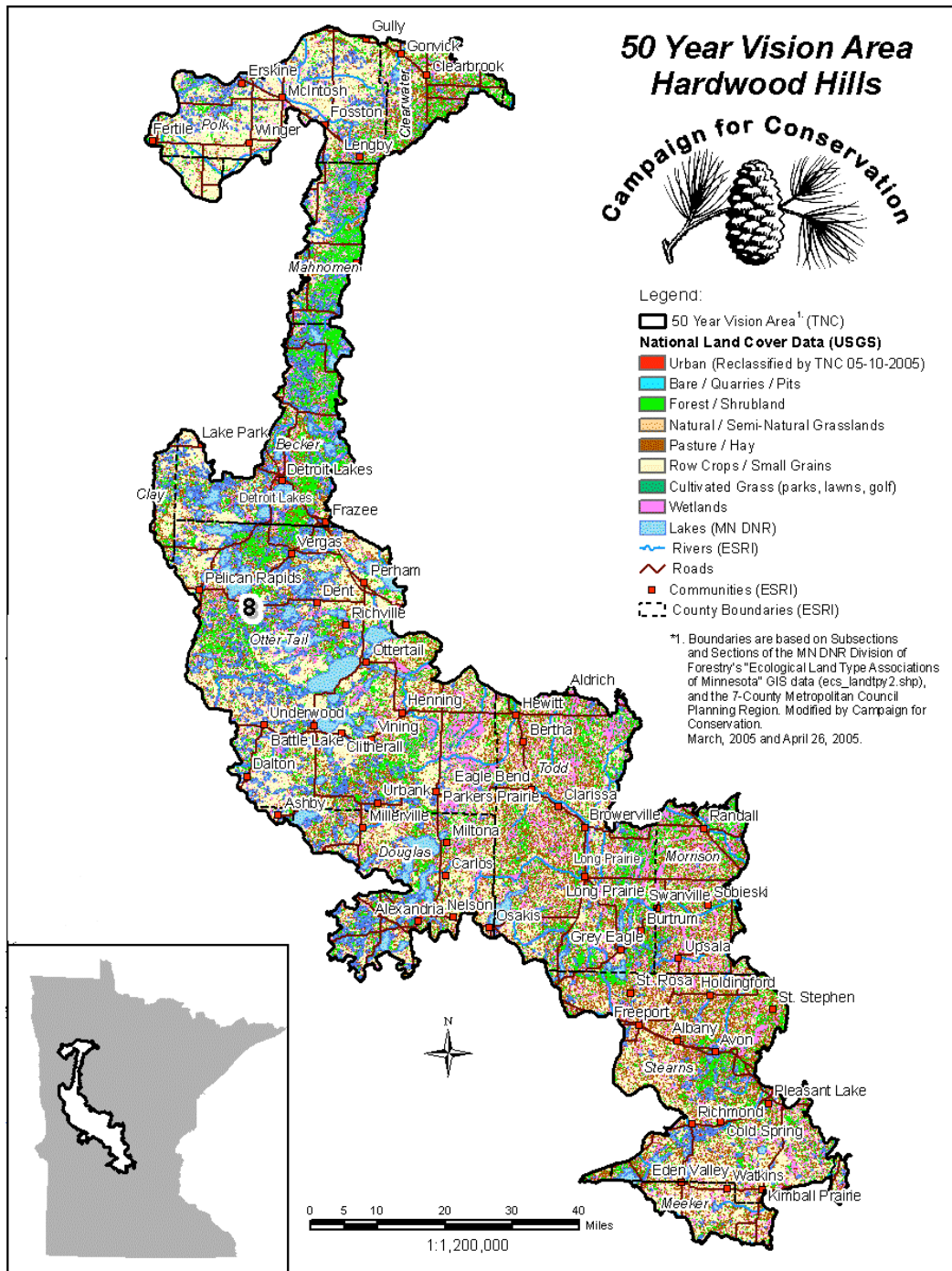


Hardwood Hills Conservation Region



Final Conservation Template
March 2007

Acres in Conservation Region

3,496,946

Population

291,921 (2005 Census)
155,198 (employed)
53 (people per square mile)

Population Change

1980 – 2000 +15%
2000 – 2030 +32%
2000 – 2030 Individuals over 65 years of age +105%

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

3.6%

Counties

Core: Becker, Douglas, Otter Tail, Stearns, Todd (mostly in region)

Partial: Beltrami, Clay, Clearwater, Grant, Kandiyohi, Mahnomen, Meeker, Morrison, Norman, Polk, Pope, Wadena, Wright (mostly outside region)

