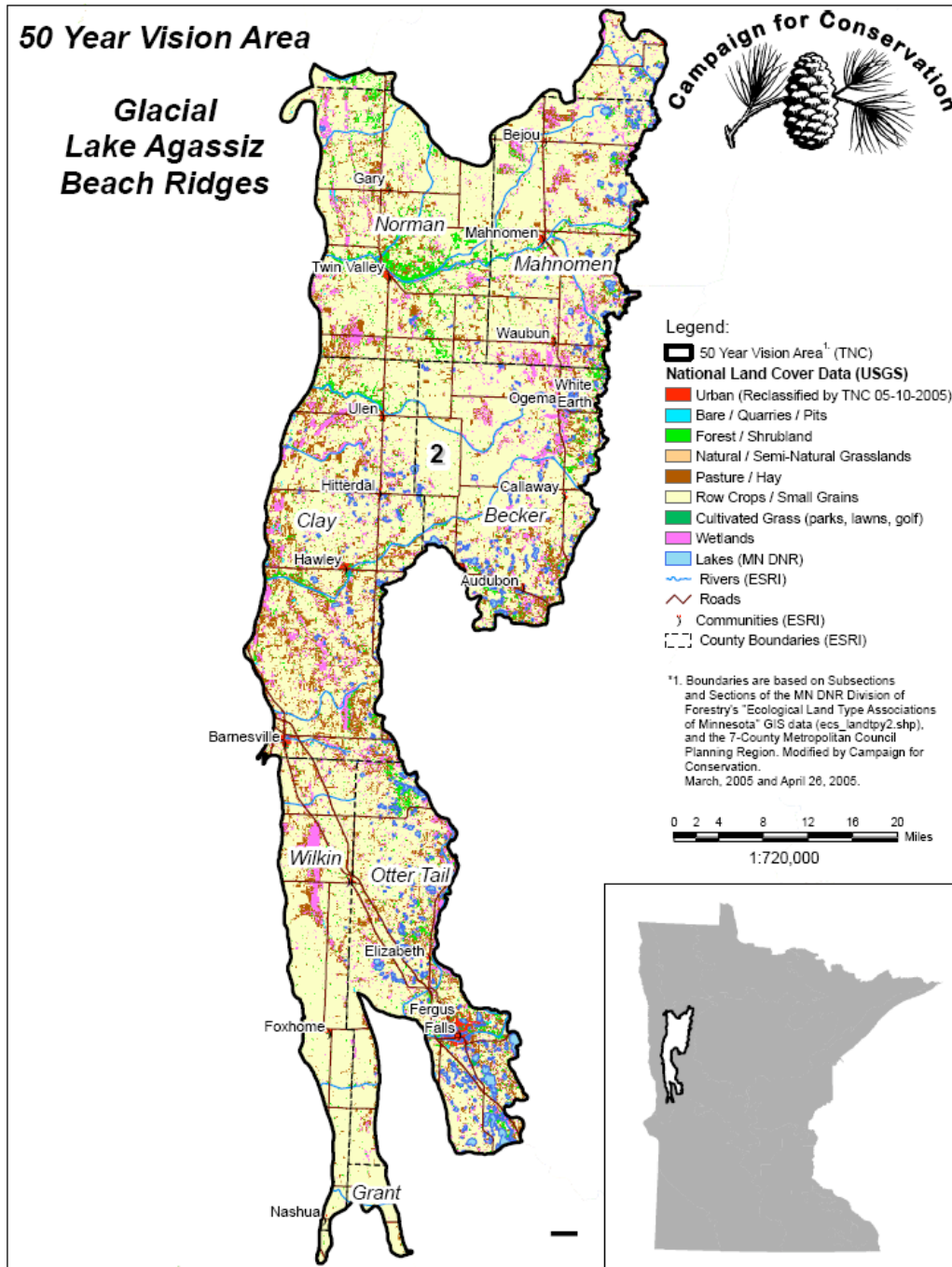


Agassiz Beach Ridges Conservation Region



Final Conservation Template
April 2007

Acres in Conservation Region

1,229,955

Population

39,838 (2000 Census)
13,225 (employed)
21 (people per square mile)

