Ashland County
Land & Water Resource
Management Plan

January 1, 2010 - December 31, 2019
Prepared by the Ashland County Land Conservation Committee and Department

ASHLAND COUNTY
LAND AND WATER
RESOURCE MANAGEMENT PLAN

2010 – 2019

Submitted
by the
Ashland County Land Conservation Committee
and the
Land and Water Conservation Department

ACKNOWLEGEMENTS

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Introduction

The Ashland County Land and Water Resource Management Plan was developed as a result of changes in Chapter 92 of the Wisconsin Statutes. The intent of the change was to foster local water quality planning and increase public participation in natural resource management. The plans are intended to provide counties, through their Land Conservation Committees, the tools, flexibility and funding to be able to address both statewide goals as well as priorities identified at the local level. The Ashland County Land & Water Resource Management Plan contains realistic objectives and activities intended to meet the goals established by a workgroup of volunteer citizens from throughout the county. The LWRM Plan itself is intended to have a 10-year life (2010-2019), but the work plan outlined in Chapter VI will be revised after 5 years or less.

Plan Organization

The Ashland County Land and Water Resource Management Plan is divided into eight chapters:

I. Introduction
II. Resource Assessment
III. Issues, Goals, Objectives and Activities
IV. NR151 Performance Standards and Implementation Strategy
V. Information and Education Strategy
VI. Plan Implementation and Budget
VII. Monitoring and Evaluation
VIII. Coordination

Maps and tables pertinent to each chapter are found throughout the document and internet links to sources of additional or updated information are provided whenever possible. Short summaries of other resource management plans and extensive supporting data can be found in the appendices.

Public Participation

The LWRM plan was developed through public informational meetings and hearings, questionnaires, surveys and the efforts of a dedicated volunteer work group. The Land Conservation Committee held a public hearing February 2, 2010 where citizens and agency representatives had a chance to learn more about the land and water resource management plan and to offer comments. After approval by the Land and Water Conservation Board in April, 2010, the LWCD will present the final plan to the Ashland County Board for approval by resolution. Public participation will continue throughout the life of the LWRM plan at annual planning meetings, through annual reports to the county board, other groups, and department newsletters to Ashland County citizens. Groups, organizations and individuals will also be asked by the LCC to participate in project planning and/or implementation as necessary.

Resource Assessment

A detailed look at past planning efforts, water quality data, updated county information, and revised land use trends provided the workgroup with information necessary to look at where the land and water conservation program should target their time and effort. A good deal of time was spent validating the issues and concerns of the previous plan, identifying progress on the previous plan's goals, and determining if any new or emerging issues should be considered. The identified land and water concerns fall within four broad categories of issues:

- Protect surface and groundwater resources: interior and coastal wetlands, lakes and streams, headwaters, drinking water, and recreational water. Reduce nonpoint source pollution arising from construction development, roads and trails, forestry, agriculture, stormwater runoff, and other sources.
- Conserving soil and terrestrial resources: promoting good land stewardship and use of best management practices, reducing impacts caused by recreational activities, and encouraging the retention of agricultural lands, forests and open spaces.
- Protecting and improving aquatic and terrestrial wildlife habitat: sensible shoreland development, control of invasive species, protection of sensitive habitats, avoiding or correcting habitat fragmentation, and reducing property or ecological damage caused by wildlife.
- Providing information and education through coordination with landowners, local governments, non-governmental organizations, and resource management entities.