Ecological Classification System Subsections

Hardwood Hills

Natural Characteristics

Forest Upland Deciduous Hardwood and Aspen-oak
Shrub/Woodland
Prairie
Wetland (non-forest)
Grassland
Shallow Lakes
River-Headwater to Large

I. Why We Live Here

Rolling hills dotted with lakes and open fields make this region one of the most attractive in the state. The region consists of an appealing mix of small towns that supply a robust economy amid a rural landscape bringing a sense of balance to its residents. Small farms still outnumber large scale agriculture. Recreational opportunities abound for the sportsman and the nature enthusiast. Diverse and abundant lakes are the hallmark of the region. It is the natural splendor of this area and the connection that the residents feel to their surroundings that attracts people and that appeal continues to this day. Neighbors of this region share a sense of pride, loyalty to the community, tradition and closeness to the land.

II. Current Conditions and Trends

A. Demographics and Economy

The major cities for the region are Alexandria and Detroit Lakes but, importantly, the population centers of Fergus Falls and St. Cloud abut the Hardwood Hills. The population of this region grew by 10% from 1990 to 2000 and is projected to grow another 32% by 2030. Stearns, Douglas and Otter Tail counties will each grow by more than 35%. There is a significant number of people moving to or establishing a second home in this area from metropolitan areas. Development on shallow lakes is common. Much of the growth is occurring along transportation corridors.

Manufacturing, retail trade, education, health and human services account for 50% of the employment. Agriculture and forestry account for approximately 5% of the employment in the region and the projected increase in ethanol production in the area is not anticipated to appreciably increase the agricultural employment base. Tourism is becoming increasingly important, especially in areas around lakes. But there is a decline in small family resorts to the larger facilities. Unemployment in the area ranges between 4.5-5%, and Douglas County enjoys one of the lowest unemployment rates in the state at 3.6%.

B. Land & Habitat

The Hardwood Hills Region runs through the heart of the Mississippi River flyway and central Minnesota. The region extends northwest from the Twin Cities' northern suburbs, and includes rapidly growing communities on the edge of Minnesota's "growth corridor."

Glacial ice and meltwater deposits of sand and gravel created the rolling hills that are found throughout this region. Some of the highest hills extend to 1,800 feet above sea level. This landscape formed the original transition from the prairie to the west and the northern hardwoods to the north and east.

The Eastern Continental Divide splits this region; rivers to the north flow to Hudson Bay, and rivers to the south, to the Mississippi. The region contains numerous lakes, more than 300 greater than 150 acres and many smaller lakes. Wetlands, prairie potholes, and kettle lakes exist throughout the area. Before settlement by people of European descent, vegetation included maple-basswood forests interspersed with oak savanna, tallgrass prairie, and oak forest.

Currently much of this region is farmed. While many wetlands have been drained, many potholes remain and provide habitat for waterfowl and shorebirds. Important areas of forest and prairie exist throughout the region, but they are relatively small and fragmented. About 15% of the region is forested. Increased lakeshore development and wetland loss are conservation concerns in this region.

Major rivers include the Ottetail, Chippewa, Long Prairie, Sauk, and Crow Wing Rivers. The Mississippi River forms a portion of the east boundary. Flooding is beyond its historical pattern.

Row crops/small grain	31%
Pasture/hay	25
Forest/shrubland	20
Wetlands	14
Lakes	9
Urban	<u>1</u>
	100%

The region is composed of farmland, lakes and wetlands. Urbanized areas still are a small percentage of the overall land cover, but growth centers such as Alexandria, Detroit Lakes, Fergus Falls and greater St. Cloud continue to expand.

Most timberland in the region is privately owned, approximately 75%. Although there are two state forests encompassing 18,308 acres with 8,419 acres of private inholdings.

Of the 70,112 acres across 180 sites identified in the Minnesota County Biological Survey as being important, approximately 3% are protected and 23% are in public ownership. Additionally, of the 635 acres identified by the Audubon Society as Important Bird Areas, approximately 53% are classified as protected and all of those are in public ownership.

There are two Scientific Natural Areas (SNAs) in the Hardwood Hills covering only 195 acres with an additional 3,497 acres identified as worthy of SNA status. Further protection if afforded via 129 Reinvest in Minnesota (RIM) easements covering 4,867 acres.

