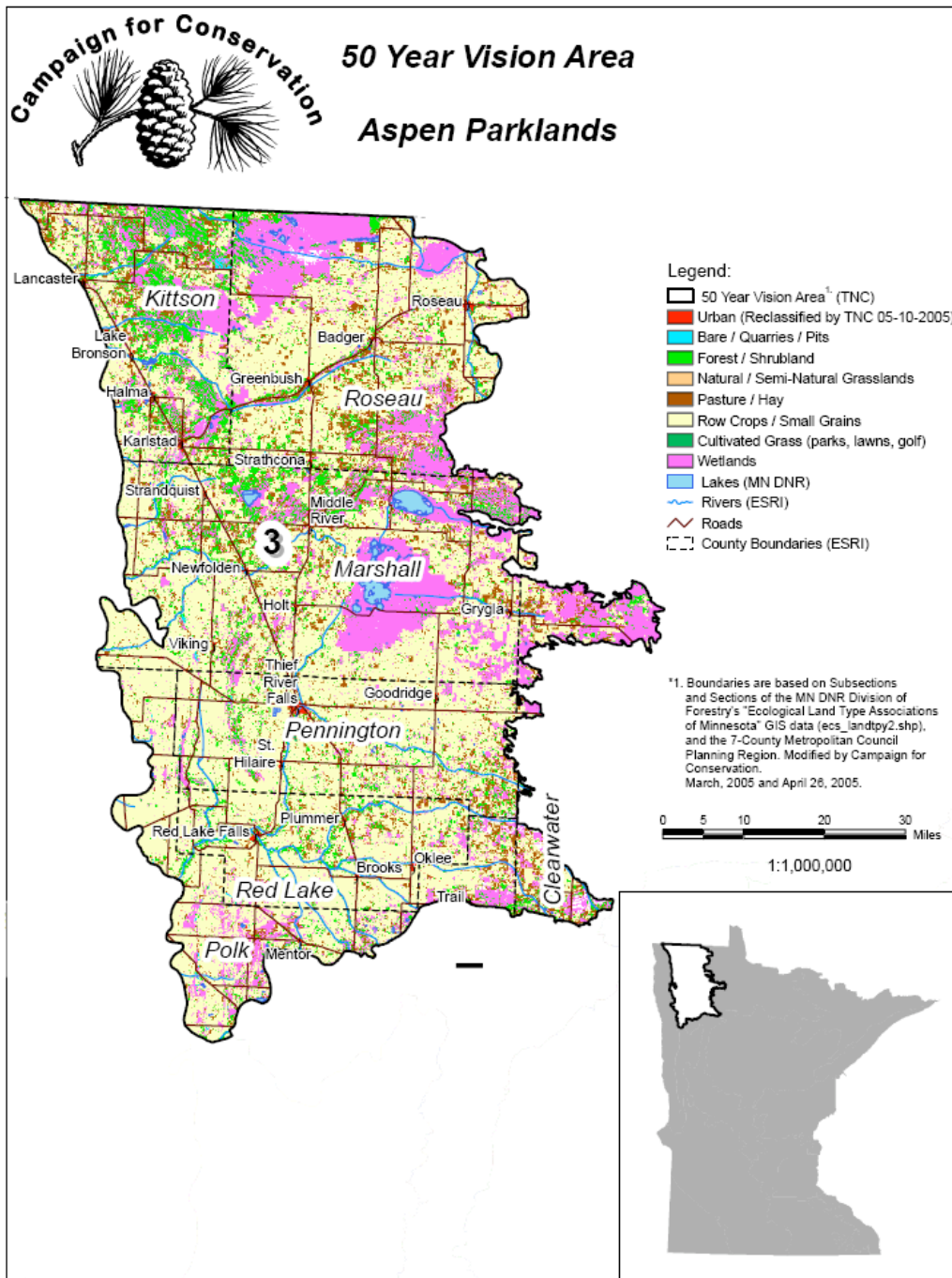


Aspen Parklands Conservation Region



Final Working Template
May 2007

Acres in Conservation Region

2,906,191

Counties (All or part)

Core Counties: Kittson, Marshall, Pennington, Red Lake, and Roseau

Peripheral Counties: Beltrami, Clearwater, and Polk

Population

37,557 (2000 Census)

27,629 (Employed in 2007 of a Total 49,661 within Five Core Counties)

8.3 (People per Square Mile)