Population Change

1980 – 2000 -1.0%
2000 – 2030 +9.5%
2000 – 2030 Individuals over 65 years of age +75%

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

5.6%

Counties

Becker, Clay, Mahnomon, Norman, Wilken (mostly in region)

Grant, Polk, Otter Tail, Traverse (mostly outside region)

Ecological Classification System Subsections

Red River Prairie

Natural Characteristics

Prairie
Forest-Lowland Deciduous

I. Why We Live Here

The wide-open spaces spread out beneath the big sky of western Minnesota creating one of the most beautiful landscapes in the state. Fall brings clouds of migrating waterfowl and every pothole becomes a carpet of bird life. The sparse population means that many miles often separate neighbors, but they are linked by a strong sense of community and the familial ties that go back for several generations. Recreational opportunities abound for the sportsmen and women and the nature enthusiast amid the large blocks of wild lands. This diverse and expansive landscape calls to mind a time that is lost for much of Minnesota but is still able to be preserved in the Agassiz Beach Ridges region. One observer remarked of this region, “Wind, sunsets,

natural, wild, free.” For many, this region’s access to nature while maintaining proximity to Fargo/Moorhead, St. Cloud and the Twins Cities, make it an ideal location.

II. Current Conditions

A. Demographics and Economy

The largest towns in the Agassiz Beach Ridges Region are Mahnomen and Fertile with the much larger Fergus Falls lying just beyond the region’s border. The region is also within 60 miles of the growing Moorhead area in Clay County and the Detroit Lakes area in Becker County. Clay and Becker counties are projected to grow by 5% and 20%, respectively, by 2030. This growth may put added pressure on the area, but high rates of development are not projected for the region. The White Earth Reservation is located on the eastern edge of this region.

Agassiz Beach Ridges has one of the lowest population densities in the state and a very small industrial base.

Gravel mining throughout the area has expanded to meet increasing market demands in adjacent communities. In Clay County, the steady growth of the Fargo/Moorhead metropolitan area is driving an expansion of the gravel mining industry in the eastern half of the county. Many of the available gravel resources are located beneath remnant native prairie, and conservation of these prairies while still meeting the needs for aggregate is a major concern.

The population has seen a significant increase in hobby farms and residential development with residents commuting to jobs in Fargo/Moorhead. This has led to an increase in land prices, especially in areas near lakes and natural areas.

B. Land & Habitat

Eight to ten thousand years ago, glacial Lake Agassiz once covered over 200,000 square miles, including 17,000 square miles in Minnesota. The rise and fall of this ancient lake formed the dominant landscape features within the region. After the waters of glacial Lake Agassiz receded, they were replaced with waves of grassland as far as the eye could see. This living sea of summer flowers and green grass became home to nomadic hunters and herds of bison. It also left behind a fertile, level "lake bottom" landscape to the west that is now the Red River Valley and to the east, a series of prominent gravel ridges or beach lines that rise sharply from the prehistoric lake bottom. These lines form the Agassiz Beach Ridges of today.

The Agassiz Beach Ridges includes a significant proportion of the state’s remaining prairie acres, half of which are protected in preserves.

The tall grass prairie that at one time covered the entire Red River valley extended into these glacial ridges, and the ridges marked the eastern most range of the prairie. While much of the prairie that dominated the Red River region prior to European settlement was eventually cleared for farming, some native prairie was preserved on the beach ridges because the soil was sandy and not as rich as the heavy soils on the plain of the glacial lake.

A highly diverse and complex mix of plants including bluestems, Indian grass, and several other grasses dominated the tall grass prairie that characterized the beach ridges.