Of the wide variety of habitat types in this region, wetland habitats contain the highest percentage of rare species, but it is the shrubland/woodland communities, along with prairies, that have seen the highest levels of destruction. Oak Savannah habitat is in acute decline due to land use changes, lack of fire, and lack of understanding about the habitat type.

Land ownership is mostly private with less than 4% in public ownership and approximately 1.3% of the region's land and water under permanent protection. The state owns 96,521 acres and the federal government owns 29,924 acres with a surprising number for Minnesota, 8,206 acres, owned and managed by the Bureau of Land Management and 6,966 acres owned by the Bureau of Indian Affairs and the balance of federal ownership held by the United States Fish and Wildlife Service in two National Wildlife Refuges dominated by the nearly 43,000 Tamarac National Wildlife Refuge. Total public ownership is 126,445 acres in the region.

C. Lakes, Rivers, Wetlands & Groundwater

Without a doubt, water is a hallmark of this region. The many lakes and streams provide augment the rolling landscape that makes this area so popular to visit and an attractive place to live. However, increased development pressures are putting a strain on this precious resource.

There are 332 lakes larger than 150 acres in the region. Unfortunately, there are also 77 lakes in the region considered impaired by the Minnesota Pollution Control Agency and 40 impaired streams. For most, the impairment is elevated levels of nutrients. Development pressure is exacerbating these problems especially for ecologically sensitive lakes, classified by the DNR as natural environment lakes. Ottertail and Dead Lakes are two of the most notable lakes in the region and both are examples of intense development pressure.

The National Wetland Inventory has identified approximately 814,000 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 with the greatest losses to wet meadow habitats. Wetlands type 1, 2, and 3 are the impacted the most. There is a problem of fish moving through drain tiles to these shallow wetlands and foraging on the same food source upon which waterfowl depend. Approximately half the presettlement wetlands remain in the region with most losses occurring in Stearns County. There are 818 miles of ditches, representing fully 14% of all the waterways in the region and more than six times the amount of trout streams.

Development, sand and gravel mining, irrigation 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. It should also be noted that ethanol production requires large amounts of water which may also put added pressure on local aquifers.

D. Fish and Wildlife

The wildlife of the Hardwood Hills region reflects the diversity and transitional nature of its landscape. Across this region the prairies to the west gave way to savannas then to deciduous woods and finally to the mixed broadleaf/coniferous forests to the east. Glacial activity during the Pleistocene left many end and ground moraines, kettleholes, and outwash features creating the topography for numerous lakes and wetlands. Adaptable wildlife such as deer and turkey can be found in large numbers and provide great hunting opportunities for sportsmen.

Waterfowl find the lakes and wetlands of this region highly attractive. Many species nest in the area but Fall migration brings additional waves of birds flying south along the Mississippi River Flyway from their Canadian and Arctic breeding grounds. The large numbers of birds attract many waterfowl hunters in season. The lakes are also home to a diversity of fish. The principal species caught include walleye, panfish, pike, and smallmouth bass.

As documented in “Tomorrow’s Habitat for the Wild and Rare”, there are 85 Species in Greatest Conservation Need (SGCN) that are known or predicted to occur within the Hardwood Hills. These SGCN include 28 species that are federal or state endangered, threatened, or of special concern.

- As befitting a transitional regional, SGCN include typical prairie species such as Prairie vole, America Badger, Bobolink, Upland Sandpipers, and Short-eared Owl. Species indicative of forested regions include Red-shouldered Hawks, Eastern Wood-pewee, Cerulean Warbler, Common Loon, Ovenbirds and Wood Thrush.
- Wetlands support many other species including Trumpeter Swans, Sandhill

Cranes, Western Grebes, Great Egrets, Great Blue Herons, Forster's Terns, and Bald Eagles.

- This is also a major migratory corridor for forest birds and waterfowl.
- Areas important for SGCN include Tamarac and Hamden Slough National Wildlife Refuges, numerous state Wildlife Management Areas, and Lake Carlos, Glendalough, and Maplewood State Parks.

In addition to the native species, numerous invasive species are cause for concern. Some of the biggest threats include curly leaf pond weed, Eurasian milfoil, purple loosestrife, and others.

E. Recreation

Outdoor recreation opportunities abound in this region and reflect the highly scenic nature presented by the varied topography. State parks include Maplewood, Glendalough, Lake Carlos and Lindbergh State Parks. These parks total more than 12,700 acres with approximately 1,500 acres of private inholdings within the parks. The Minnesota State Park Plan calls for an additional state park in the region due to the increased interest in outdoor recreation.