Population Change in Five Core Counties

1980 – 2000 - 6.3%

2000 – 2030 + 5.8%

Increase in Individuals over 65 years of age +60.3%

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

16.1% = 468,777 acres

Ecological Classification System Subsections

Aspen Parklands Subsection

Natural Characteristics

Tallgrass Prairie

Wet Prairie

Floodplain/Riparian Forests

Oak Savanna Brush Prairies

Conifer Peat Bogs

I. Why We Live Here

The Aspen Parklands captures the transition between western prairies and the Northwoods. Many parts of the region are sparsely settled offering outstanding outdoor recreational opportunities. Hunting, fishing, and more recently snowmobiling have become a cultural tradition. Generations of families have managed to wrestle a living from the land through hard work and ingenuity. The area's open space, slower pace-of-life and good schools make this a good place to raise a family. These attributes along with the rural countryside, small towns and strong family traditions are major reasons why many residents stay and couldn't imagine living anywhere else.

II. Current Conditions and Trends

A. Demographics and Economy

Roseau and Thief River Falls are the population centers in this region. In the north, Roseau with a population of 2,775 has benefited in recent years from an expanded manufacturing sector and Roseau County is projected to grow by 17.6% from 2000 to 2030. In the southern half of the zone, Thief River Falls is the major regional center with a population of 8,410. Of all the counties in this area, only Kittson, Polk, and Marshall are projected to lose population by 2030. The area is bounded by the Red Lake Tribal lands on the east.

From 2000-2030 the population of the five core counties is only expected to grow 5.8%. During this time period, the population is also expected to age. The percentage of the population greater than 65 years of age will increase 60%. The general pattern has been for younger people to leave rural areas and move to larger regional centers or more distant large cities.

The Aspen Parklands lacks the large areas of rich agricultural soils found to the west in the Red River Valley that benefited from nearly 8,000 years of prairie soil development. For much of its history the Parklands soil formed under peatland and forest conditions. The combination of poorer soils, lack of adequate drainage, northern climate, and short growing seasons makes agriculture in this region one of the least productive of any farming region in the state. According to the 2002 Census of Agriculture, the five core counties of the Parklands have 10.2% of the total cropland in the state (2,328,279 of 22,729,158 acres) yet only produce 3.14% of the total value of agricultural products sold (\$269,515,000 of \$8,575,627,000). Most of this value is in crops, \$224,619,000, as compared to only \$44,897,000 in livestock and poultry. Government payments in various agricultural programs total \$40,181,000. Based on the planted acres, the most important crops in order are: oats, wheat, and soybeans (each with over 330,000 planted acres) and barley, sunflower, edible beans, and corn (less than 70,000 acres each).

The low value of crops produced is due at least in part to the high levels of cropland currently not in production. The Aspen Parklands has the highest level of CRP enrollment of any region in the state. In fact, the five core counties are the five counties with the highest levels of conservation enrollment (CRP, Continuous CRP, CREP, RIM, RIM WRP, and WRP) in the state, each with at least 23.3% of total cropland acres enrolled. For just CRP lands, the five core counties have 541,995 acres of land enrolled, which equals 37.8% of the total CRP enrollment in Minnesota.

Federal farm policy and its implementing subsidy programs greatly influence the use of farmland. Upcoming changes in the 2007 Farm Bill could either drive more land into row crop systems or into conservation activities. Of particular importance is the fate of the land currently enrolled in

the Conservation Reserve Program. Many of these contracts will expire between 2007 and 2010. The impact on natural resources in the area could be huge if all of the CRP acres are returned to row cropping or the growth of perennial crops for biofuel production.

Tourism is a growing economic activity in the Parklands as well. Hunting and fishing have always drawn sportsmen to this region, but more individuals are visiting because of its history, culture, and the availability of large areas of public lands for non-consumptive recreational activities. State Wildlife Management Areas, State Forests, National Wildlife Refuges, and the Highway 11 corridor are all draws for outdoor recreation.

The timber industry has a long history within the Aspen Parklands, although there were never as many forest resources present in this region as in regions to the east and southeast. The city of Thief River Falls grew up at the junction of the Red Lake River and Thief River where a dam created the “Falls” and a resulting capacity for milling lumber. Logs were rafted down from forests to the east where they could be processed. When the Great Northern and Soo Line Railroads were extended to transport the lumber, Thief River Falls also became a shipping center for the wheat that was produced in the area. Within the five core counties there are 557,790 acres of timberland of which 331,902 are privately owned. These timberlands produced on average from 2002-2004 124,165 cords of wood a year with a value of \$3,950,930.

One of the most notable features of the Aspen Parklands economy is its importance in the snowmobile industry. Two of the four corporations that manufacture snowmobiles in North America were founded in this area and continue to manufacture here. Polaris Industries in Roseau and Arctic Cat in Thief River Falls are important employers to the area and have promoted winter outdoor recreation. Continued strong population growth in this region will depend on the creation of jobs in industries that take advantage of local assets and the ingenuity of its people. The snowmobile industry is an example of an industry within the “ingenuity frontier.