Row crops/small grain	72%
Pasture/hay	12
Wetlands	10
Forest/shrubland	5
Urban	0.8
Cultivated grasses	<u>0.2</u>
	100.0%

Nearby urban centers such as Fergus Falls and Fargo/Moorhead continue to expand potentially threatening the current lifestyle and natural features found here. The land in this region provides popular recreational hunting, wildlife viewing, and fishing opportunities for these growing urban centers.

This region is dominated by farmland with very little urbanization.

There are 83 Species in Greatest Conservation Need (SGCN) known or predicted to occur within the Red River Prairie Subsection and a majority of these find their critical habitats within the Agassiz Beach Ridges Conservation Region. These SGCN include 36 species that are federal or state endangered, threatened, or of special concern. For example, 9 mammal SGCN are known or predicted to occur in the region, approximately 41% of all mammal SGCN in the state.

- Scattered remnant tracts of native prairie and riparian woodlands in the Agassiz Beach Ridges are home to a surprising variety of wildlife. Some of the most pristine and extensive prairie tracts remaining in the state are found here.
- The region has important habitat for Greater Prairie Chickens and Marbled Godwits, the region also contains critical habitat for Loggerhead Shrikes, northern pocket gophers and northern grasshopper mice.
- Areas important for SGCN include Agassiz Dunes, Felton Prairie, Buffalo River State Park, Bluestem Prairie Scientific and Natural Area, and many state Wildlife Management Areas and federal Waterfowl Production Areas.

Of the nearly 41,000 acres encompassing 173 sites identified in the Minnesota County Biological Survey as being important, an impressive 45% are protected and 47% are in public ownership. Additionally, of the 41,928 acres identified by the Audubon Society as Important Bird Areas, approximately 16% are classified as protected and 17% are in public ownership.

There are 11 Scientific Natural Areas (SNAs) in the Agassiz Beach Ridges Region covering 6,308 acres with an additional 1,230 acres identified as worthy of SNA status. Further protection is afforded via 58 Reinvest in Minnesota (RIM) easements covering 3,140 acres. There are also five Prairie Bank easements preserving 535 acres of remnant prairie. Rare calcareous fens occur along the western downside slopes of beach ridges and some of the moraines toward the east. Many are degraded as a result of altered water regimes.

Other important natural areas include the Glacial Ridge and Hamden Slough National Wildlife Refuges.

The remnant prairies of this region are its most precious natural asset. Prairies once covered more than 80% of the landscape. Prairies now comprise less than 1% of the area and only massive restoration efforts can hope to recapture a portion of what has been lost.

The reaches of the Red River tributaries (Wild Rice, Sand Hill, Otter Tail, and Buffalo that flow through this ecoregion provide critical spawning and rearing habitats for many fish species (e.g., walleye, channel catfish, smallmouth bass). These habitats are critical to the function of the Red River system.

Land ownership is mostly private with less than 6% in public ownership and approximately 3.4% of the region's land and water under permanent protection. The state owns 36,744 acres and the federal government owns 32,276 acres with the vast majority held in Waterfowl Production Areas owned and managed the United States Fish and Wildlife Service. Total public ownership is 69,061 acres in the region.

C. Lakes, Rivers, Wetlands & Groundwater

Prairie pothole wetlands, shallow lakes, and tributary river of the Red River are the substantial water resources in this region.

There are 30 lakes larger than 150 acres in the region. Only four lakes are considered impaired by the Minnesota Pollution Control Agency along with three impaired streams. Bodies of water are listed impaired when they fail to meet water quality standards. While these numbers are relatively low, that might be an artifact of lack of monitoring information. The Sand Hill River, Buffalo River, Otter Tail River, Pelican River, and Wild Rice Rivers are some of the more notable rivers in the region.

The National Wetland Inventory has identified approximately 123,000 acres of wetlands in the region. Many of these wetlands and shallow lakes have been impacted by the agriculture activity in the area over the past 100 years. There are 679 miles of ditches, representing fully 28% of all the waterways in the region. There are numerous critical areas for wetland and grassland conservation in this region.