There are only 37 miles of developed state trails in the area, but here is an additional 46 miles currently authorized by the legislature that has yet to be developed.

There are an astounding 112 Wildlife Management Areas (WMAs) in the region totaling 32,399 acres. The state WMA plan calls for an additional 21,000 acres to be acquired.

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 an additional 558,000 acres of habitat while the Living Lakes Initiative looks for an additional 408,300 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.

The Pheasant Plan calls for 155,179 acres to be acquired in this region. Much of this habitat restoration could coincide with the goals of WMA establishment as well as being integrated with waterfowl habitat protection goals.

Birding has become an increasingly popular pastime in the area with Detroit Lakes Festival of Birds now in its tenth year. It is not unusual for participants to see more than 170 species of birds during this four-day event in mid-May. Hamden Slough National Wildlife Refuge and Tamarac National Wildlife Refuge offer chances to see Piping Plovers or Yellow-billed Cuckoos. The Helliksen Prairie Waterfowl Production Area provides opportunities to see and scan the prairie for Greater Prairie Chickens and Sandhill Cranes.

Currently, the Hardwood Hills has 132 miles of designated trout streams with 7 access points. The many lakes, particularly in the Alexandria and Detroit Lakes areas, are popular fisheries. Rearing minnows in wetlands and walleye stocking are policies that have created controversy for this region.

Off highway vehicles have become increasingly popular in recent years.

III. Conservation Challenges

A. Development and Recreational Pressures

The many popular lakes in the area are a magnet to recreational interests of all sorts and the region has seen an explosion of second home development over the past ten years. While there may be a pause in the real estate boom currently, the amenities that attract people to the area remain and will continue to be threatened by the desire to live and play in the Hardwood Hills. More people encroaching upon a delicate landscape means more challenges to balance the needs of those that desire to enjoy everything the lakes, wetlands, streams and uplands. These challenges are exacerbated by the decline in funding for government agencies charged with protect these resources. For the preservation of the qualities that bring people to the area, the decision-makers need to understand that sustainable economic growth in this region is intimately tied to a vibrant natural environment.

B. Loss of CRP Lands

With the rise in demand for corn to fuel ethanol production has put pressure to either reduce or even eliminate Conservation Reserve Program (CRP) the 35 million acres of protected lands across the nation and the 1.7 million acres in CRP we have here in Minnesota. Within the Hardwood Hills, approximately 5% of the cropland acres (54,000) are in currently in CRP with the majority of these acres protected important wetland or riparian habitat. A conversion of CRP lands to row crop production would once again expose these highly erodible soils protected by CRP and, undoubtedly, wreak havoc on the water resources and upland habitats of the Hardwood Hills.

C. Loss of Wetlands & Groundwater Impacts

Tied to the rising demand for corn and soybeans, and possibly connected to climatic changes in the region, there is an increase in crop irrigation. This puts increasing pressure on the groundwater resources of the area that must also supply the drinking water for an increasing population. Further, the myriad of tiles and ditches meant to make the land more productive for crops have a negative impact on wetlands and their ability to recharge the groundwater.

IV. Status of Current Planning Efforts

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

- Douglas County Local Water Management Plan, Douglas County, 2004
- Forests in the West Central Landscape, Desired Outcomes Goals and Strategies, MN Forest Resources Council, March 2004
- 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 Pheasant Plan, DNR, 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:

- Becker County Comprehensive Plan – contact Guy Fischer 218-846-7316, ghfisch@co.becker.mn.us.
- Red Lake WD plan.
- Ottertail River Watershed Project – contact Don Bajumpaa,
- Wilkin County. LCMR – Habitat Corridor Partnership – Matt Holland.
- Working Lands Initiative in this area. HAPET data.
- John Maile TNC: Avon Hills Conservation Action Plan.
- Lake Alexander Conservation Action Plan.
- Sauk River Watershed Plan – Greg Berg Stearns SWCD.
- Minnesota Waters (has template for lake management planning – minnesotawaters.org).
- Otter Tail County Water Plan (2005? or 2006). Bill Kalar, Land and Resource Management Director 218-998-8095.
- DNR Lake Management Planning Specialist – Ed Feiler (Bemidji).
- Contact Marilyn Bayerl 320-283-5891.

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
 - Seek economic growth through the development of alternative energy fuels such as wind and biofuels.

B. *Land and Habitat*

1. Ensure that residential and commercial development does not jeopardize the quality of life unique to this region.
2. Concentrate residential and commercial growth in community centers helping to control public service costs and preserve the valuable wild and undeveloped character of the area.