B. Land and Habitat

The Aspen Parklands Conservation Region has the same boundaries as the ecological subsection of the same name. The region is best described as a low, level plain formed by Glacial Lake Agassiz, which sits between extensive forested peatlands to the east and tallgrass prairie to the west. Low dunes, beach ridges, and wet swales mark the western edge. These topographic breaks provided a barrier that reduced both fire frequency and intensity in its “shadow”, resulting in increased dominance by trembling aspen, balsam poplar, and shrubs to the east. Fire suppression and limited use of prescribed fire in modern times has resulted in substantial woody encroachment onto prairies and wetlands.

Much of the Aspen Parklands were on the eastern margins of Glacial Lake Agassiz. This large freshwater lake was once larger than all of the modern Great Lakes combined. Lake Agassiz varied in size depending on the location and extent of the continental ice sheets that covered most of Canada. The lake finally disappeared about 8,500 years ago when the ice sheets retreated far enough that an outlet to Hudson’s Bay was created.

Presettlement vegetation in the western section of the region consisted of a combination of aspen savannah, tallgrass prairie, and wet prairie. Floodplain forests of silver maple, elm, cottonwood, and ash occurred along the rivers and streams. Towards the eastern border, the vegetation changes to wetter forested peatlands.

In the early 20th Century, large tracts of land were ditched in attempts to drain the land for agriculture. The impacts of this drainage still have a large impact today. 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 state management units, primarily for wildlife habitat.

Ditching is a prominent feature in this landscape despite the fact that many ditches were constructed long ago. They are as prominent a feature as roads. Despite the extent of drainage attempts, remnants of presettlement vegetation are more common and in larger blocks than in many other parts of the state. In places, this region contains rare pieces of large intact landscapes. The area has unique mix of islands of aspens and balsam poplar interspersed among wide expanses of bluestem prairies grasses and brushlands

While conditions limit agricultural production in the northern portion of this region, agriculture is a more dominant land use in the southern portion. Current land cover for the entire region is:

Row crops/small grain	60.5%
Pasture/hay	09.8
Wetlands	19.0
Forest/shrubland	10.0
Urban	00.4
Bare Rock/Quarries/Gravel Pit	00.2
Cultivated grasses	<u>00.1</u>
	100%

Many excellent examples of the regions natural heritage still exist. Among the most notable are Scientific and Natural Areas such as Lake Bronson Parkland, Two Rivers Aspen Prairie Parkland, Gully Fen, and a part of Pembina Trail Preserve SNAs. Together these four sites comprise 5,520 acres. All of these areas contain important natural communities of high biodiversity significance and are surrounded by critical habitats in private ownership. Lake Bronson and Old Mill State Parks 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.

The Agassiz National Wildlife Refuge is another key biodiversity resource in the region. At 61,500 acres, it contains packs of wolves, moose, waterfowl, and 294 species of birds. Within the refuge, 4,000 acres encompassing one of the most westerly extensions of black spruce-tamarack bog in Minnesota have been designated a Wilderness Area.

Although most of the area has not been completely analyzed, the Minnesota County Biological Survey has identified 269 important natural community locations totaling 199,198 acres. Using another type of biodiversity planning analysis, The Nature Conservancy identified 14 areas of 507,960 acres within this conservation region that are part of the Northern Tallgrass Prairie ecoregional portfolio. Not all land within these areas need to be protected but important conservation targets are present that do merit preservation.

The Audubon Society has been involved in identifying Important Bird Areas in the state of Minnesota. Within the Aspen Parklands, they have identified 500,523 acres, more than in any other conservation region in Minnesota.

There has been some protection of prairie remnants and natural habitats on private lands. Only two Native Prairie Bank easements of 503 acres have been purchased in the Aspen Parklands Region. The Prairie Bank program could be a very useful tool to protect some of the prairie remnants that still remain. Another program, RIM Reserve easements offer permanent protection to wetlands and other habitats. The state of Minnesota holds rights on 1,728 acres in 20 RIM Reserve easements.

The Nature Conservancy has five preserves in the region totaling 18,578 acres. The largest is, the Wallace C. Dayton Conservation and Wildlife Area with 13,000 acres of prairie and woodland mosaic. Other smaller preserves include the Pembina Trail Preserve, Norway Dunes Preserve, Pankratz Prairie, and Thorson Prairie. The Conservancy also owns 22,081 acres as part of its Glacial Ridge Project that lies just within the borders of this region. This project was the largest prairie/wetland restoration project in US history and protects the water supply of the city of Crookston. The land is now part of the US Fish and Wild Service's Glacial Ridge National Wildlife Refuge.