Localized development, sand and gravel mining, and drainage may impact groundwater resources by reducing recharge areas and decreasing recharge volumes while increasing the volume pumped from local aquifers. Most, if not all, of the drinking water in the region comes from wells. Many of these wells are susceptible to nitrate contamination generated by the farming activities in the area. Groundwater is also an important component in insuring the vitality of the many wetlands and shallow lakes of the region.

D. Fish and Wildlife

Three biomes come together in this region, creating an abundance of wildlife. It is teeming with birds and especially impressive during the waterfowl migration periods. Birds include uncommon species like Le Conte's sparrow, common moorhen, American avocet, marsh wren, sedge wren, sandhill crane and the red-necked grebe. Predators such as hawks, bald eagles, kestrels, merlins and harriers are common. Identified Species of Greatest Conservation Concern are the Forster's Tern, Brown Thrasher, Greater Yellowlegs, Buff-breasted Piper and the Greater Prairie Chicken.

Once home to bison, the region now boasts populations of whitetail deer, badger, moose and gray wolf. Wetland and prairie habitats are home to a high number (83) of identified Species of Greatest Conservation Concern.

Rivers are home to strong fisheries including trout and a small number of sturgeon. Lakes are abundant with bass, walleye, pike and panfish.

E. Recreation

There is one state park, Buffalo River, in the region that contains approximately 1,300 acres with 55 acres of private inholdings.

There are only eight miles of developed state trails in the area, but here is an additional 25 miles currently authorized by the legislature that has yet to be developed. State Highway 32 along the Beach Ridges is a scenic drive and a popular destination for many travelers.

Birding has become an increasingly popular pastime in the area with nearby Detroit Lakes Festival of Birds now in its tenth year. The Pine to Prairie Birding Trail goes through this region highlighting areas such as Buffalo River State Park and the many Wildlife Management Areas (WMAs) and Waterfowl Production Areas (WPAs) as potential birding sites.

There are 73 Wildlife Management Areas (WMAs) in the region totaling approximately 31,000 acres. The state WMA plan calls for an additional 30,134 acres to be acquired, including 14,134 acres of existing inholdings that are currently not owned by the state. Access in the area to hunting and fishing continues to be a concern as the price of land escalates potentially limiting hunting opportunities to the wealthy. The U.S. Fish and Wildlife Service currently manages 31,379 acres as Waterfowl Production Areas or National Wildlife Refuges.

This region comprises a large component of both the State Duck Plan and the Living Lakes Initiative, a partnership of Ducks Unlimited, several waterfowl hunting organizations and DNR. The Duck Plan looks to restore and protect approximately 148,000 acres of habitat while the Living Lakes Initiative looks for 197,000 acres to be restored and managed for waterfowl. Both programs have very similar goals so there is certainly a good deal of overlap in the acreage needed.

Currently, the Agassiz Beach Ridges has approximately 20 miles of designated trout streams with Lawndale Creek being one of the state's most successful riparian restoration projects.

III. Conservation Challenges

A. Agricultural Practices

- **Loss of Conservation Reserve Program acres**
With the rise in demand for corn, fuel ethanol production has put pressure to either reduce or even eliminate Conservation Reserve Program (CRP). This puts at-risk the 35 million acres of protected lands across the nation and the 1.7 million acres of CRP in Minnesota. Within the Beach Ridges, approximately 5% of the cropland acres (44,000) are in currently in CRP with the majority of these acres protecting important wetland or riparian habitat. These acres are due for renewal during the timeframe of 2007 – 2010. A conversion of the CRP lands to row crop production would once again expose these erodible soils protected by the CRP and impair the water resources and upland habitats of the Beach Ridges.