- Enable robust and farsighted planning for growth in all communities, but particularly in unincorporated townships.
3. Continue emphasis on conservation ownership (public and private) in the remote, rural areas with most private ownership near existing infrastructure and services.
 4. Wind energy production should be significant source of energy for all townships and several communities.
 5. Each community/county will develop smart growth plans that include conservation and/or protection.
 6. Identify and protect high priority natural areas, land and water.
 - Complete finely focused natural resource inventory and identify stressors to ecological function.
 - Reinventory all wetland and native prairies.
 - Use the full spectrum of protective tools to ensure critical areas are conserved.
 - Adopt zoning and/or ordinances to restrict development on sensitive areas.
 7. Identify 245,000 acres where forest resources can be restored and ensure that local decision-makers have this information
 - Ensure that at least 50% of the private forest land over 40 acres have landowners
 8. Integrate conservation goals of various plans into cohesive regional vision.
 9. Identify restoration targets and acquire rights necessary to restore ecological functions.
 10. Develop conservation plans for each county.
 11. Emphasize conservation plans in new developments (i.e. conservation easements and conservation plats in Planned Unit Developments).
 12. Develop comprehensive watershed management plans for 10% of the lakes and all the major rivers in five years.
 13. Control spread and infestation of exotic species (e.g. zebra mussels, purple loosestrife, etc.)
 14. Monitor and prepare for impacts of climatic change on the region's native flora and fauna.

15. No loss of Riparian Woodlands.

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.
- Enforce and enhance regulations regarding private septic systems and obtain funds for upgrading failing systems.
- Educated landowners as to landscaping options that emphasize natural alternatives that are sensitive to the environment (e.g. “lakescaping”, raingardens, stormwater infiltration systems).
- Develop tax incentives for shoreland protection.
- Target 75% of shoreland that is currently undeveloped remains undeveloped and restore 50% of developed shoreland (buffers).
- Ensure no loss of riparian woodlands.
- Ensure adequate buffers along agricultural ditches.
- Develop comprehensive plans for 10% of lakes and all major rivers.
- Update shoreland ordinances statewide with review every five years. Look to North Central Lakes Pilot Project and utilize tax incentives.
- Complete districting of lakeshore according to Minn. Rules 6120 Fund septic inspection, clean up and sewer upgrades.
- Identify special classification for lakes and apply appropriate protections.

2. Inventory area wetlands and assess ecological function.

- Develop targets for wetland protection and restoration.

3. Determine groundwater systems and identify sources of potential contamination
 - Develop groundwater flow models.
 - Develop targets for groundwater protection.
 - Assess capacity in light of growth demands and direct growth away from areas of fragile or limited groundwater supplies.
 - Every community will have a wellhead inspection plan.

D. Fish and Wildlife

1. Develop incentives and regulations for enhanced protection of shoreline and stream restoration.
2. Ensure that suitable habitat for Species of Greatest Conservation Concern is primary focus of land and water conservation efforts.
3. Develop method for tracking species and habitat trends and report on their condition annually.
4. Ensure that sound ecological management techniques, such as fire, can be implemented.
5. Acquire one mile of easements along each trout stream in region.
6. Acquire 10 Aquatic Management Area's (AMA) averaging 60 acres.
7. Identify threats to wildlife from disease as a result of declining habitat and establish methods to prevent disease.
8. This region should have a net gain in wetland habitat.
9. No new lakes with invasives.
10. Identify and eradicate invasive species.
11. Use public access to educate users about invasive species.

E. Recreation

1. Protect additional 1,500 acres of state park inholdings.
2. Promote opportunities for passive recreation in the area.
3. Coordinate motorized and non-motorized recreation through education and proper planning.

4. Develop effective educational tools to inform recreators about the need to conserve our natural resources.
5. Restore and protect 155,000 acres as called for in the Pheasant Plan and mentioned in the West Central Forest Resource Management Plan
6. Restore and protect 558,000 acres of duck habitat as targeted in the Duck Plan
7. Identify key trout habitat and protect and restore necessary land.
8. Maintain consistent strategy for harvest limits and adjust as needs of species demands.
9. Acquire additional 21,000 acres of WMA lands called for in WMA plan.
10. Teach children and adults about the importance of outdoor experiences to our physical and mental health.
11. Maintain recreation fees at an economic level to allow access regardless of a person's wealth.
12. Work with corporate landowners to ensure continued public access.
13. Develop an Environmental Learning Center focused on Savannah lakes and streams.