Due in part to tax forfeiture of once private lands, there is a 16.1% public ownership in this region. The State of Minnesota is the largest public landowner with 370,420 acres while the federal government owns another 98,357. The federal land includes 91,322 acres managed by the US Fish and Wildlife Service with 61,500 acres at Agassiz National Wildlife Refuge alone. The remaining 7,033 acres are managed by the Farm Home Administration, the Bureau of Land Management, and the Bureau of Indian Affairs.

C. Lakes, Rivers, Wetlands, and Groundwater

The Aspen Parklands are part of the Red River watershed. Significant streams include the Snake, Red Lake, and Roseau Rivers. Like the Red River valley, the largely level landscape makes flooding a frequent occurrence in this region. There are 5,956 miles of watercourses that flow through the Aspen Parklands Conservation Region. About 59.2% of them are ditches, the highest percentage in the state. Many of the large-scale ditch projects of the past have failed, but their legacy remains. There are also 11 lakes greater than 150 acres in size in the region and many smaller wetlands and lakes. Notable lakes include Mud and Thief Lakes.

Due to the flat terrain, the presence of heavy clay soils, and the drainage pattern to the north, many rivers in this region are prone to flooding, particularly in the spring. The snowbound winter landscape tends to melt from the south towards the north, but since drainage can be blocked in the still frozen northern areas, water can back-up causing rivers to overflow their banks. The Roseau River floods in 2001 and 2002 were the result of these and high precipitation events.

Water quality is also a concern. The Minnesota Pollution Control Agency has surveyed only a portion of Minnesota's waters yet has labeled 15 streams and rivers at 29 sites and 2 lakes in the Aspen Parkland Region as impaired. Most of the identified rivers and streams have been impaired by low dissolved oxygen levels, impacted fish communities, fecal coliform bacteria contamination or turbidity. Rivers with low dissolved oxygen levels include the Clearwater, Moose, Poplar, Roseau, Snake, and Thief. Rivers with altered fish communities, as measured by a fish biotic index, include the Snake, Tamarac, and Two Rivers. The streams contaminated with fecal coliform bacteria are the Clearwater River, Lost River, and Silver Creek. Many of the

impairments are due to a lack of functional riparian areas and buffers on small streams and ditches. Impaired surface waters are an issue because Thief River Falls, East Grand Forks and Grand Forks all use surface water from this region for a portion of their water supply.

Many of the wetlands that existed in this region in European presettlement times have been lost to agricultural activities. The National Wetland Inventory identified nearly 561,000 acres of wetlands remaining in the region, but that total represents less than 50% of the wetlands originally found in the area. Anderson and Craig estimated in 1984 that Kittson, Roseau, and Marshall Counties have lost at least 50% of their original wetlands, while Pennington and Red Lake have lost at least 90%. Although many of the early drainage projects failed in the northern portion of the region because agriculture was not profitable enough to pay the drainage costs, some wetlands are still feeling the impacts of these projects.

Groundwater contamination by agricultural pollutants is a growing concern. Shallow aquifers that supply much of the rural population with water are at risk because of surface uses of nitrates, phosphates and pesticides. Natural groundwater in deeper aquifers is often poor due to high-dissolved solids such as calcium and iron. Heavy pumping of overlying drift aquifers may cause the upward flow of lesser quality groundwater from the deeper poorer-quality sources.

D. Fish and Wildlife

The Aspen Parklands is a stronghold for sharp-tailed grouse. The moose population has declined substantially in the past in recent years. Two small, growing populations of elk are found here. The Aspen Parklands is one of the few places on earth where elk can be found in their native prairie habitat. The focal game species in this landscape are waterfowl, sharp-tailed grouse, deer, bear and ruffed grouse. Because of the proximity of large wildlife refuges, wildlife areas, and other areas open to public hunting, this region is often advertised as a “sportsman’s paradise”.

Fishing in the region’s lakes and streams focuses on walleye, northern pike, smallmouth bass, channel catfish, and crappie. Just to the east of the region, are the big lake fisheries of Lake of the Woods and Upper Red Lake that offer world-class walleye fishing. The Red River to the west offers world-class channel catfish fishing. The lake sturgeon population in the Red River basin was extirpated in the early 1900’s. The MN DNR has implemented a plan to restore self sustaining lake sturgeon populations within the next 25 years.