Goals Objectives and Activities

The issues, concerns and opportunities identified through the resource assessment and input from the local work group were reworked to form a logical set of goals and objectives:

- Goal #1: Protect and enhance the quality of Ashland County's Surface and ground water resources.
  - Objective A: Reduce non-point source pollution and environmental risks to water quality in agricultural, rural-residential, and urban situations.
  - Objective B: Identify and reduce point source pollution originating from industrial, urban, and rural settings.
  - Objective C: Minimize the environmental effects of non-metallic and metallic mining while ensuring public safety.
- Goal #2: Conserve and enhance the soil and terrestrial resources of Ashland County.
  - Objective A: Encourage good stewardship of public and private forest lands, open spaces, and wetlands.
  - Objective B: Preserve agricultural lands for sustainable production of crops and livestock while protecting soil resources, wildlife habitat, scenic values and human health.
- Goal #3: Protect and improve aquatic and terrestrial wildlife habitat in Ashland County.
  - Objective A: Restore or enhance habitat within and adjacent to lakes, rivers, and streams.
  - Objective B: Restore, conserve, or enhance wetlands for wildlife habitat and watershed health.
  - Objective C: Identify, classify, and protect sensitive areas.
  - Objective D: Develop a comprehensive invasive species management and control program.
  - Objective E: Maintain or enhance habitat connectivity for terrestrial and aquatic wildlife.
  - Objective F: Support the ABDI County Wildlife Damage Abatement and Claims Program (WDACP).
- Goal #4: Provide information and education concerning natural resource conservation to private landowners, local governments, non-governmental organizations, and the general public through cooperation and coordination with other resource management entities.
  - Objective A: Promote cooperation among conservation partners.
  - Objective B: Work to attain a common vision and a conservation land use ethic among government representatives, land managers, and conservation partners in Ashland County and surrounding areas.
  - Objective C: Inform and educate people about land use regulations, land management plans, watershed assessment techniques, and best management practices necessary to protect and improve soil, water, and habitat resources.

NR151 Implementation Strategy

The NR 151 performance standards strategy (Chapter IV) capitalizes on education and voluntary compliance. The first priority for technical assistance and cost-share funding will be for landowners who want to voluntarily achieve compliance, followed by areas that have received complaints or enforcement actions. Landowners with existing or new farmland preservation agreements and farmers wishing to complete nutrient management plans will also receive priority. In all cases, the actual and potential risk of negative environmental impacts must be evaluated and prioritized according to available staff and financial resources.

Information and Education Strategy

The I&E Strategy (ChapterV) outlines the methods and activities the LWCD will employ, the target audiences, and the messages that will be delivered. Providing meaningful and effective information and education is so important to success that it has been integrated in the plan as an identified goal and set of objectives.

Plan Implementation and Budget

Specific activities were then devised to address each of the goals and objectives, and each activity was provided with measurable outcomes. The measurable outcomes for each activity, a partial listing of partners that will help implement the activities, and an identification of priorities forms the core of Chapter VI. An estimate of staff and funding needed to implement the plan is provided using two methods:

- Implementation of LWCD priority activities - provides a target of what the LWCD hopes to accomplish during the life of the plan. These priority activities form the basis for annual work planning and budget requests. In the current situation of limited staff and funding, it must be realized that not all priority activities will be accomplished each year.

Table 1. Estimated Staffing & Funding Needed to Implement Priority Activities Only

	Staff or Contract Time			Estimated Cost		
Fiscal Year	**Existing Staff or Contract *(FTE)***	**Needed Staff or Contract *(FTE)***	**Shortfall *(FTE)***	**Staff Cost**	**Project & Support Cost**	**Total Cost**
2010	2.25	3.5	1.25	$203,000	$100,000	$303,000
2011	2.25	4.0	1.75	$236,640	$120,000	$356,640
2012	2.25	4.0	1.75	$241,372	$120,000	$361,372
2013	2.25	4.0	1.75	$246,200	$120,000	$366,200
2014	2.25	4.0	1.75	$251,124	$120,000	$371,124
TOTAL	**11.25 FTE**	**19.5 FTE**	**- 8.25 FTE**	**$1,178,336**	**$580,000**	**$1,758,336**

- Full plan implementation, including partner agencies and organizations, outlines those activities and goals where LWCD may act as lead, but where extensive partner support and increased staffing and funding levels will be needed. These activities are important to the overall region and help to build consensus among resource agencies and partners who can contribute staff time, support, and a greater diversity of funding sources. Full plan implementation remains the focus of our respective organizations, strengthens an overall watershed-based approach, and helps ensure regional consistency and continued partner support.