- **Drainage and Tillage**
As pressures increase to make the land more productive, there will be a subsequent pressure to drain marginal farmland. This poses a threat not only to wetlands, but also to streams receiving the drain waters that will experience increased erosion and flash flooding. Increased drainage also diminishes the ability to recharge groundwater sources that are vital sources of drinking water for the region. Pattern tiling is also becoming more common in this region.

B. Residential Development

While compared to other areas of the state the increase in development in this region is small, the small population base makes even modest increases stressful on the social and natural systems in the region. Commuters to Fargo/Moorhead have established a pattern of hobby farms that tend to fragment large amounts of land relative to the number of residents. Similarly, large numbers of North Dakotan travel or maintain vacation homes in this area. Growth has also lead to a marked increase in property values over the past ten years.

C. Youth Apathy

More young people are choosing not to participate in outdoor activities, resulting in a lack of appreciation for nature. This is at least in part due to lack of access and opportunity to experience natural areas. Future efforts at conservation and stewardship are at-risk if today's children do not become engaged.

D. Groundwater limits

Pressure from irrigation and gravel mining could lead to depletion and/or degradation of the region's groundwater resources.

E. Changes to native species and habitat quality

Invasive species such as reed canary grass, leafy splurge spotted knapweed, bird's foot trefoil, Russian olive, Siberian elm, crown vetch and buckthorn are out competing native plants. Similarly, prairies and grasslands are not exposed to fire and are converting to shrub forests.

F. Water quality

Lakeshore development – especially on shallow lakes – is causing a increased level off impairments and degrading habitat for fish and aquatic life. Low dissolved oxygen is a problem as is a host of invasive species such as the spiny water flea, spotted knapweed, leafy splurge, purple loosestrife, and zebra mussels. Rivers and stream suffer channelization, dams and lack of natural connectivity.

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, 2006
- Minnesota Forest Legacy Program, DNR, Potlatch Corp., local government and NGOs, 2006
- Minnesota State Demographic Center Data, 2002
- 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
- United States Department of Labor Employment Statistics, 2007

Additional conservation work in this region should consider consulting the following plans:

- Wild Rice River Watershed District Comprehensive Watershed Plan. Red River Basin Commission Natural Resources Framework Plan.
- HAPET Models – Rex Johnson (USFWS, Fergus Falls). USFWS Comprehensive Conservation Plans (Detroit Lakes WMD, Fergus Falls WMD). Wild River Watershed District. MN DNR – Aggregate workshop good information regarding Beach Ridges.
- Watershed Districts: Wild Rice – Steve Dulen. Buffalo – Bruce Albright. Bois de Sioux WD. Ottertail Plan: Don Bajumpaa Wilkin SWCD. Buffalo Red.
- County Well Water Plans: Clay, Becker, Norman, Mahnomen. USACE. RRBC Plan. MPCA Basin plan. DNR Stream Survey Reports.
- Local water plans from Otter Tail, Wilkin, Grant, Clay, Becker, Norman and Mahnomen counties.
- USFWS Comprehensive Conservation Plan (CCP).
- The Nature Conservancy Plans: Northern Tallgrass Prairie; Valley of Grass.
- Clay County Beach Ridges Forum on Gravel and Prairie – Clay County.
- MN DNR – stream survey reports for the watersheds.
- All major lakes and streams have fisheries management plans.

V. Goals

The goals for this region center around striking the balance between economic activity and resource protection, especially with regard to water resources.

A. Demographics and Economy

1. Promote economic activity that sustains the natural resource base.
 - Promote industries that have 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
 - Develop a growing ecotourism, hunting and outdoor recreation economy.
2. Focus on environmental education such that every school has programs, every community has projects.