Wildlife species of greatest conservation need in this zone include a mixture of prairie adapted species and northern forest/peatland species. The highlights of species with forest and peatland affinities include gray wolves, sandhill cranes, American bittern, bald eagle, trumpeter swan, and great gray owls. Species with prairie affinities include American badger, northern pocket gopher, Baird’s sparrow, LeConte’s sparrow, grasshopper sparrow, short-eared owl, Dakota skipper, yellow rail, and Assiniboia skipper. Furbearers are also important and populations are in good condition.

In total, there are 85 wildlife species of greatest conservation need in this region.

E. Outdoor Recreation

Tourism has been helping to diversify local economies. Lake Bronson State Park and Old Mill State Park draw visitors to the area. These two state parks contain 4,782 acres within their

statutory boundaries, but only 2,993 acres are actually owned by the state. The remaining 1,789 acres are inholdings that need to be added to the state park system.

Trails can also play an important role in connecting natural resource areas with corridors of natural vegetation. Such connections can allow movement of animal and plant species to maintain gene flow and the colonization of better habitat as environmental conditions change due to global warming. The Aspen Parkland is the only region in the state without any legislatively designated state multipurpose trails. The nearest state trail is the Paul Bunyan Trail that ends in Bemidji. However, there is opportunity to establish trails for hiking, biking, running, and cross-country skiing if local residents see the need and advocate for them.

The Aspen Parkland is usually not thought of as a part of the state with a strong boating background, but 107 miles of the Red Lake River has been designated as a state canoe route and canoeing and boating along the Red Lake River are becoming more popular.

Within the Aspen Parklands are portions of two State Forests: Lost River and Beltrami Island. Together there are 29,297 acres within the region. In these forests all trails are currently open to off-highway vehicle travel unless the area has been posted to ban their use.

Over 290 species of birds have been recorded from the Agassiz National Wildlife Refuge. Of particular interest are the boreal owls and hawks that are uncommon in the rest of Minnesota and absent from most of the US. Included are Great Grey Owls, Gyrfalcons, Boreal Owls, Snowy Owls, Northern Hawk Owl, and Northern Saw-whet Owls. Other northern species such as three toed and Black-backed woodpeckers can also be found.

For serious birders, the Aspen Parklands 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.

Another attraction for serious birders is viewing prairie chickens during their courtship displays. The male prairie chickens gather together in small groups called leks to display and attract females. Their calls, strutting, and jumps can last for hours at dawn each morning during the spring breeding season. The birds are best observed from temporary blinds that have been established near a lek.

The Pine to Prairie Birding Trail is the first birding trail in Minnesota. The route follows Highway 11 from Warroad to Greenbush then along Highway 32 to Thief River Falls where it continues south on Highway 59 until it exits the region. There are 15 birding spots located within a short drive of the Birding Trail: Lost River State Forest, Roseau Waste Water Treatment Ponds, Roseau River WMA, Wallace Dayton Preserve, Lake Bronson State Park, Twin Lakes WMA, Thief Lake WMA, Agassiz National Wildlife Refuge, Old Mill State Park, Wetlands, Pines, and Prairie Audubon Sanctuary, Thief River Falls Waste Water Treatment Ponds, Gully Fen SNA, Pembina Trail Preserve and SNA, Pankratz Prairie SNA, Tympanuchus WMA, and Burnham Creek WMA. These sites offer some of the most spectacular birding in the state, along with the scenery of the unique landscapes of northwestern Minnesota.

One program to highlight prairie history and environments is the Prairie Passage highway route extending north to south along Highways 75, 59, 32, and 9. This route starts in the Aspen Parklands but extends from Canada to Mexico. Along its way it visits many native prairies

including several near the western border of the Aspen Parklands region. An important feature of the route is prairie restoration along its right-of-way.

Besides birdwatching, wildflower walks are another principal attraction. Highway 11 from Greenbush to Baudette has been called the "wildflower corridor". 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. The Aspen Parklands is also home to some of the largest population of Western Prairie Fringed Orchids in the state.

The Aspen Parklands Conservation Region and adjacent similar areas across the border in Canada offer one of the most intriguing conservation opportunities in North America. Large expanses of prairie, aspen woodlands, and peatlands still exist and maintain most key prairie species. The only important species missing are the American bison and grizzly bear. If bison were re-introduced to the Parkland ecosystem, it would join elk, whitetail deer, black bear, and wolves in the only location in North America where natural predator-prey systems could flourish in a true prairie setting. If properly developed, a large preserve or park could be a major ecotourism destination.

