcel size. Protect through easements, tax incentives, and other means the 225,000 acres of forest industry land.
3. Ensure timber harvest is done sustainably and within the ranges of natural variation.
4. Provide educational opportunities for young people desiring to work in the forest products or related industries.
5. Pursue sustainable bioenergy opportunities (agriculture, woody biomass, but not peat).

B. Land and Habitat

1. Identify and protect high priority natural areas
 - Complete finely focused natural resource inventory and identify stressors to ecological function. Accelerate Minnesota County Biological Survey and soil surveys to all parts of the region.
 - Develop conservation plans to cover entire conservation region specifying the actions needed to protect natural resources and maintain a high quality natural environment
 - Use the full spectrum of protective tools to ensure critical areas are conserved including the Clean Water Act, Endangered Species Act, conservation easements, and many other methods.
 - Identify restoration targets for key habitats and carry out restoration projects to protect ecological functions and value.
2. Control spread and infestation of invasive species.
 - Incorporate new BWSR efforts for county weed control.
 - Create County Weed Control programs for the counties in the region.
 - Consider/utilize DNR invasive species operational orders and division guidelines for control of invasive species.
3. Monitor and prepare for impacts of climatic change on the region's native flora and fauna.

C. Lakes, Rivers, Wetlands and Groundwater

1. Initiate aggressive aquatic invasive species prevention, control and eradication programs especially for spiny water flea, smelt, and rusty crayfish.

2. Institute program to identify, track and mitigate negative effects of climate change on aquatic resources.
3. Reduce pollutants load of streams and rivers
 - Decrease sediment loads by use of best management practices on residential, agricultural and commercial lands.
 - Rigorously enforce mandated 1 rod wide buffers on either side of all watercourses (including ditches). Explore the possibility of increasing the buffer width to offer greater water filtration and wildlife benefits.
 - Complete impaired waters analysis for all lakes and streams in the region.
 - Continue water quality monitoring (including the River Watch program) along the Rainy and Big Fork Rivers and expand where possible.
 - Develop Total Maximum Daily Load (TMDL) studies, especially for the Lake of the Woods and Little Fork and Black Duck Rivers, and implement restoration strategies for all impaired waters in the region.
 - Enforce existing regulations for all private septic systems and failing municipal systems.
4. Return altered watercourses to semi-natural hydrology and morphology. Opportunities to abandon ditches should be pursued where the ditches serve no valuable drainage function and where natural resources could be enhanced
5. Develop incentives and regulations for enhanced protection of shoreline and stream restoration.
6. Maintain or improve water quality by ensuring appropriate, sustainable development and encouraging county-wide zoning for the region (specifically Beltrami and Roseau Counties).
7. Inventory area wetlands and assess ecological function. Complete the restorable wetland inventory for the region (HAPET).
8. Maintain and expand temporary easements and contracts for conservation utilizing federal farm bill programs where possible.
9. Improve shallow lake and large wetland management. Resolve issues on the restoration of Zah Ghneeng Marsh.
10. Determine groundwater systems and identify sources of potential contamination.
 - Develop groundwater flow models.

- Develop targets for groundwater protection.

D. Fish and Wildlife

1. Focus protection and restoration efforts on key species including moose, elk, Connecticut warbler, Canada lynx, piping plover, sturgeon, and bog species.
2. Reintroduce lake sturgeon into the Upper and Lower Red Lakes.
3. Ensure that suitable habitat for species of concern (both aquatic and terrestrial) is a primary focus of land and water conservation efforts.
4. Prevent increased forest fragmentation by offering tax incentives and other programs to encourage contiguous large parcel ownerships.

E. Recreation

1. Look for opportunities for new state, regional and local parks with a focus on natural resources.
2. Open new public access points (particularly on Lake of the Woods and the Rainy River) and enhance existing access points to open more of the region's water bodies and land area to public recreation.
3. Develop a multi-use regional trail system including hiking, biking, and canoeing. Use city, county and state units as nodes in the trail network
4. Promote opportunities for fostering natural resource stewardship through multi-use trail opportunities including hiking, biking, wildlife watching, photography, canoeing and other non-consumptive outdoor recreation opportunities on public and private lands in the area.
5. Acquire additional 18,700 acres of WMA inholdings and 8,000 acres of new WMAs as called for in WMA plan.
6. Create buffer areas around natural habitats through county zoning to prevent residential development from impacting existing parks, preserves, and wildlife areas.
7. Teach children and adults about the importance of outdoor experiences to our physical and mental health.
8. Involve classrooms in monitoring programs and integrate this into their coursework.
9. Continue to protect lake sturgeon from over-harvest.