Table 2. Estimated Staffing & Funding Needed to Implement All Activities						
	Staff or Contract Time			Estimated Cost		
Fiscal Year	Existing Staff or Contract *(FTE)*	Needed Staff or Contract *(FTE)*	Shortfall *(FTE)*	Staff Cost	Project & Support Cost	Total Cost
2010	2.25	6.0	3.75	$348,000	$120,000	$468,000
2011	2.25	6.0	3.75	$354,960	$150,000	$504,960
2012	2.25	6.0	3.75	$362,058	$150,000	$512,058
2013	2.25	6.0	3.75	$369,300	$150,000	$519,300
2014	2.25	6.0	3.75	$376,686	$150,000	$526,686
TOTAL	**11.25 FTE**	**30.0 FTE**	**- 18.75 FTE**	**$1,811,004**	**$720,000**	**$2,531,004**

Monitoring and Evaluation

Chapter VII is comprised of a plan evaluation component and a project and program monitoring component. Plan evaluation is important as it assesses if activities are being accomplished that are leading toward attainment of the goals. The LWCD does not have adequate staff or funding to perform detailed studies to determine the effectiveness of educational events and activities. As a result, evaluation will consist of whether the activity was completed or not. Other activities such as technical assistance will also be evaluated on whether they were completed or not, and detailed analysis of the benefits of the assistance will not be completed. Project and program monitoring may entail more detailed evaluation of the benefits of the action, such as amount of soil saved, amount of runoff reduced, acres and numbers of conservation practices installed, etc. The LWCD will monitor for maintenance needs, conduct engineering spot checks and field reviews, and assess customer satisfaction through surveys and documentation of verbal feedback. A written annual report will be provided to the public, the county and DATCP. The Land Conservation Department staff will review progress toward plan completion on a quarterly basis and provide updates to the committee. In March or April of each year, the LCC will review progress in detail at their annual meeting. Work planning will also provide an opportunity for the LCC, citizens and staff to meet together, discuss progress and determine the next fiscal year's projects.

Coordination

Chapter VIII outlines recommended coordination activities that may occur with some of the key conservation and political partners in the region. These partners include local governments, state and federal agencies, tribal governments and entities, and non-governmental organizations.

Conclusion

Land and water resources are very important to Ashland County. Unique resources such as coastal estuaries and priority wetlands, the Bad River, Copper Falls and Big Bay State Parks, Morgan Falls and Caroline Lakes State Natural Areas, and 153 miles of scenic Lake Superior coast including the Apostle Islands National Lakeshore are a few of the invaluable resources found in the county. These areas and other high quality resources need to be protected and resources made available to prevent the need for remedial approaches. The LWRMP is intended to reflect local needs and encourage grass roots leadership to protect these important resources. The LWRMP empowers the Land Conservation Committee and department to provide that local leadership for other agencies, private groups, organizations and individuals.

The implementation of the LWRMP will provide the basis for the future of land and water conservation in Ashland County.

CHAPTER I - INTRODUCTION

Authority

From the Soil and Water Conservation Districts in 1930 to the County Land and Water Conservation Departments today, Wisconsin's local governments have had direct involvement with natural resource protection through implementation of its land and water conservation programs. In 1997, Wisconsin Act 27 and amendments to Chapter 92.10 required counties to develop "locally lead" Land and Water Resource Management (LWRM) Plans. This change enabled local citizens to help set land and water conservation priorities for their county and direct how the Land and Water Conservation Department does business.