Outdoor recreation including hunting and fishing are important activities in this region and are increasingly helping to diversify local economies. Several wildlife refuges including the Agassiz National Wildlife Refuge, the Thief Lake Wildlife Management Area and Glacial Ridge National Wildlife refuge provide significant outdoor recreation for local residents as well as for people outside the area. For example, approximately 85% of the users of the Thief Lake WMA are from outside the immediate area.

The Wildlife Management Area Acquisition Plan estimates that 18% of total Aspen Parkland area is open to public hunting. There are about 107 Wildlife Management Areas in the region consisting of 325,389 acres. Some of these WMAs are among the largest in the state, including the 74,783 acre Roseau River WMA, the 64,162 acre Thief Lake WMA, and the 30,665 acre Beaches Lake WMA..

The Wildlife Management Plan Acquisition Plan sets a 50-year goal of maintaining sustainable populations of prairie and brushland dependent wildlife species, increasing duck recruitment, maintaining a huntable moose population, and increasing sharp-tailed grouse populations to levels large enough to sustain a statewide annual harvest of at least 30,000 birds. These goals will be achieved by acquiring an estimated 32,000 acres of new WMA lands in the Aspen Parklands as well as acquiring 11,400 acres of inholdings at existing WMAs.

The Minnesota Duck Plan is another ambitious effort to improve wildlife habitat in Minnesota. This plan calls for adding 2,000,000 new acres of habitat statewide to produce a breeding duck population averaging 1 million birds. To accomplish this goal in the Aspen Parkland will necessitate adding about 136,000 acres focused on wetland/grassland complexes.

In addition to public hunting opportunities on state lands, the US Fish and Wildlife Service manages 11 Waterfowl Production Areas in the region. Together they total 5,304 acres.

III. Conservation Challenges

A. Fire suppression

Although fire was less intense in this region than in prairies to the west, it was a natural occurrence. Today, because fire suppression has been so successful, typical Parklands features such as oak openings or brush prairies are being replaced by woodlands and forests.

B. Mining

Many available gravel resources are located beneath remnant native prairie and conservation of these prairies while still meeting the needs for aggregate is major concern.

C. Flooding

Flooding is an ongoing threat to communities in the area.

D. Unsustainable Agricultural Practices

Since agriculture is the major land use in the region, agricultural activities that harm surrounding natural resources can be widespread and have large impacts. Included among the practices with detrimental offsite impacts are the excess use of farm chemicals and the over-application of manure both of which result in high levels of nutrient runoff. Other practices such as returning highly-erodible lands currently enrolled in CRP to row crop production, farming to the edge of watercourses, the annual cleaning of ditches, and the over-harvest of mature aspen stands when prices are high can have a large impact on surface water quality and the fragmentation of natural vegetation.

E. Attitudes toward Public Land

A segment of the residents and officials in the Aspen Parklands are concerned that there is already too much public land in the region. If conservation activities include increasing the public land base, issues such as the erosion of the local tax base, decrease in the customer base for local businesses, and lower school enrollment will need to be addressed. Opposition can also extend to permanent conservation easements even if the land stays in private ownership and remains on the tax rolls.

IV. Status of Current Planning Efforts

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

- Minnesota Comprehensive Wildlife Conservation Strategy, DNR, 2006
- Minnesota Duck Plan, DNR, 2005
- 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 (being updated)
- Minnesota Wildlife Management Area Acquisition, DNR, 2002
- HAPET modeling conducted by USFWS for wetland/grassland protection and restoration.
- Northern Tallgrass Prairie Ecoregion: A river and stream conservation portfolio - TNC

Further Planning should consult these additional planning efforts:

- Red Lake River Comprehensive Watershed Plan
- Red Lake River Watershed District WQ plan
- Watershed District Natural Resource Assessments
- Red Lake River Corridor Enhancement Plan
- Red River Basin Stream Survey Reports 2002-2006
- Red River Basin Natural Resources Framework Plan, Red River Basin Commission 2005
- Red River Basin Mediation Agreement 1998.
- Ecosystem Science and Sustainability Initiative, University of Minnesota 2004
- Northern Tallgrass Prairie Ecoregional Plan, TNC 1998
- Red River Basin Water Quality Plan, MPCA County Comprehensive Water Plans
- SWCD district plans
- DNR fisheries management plans for lakes and streams
- Agassiz National Wildlife Refuge CCP
- University of Minnesota Tourism Center Visitor Profiles

V. Goals

The Aspen Parklands offer one of the best opportunities to provide a stronghold for grassland/wetland dependent species. Land that is not suited for row crop agriculture - up to 90% in the northern portion of this landscape - should remain grassland/wetland. This will provide critical habitat for migrant and resident wildlife and offer significant opportunities for wildlife-based tourism. The goals will include habitat sufficient to sustain viable populations of moose, elk, sandhill cranes and sharp-tailed grouse.