B. Land and Habitat

1. Ensure that residential and commercial development does not fragment the area's natural resources and jeopardize the quality of life unique to this region.
2. Identify and protect high priority natural areas
 - Complete finely focused natural resource inventory and identify stressors to ecological function.
 - Use the full spectrum of protective tools to ensure critical areas are conserved.
 - Identify restoration targets and acquire rights necessary to restore ecological functions.
3. Develop conservation plans for each county.
4. Integrate conservation goals of various plans into cohesive regional vision.
5. Purchase wildlife acres
6. Pursue wildlife friendly farming.
7. Conservation tillage and permanent cover should be routine.
8. Control spread and infestation of exotic species
9. 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, agricultural and commercial lands.

- 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.
 - Reduce peak flows in streams that result from excess stormwater runoff by increasing infiltration and storage standards.
 - Enforce and enhance regulations regarding private septic systems.
 - Educate landowners as to landscaping options that are sensitive to the environment.
 - Establish minimum buffer requirements for lakes and streams.
 - Make Best Management Practices (BMPs) attractive enough to implement.
 - Remove all unnecessary dams in the Beach Ridges region.
2. Inventory area wetlands and assess their ecological function.
- Develop targets for wetland protection and restoration by completing Restorable Wetland Inventory.
 - Restore 50% of all drained wetlands by 2057.
 - Prohibit future draining or filling of region's wetlands. No loss of springs and fens.
 - Define and recalculate recharge zones for fens and groundwater.
 - Limit patterned tiling to less than 5% of each watershed.
3. All flood damage reduction projects should make use of natural resource enhancements that mitigate flooding.
4. 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.
 - Coordinate wetland and prairie restoration to maximize groundwater benefits.

D. Fish and Wildlife

1. Develop incentives and regulations for enhanced protection of shoreline and stream restoration.
2. Target large expanses of grassland habitat for all wildlife, water quality and carbon sequestration.
3. Install and expand native buffers along all public waterways.
4. Ensure that suitable habitat for Species of Greatest Concern is primary focus of land and water conservation efforts.
5. Create large blocks of grassland habitat for grassland birds.
6. Restore channelized streams where possible.

E. Recreation

1. Protect additional 55 acres of state park inholdings.
 - Establish additional city, county, regional parks, hiking, biking and canoeing.
2. Promote opportunities for diverse, passive recreation in the area.
3. Restore and protect 148,000 acres of duck habitat as targeted in the Duck Plan.
4. Identify key trout habitat and protect and restore necessary land.
5. Maintain consistent strategy for harvest limits and adjust as needs of species demands.
6. Acquire additional 30,134 acres of WMA lands called for in WMA plan.
7. Teach children and adults about the importance of outdoor experiences to our physical and mental health.
8. Develop strategies for having a sustained Prairie Chicken hunting season.
9. Develop strategies for implementation of moose hunting season within next 50 years.
10. Develop a self-sustaining sturgeon fishery.
11. Define recreation zones as motorized and non-motorized.
12. Protected lands should equal 20% of region.

13. Emphasize seasonal recreation opportunities for additional tourism.
14. Every 4th grade class has a conservation program.

VI. Opportunities and Threats

Norman County

- Construction of Twin Valley dam
- Prosby at Twin Valley WMA/SNA.
- Stabilize Wild Rice River down stream of Twin Valley.
- Increased drainage from Mahnomen to Norman.

Mahnomen County

- Restore meandered lakes and wetlands.
- Partner with tribe to manage conservation on the lands.
- White Earth land recovery project.

Clay County

- Keep Felton and Blue Stem connected and protected.
- Gravel mining (new and expansion).
- Invasive species.
- Growth and development pressure – home amenity migration.
- Expand Clay County weed control model.
- Protect Buffalo aquifer.

Becker County

- Wetland restoration, e.g. Hamden Lake.
- Gravel mining.

Wilkin County

- Manston Slough restoration.
- Grassland corridor – Rothsay inholdings.
- Restoration of south branch of Buffalo.
- Buffer ditches.

Otter Tail

- Wetland restoration.
- Development around lakes.
- Lack of zoning.

GRANT & TRAVERSE

- Wetland restoration.
- North Ottawa project.