In the southern end of this zone, a substantial portion of the land will remain in agriculture, but with a goal of a 50-50 mix of cropland and grassland/wetlands. The protected and restored grasslands and wetlands will be connected to stream corridors in the Red River valley zone, in order to assure migration corridors from the parklands to the main stem Red River. Achieving this goal will significantly enhance habitat for a number of wildlife species, including ducks, prairie chickens, sharp-tailed grouse, sandhill cranes, wolves, bald eagles, and trumpeter swans.

Primary goals for the entire Aspen Parklands will be: 1. Reduce run-off and improve water quality by buffering watercourses. 2. Reduce flood damage through the use of set-back levees, which also provide wildlife benefits. 3. Tie the existing conservation areas together with habitat corridors, frequently following watercourses and through acquisition of inholdings. Corridors will allow the movement of wildlife and nongame species in the face of changing environmental conditions and allow for gene flow and the colonization of underutilized habitat. 4. Protect some additional high quality examples of the regions natural communities, especially underrepresented prairie, brushland, and wetland types. The remnant communities can serve as the core of multiple use areas such as Wildlife Management Areas

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.
- Increase grass-based agriculture as an alternative to row crops. Specifically, increase the use of grazing systems to diversity agricultural systems and increase amount of grassland. Also encourage more organic agriculture and regional food production.
- Implement best management practices in environmentally sensitive agricultural areas including the use of conservation tillage and buffer strips. One focus should be to create permanent cover and waste grain for prairie chickens and sharp-tailed grouse.
- Promote sustainable agricultural activities to reduce soil loss, energy use, and pesticide and fertilizer application while increasing local foods production. Make sustainable agriculture the norm rather than the exception.
- Expand and support environmental education in schools to teach principles of sustainable growth and agriculture. Use the Riverwatch programs as a means to increase appreciation of the role and importance of freshwater system.
- Meter the outflow of waters from all pattern tile fields to drain water from the fields only when high water levels negatively impact crops.
- Promote nature-base tourism to make it 25% of the regional economy. Document existing tourism patterns and destinations as a means to increase nature-based travel.
- Develop alternative energy production by increasing wind energy and biofuel production in ways that maintain ecosystem viability and don't impact nearby wild areas.

B. Land and Habitat

1. Identify and protect high priority natural areas

- Complete finely focused natural resource inventory (including the Minnesota County Biological Survey) on public and private lands and identify stressors to ecological function.

- Use the full spectrum of protection tools and commit sufficient funding to ensure critical areas are conserved and managed properly.
 - Explore the use of zoning to protect sensitive areas.
 - Prevent sand and gravel mining in critical areas.
 - Protect and conserve undisturbed beach-ridge areas as habitat and ground water recharge areas.
 - Protect and actively manage grassland/brushlands for sustainable/harvestable populations of sharptail grouse.
 - Identify restoration targets for prairies and wetlands and acquire rights necessary to restore ecological functions.
 - Develop conservation plans for each county specifying the actions needed to protect natural resources and maintain a high quality natural environment. Specific goals for prairie and wetland restoration should be included in each plan. The plans should also have private land management goals for lands adjacent to public lands.
2. Control spread and infestation of invasive species (e.g. leafy spurge, Canada thistle, purple loosestrife, buckthorn, red cedar, spotted knapweed, etc. Expand County Weed Control programs to counties in the region. Work with municipalities to educate residents about local invasive species and their control.
 3. Monitor and prepare for impacts of climatic change on the region's native flora and fauna. Plan for more intense precipitation events by increasing stream buffers and perennial cover.

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, agricultural and commercial lands. Develop and implement a strategy to reduce the existing accumulated sediment levels in streams, rivers, and lakes.
 - Rigorously enforce mandated 1 rod wide buffers on either side of all watercourses (including ditches) plus create an additional 50-300' of native perennial grasses that can be used for multiple uses including grazing, haying, and cellulose production.
 - Implement storm water best management practices and develop legal standards if needed.

- Complete impaired waters analysis for all lakes and streams in the region. Continue water quality monitoring and the River Watch program. Develop Total Maximum Daily Load (TMDL) studies for all impaired waters in the region.
 - Enforce and enhance regulations for all private septic systems and failing municipal systems.
 - Develop coordinated strategies to reduce Minnesota's portion of nutrients to Lake Winnipeg by 10% within five years to support the recommendations of the International Joint Commission's International Red River Board.
 - Develop a permitting system for all new tile placements.
2. Return watercourses to semi-natural hydrology and morphology.
 - Decommission all ditches that no longer serve their original intent and are detrimental to the environment.
 - Make watercourses function naturally to convey flow and sediment without aggradation or degradation. Upgrade needed ditch systems so that they are low maintenance or self-maintaining channels (piped side inlets, minimum 4:1 side slopes, and functional buffers).
 3. Inventory area wetlands and assess ecological function.
 - Develop and implement long-term goals for wetland protection and restoration to sub-watersheds to achieve the best hydrological and ecological functions (HAPET priorities).
 - Complete the restorable wetland inventory for the region (HAPET).
 4. Restore 25% of the converted wetlands in the region in the next 20 years with a focus on small (<50 acres) wetlands.
 5. Maintain and expand temporary easements and contracts for conservation utilizing federal farm bill programs.
 6. Sustain quality groundwater sources.
 - Develop groundwater flow models where needed and determine how they are coupled to surface water resources.
 - Develop groundwater protection plans for sustainability and quality.

D. Fish and Wildlife

1. Develop incentives and regulations for enhanced protection of shoreline and stream restoration.
2. Improve shallow lake and large wetland management for types III, IV, and V wetland types by state, local, and federal agencies and private individuals.
3. Create, expand, and enforce existing rules of roadside management to promote breeding habitat for ground-nesting birds.
4. Ensure that suitable habitat for species of concern is primary focus of land and water conservation efforts.
5. Expand private landowner stewardship and management programs that provide incentives for landowners to set aside and manage lands in sensitive wetland, riparian, and prairie areas for wildlife.
6. Create habitat corridor connections for grassland species across the Aspen Parklands connecting all the key conservation areas. Corridors are needed to provide dispersal routes and prevent genetic isolation.
7. Restore a self-sustaining population of lake sturgeon. Aspen parklands streams provide important spawning and rearing habitats.
8. Remove barriers to natural movement of native fish in rivers and streams.
9. Create a public education campaign promoting regional natural resource features.

E. Outdoor Recreation

1. Open new regional and local parks with a focus on natural resources.
2. Develop a regional trail system including hiking, biking, and canoeing. Use city, county and state parks as nodes in the trail network. Trails may offer opportunities for linking natural communities while increasing recreational access.
3. Promote opportunities for hiking, biking, wildlife watching, photography, canoeing, camping and other non-consumptive outdoor recreation opportunities on public and private lands in the area.
4. Restore and protect 136,000 acres of grassland/wetland complexes as called for in the Duck Plan.
5. Acquire additional 11,400 acres of WMA inholdings and 32,000 acres of new WMAs as called for in WMA plan.

6. Create buffer areas of 1-2 miles 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. Increase awareness and use of all rivers including small ones (for example the Red Lake River Canoe Trail). Increase public access to the Thief River.
9. Enforce recreational OHV regulations by increasing the presence of Conservation Officers by 50%. Focus on protecting fragile beach-ridge prairie habitat. Encourage licensing and taxes to create designated OHV trails.

VI. Opportunities and Strategies

A. Kittson County

1. Address attitudes on All Terrain Vehicles to prevent damage to important natural lands. Develop places and trails for ATV use that will reduce the impact in other areas.
2. Develop an effective invasive species control program for species that are becoming a major problem for natural areas, e.g. spotted knapweed and leafy spurge.
3. Develop a new approach to annual ditch cleaning by making watercourses more self-maintaining with lower sediment buildup and more natural vegetation.

B. Marshall County

1. Complete turbidity TMDL's for the Thief River and Middle Snake River.
2. Reduce sediment loads to Thief Lake and Agassiz pools
3. Create a permitting system for tile system installation or modification
4. Increase the number of public access points on the Thief River

C. Red Lake and Polk Counties

1. Address problems of flooding, ditch systems, wind/water erosion, bank stabilization, and sedimentation to reduce the formation of large scale gullies and the increase of stream sediment loads
2. Boost tourism by making more people aware of recreation opportunities especially along the Red Lake River corridor

3. Create more grassland corridors to benefit prairie chicken at the northern boundary of their range

D. Roseau County

1. Restore Roseau Lake
2. Increase the natural resources benefits of the Roseau flood damage projects
3. Limit and regulate stream diversion projects
4. Reduce the impact of reed canary grass farming

E. Pennington County

1. Upgrade the recreational infrastructure including city and county parks along the Red Lake River
2. Improve storm water management in Thief River Falls
3. Develop new shore land landscaping regulations

F. Clearwater County

1. Implement cleanup plans for the Clearwater River to address problems raised by the TMDL (fecal coliform)