Plan Requirements

County land and water resource management plans must include, at a minimum, the following components:

- Public participation;
- Assessment of water quality and soil erosion conditions;
- Identification of applicable nonpoint source and soil erosion performance standards and prohibitions;
- Water quality objectives derived in consultation with DNR;
- Conservation practices needed to address key water quality and soil erosion problems;
- A plan to identify priority farms in the county;
- Best management practices to achieve water quality objectives;
- Applicable performance standards and prohibitions related to the control of pollution from nonpoint sources;
- State and local regulations necessary to implement the county plan;
- A strategy for encouraging voluntary implementation of conservation practices under ATCP 50.04;
- Compliance procedures that will apply if the county takes action against a landowner for failure to implement conservation practices under ATCP 50, NR 151 or related local regulations;
- A multi-year description of planned activities, including priorities and budget;
- Description of a monitoring system to track progress of activities described in the plan;
- A soil and water information and education strategy;
- Coordination with other local, state and federal agencies;
- Landowner notification process;
- Public hearing and county board approval of the plan.

Public Participation

Public participation is an important part of successful planning efforts. Attempts were made to obtain input from the general public, as well as and local agencies and organizations, throughout the process. The following methods were used to obtain public input:

- Established information about the LWRMP revision on the Ashland County Land and Water Conservation Department web site (May 13, 2008)
- Mail and email notification of upcoming open house to local advisory group and extended mailing list (August 23, 2008)
- Posting of open house announcement flyer in several locations around the City of Ashland (August and September, 2008)
- Notice of open house published in on-line calendar of events for the County Journal and Ashland Daily Press (September 15-23, 2008)

- Mail and email reminder of open house to local advisory group and extended mailing list (September 16, 2008)
- News release published in Ashland Daily Press (September 17, 2008)
- Notice of meetings for the open house and Land Conservation Committee published in Ashland Daily Press (September 22 and 23, 2008)
- Public informational open house (September 23, 2008)
- News article (September 24, 2008)
- Mail and email issue review and prioritization exercise and implementation plan review exercise to local advisory group and extended mailing list (September 29, 2008)
- Updates and internal review of documents with Land Conservation Committee (2009)
- Preliminary draft plan submitted to DATCP, DNR, and FSA for review and comment (December, 2009)
- Mailing to notify LCC and Local Advisory Group of availability of plan for review (December, 2009)
- News release submitted to local paper announcing availability of plan for review (December, 2009)
- Public comment period (January, 2010)
- Public hearing (February 2, 2010)
- Final draft plan submitted to DATCP and DNR (February, 2010)
- Ashland County Land Conservation Committee approval action (February 2, 2010)
- Wisconsin Land & Water Conservation Board Action (April 6, 2010)
- Ashland County Board approval through resolution (May, 2010)

In 2004, the Ashland County LWCD coordinated the land and water planning public information meeting with the county's comprehensive land use planning process. An Issue Identification Workshop was held where participants heard presentations from local resource managers, collected resource information, and provided input into the county's comprehensive plan for natural resource management. The LWCD took this information a step further and identified those issues with direct affect upon land and water conservation. Because of this extensive public involvement in 2004, the focus of public involvement in the 2009 revision has been to validate and re-prioritize the existing issues while providing the opportunity to identify new or emerging issues or eliminate those issues that are no longer a concern.

Local Cooperation

Ashland County has a great number of natural resource professionals that live and work in the area as well dedicated residents who participate in county programs and have a deep concern for natural resources. Local efforts to balance protection, restoration and multiple-use are made clear in the goals, objectives and activities outlined in this plan. Resource agencies and local groups will build on their history of cooperation by sharing data, staff, expertise, and financial resources to implement many of the activities outlined in the LWRMP.

Governmental agencies such as the Wisconsin Department of Natural Resources (WDNR), Bad River Band of Lake Superior Chippewa Indians, Red Cliff Band of Lake Superior Chippewa, United States Forest Service (USFS), United States Fish and Wildlife Service (FWS), United States Geological Survey (USGS), Natural Resources Conservation Service (NRCS), Farm Service Agency (FSA), and Apostle Islands National Lakeshore (AINL) continually cooperate to develop plans and strategies intended to benefit the resources of the region. The LWCD also nourishes partnerships with educational organizations such as UW-Extension, the Sigurd Olson Environmental Institute (SOEI) at Northland College, and local schools; and non-governmental organizations including the Bad River Watershed Association, the Northwood Cooperative Weed Management Area, Inland Sea Society, The Nature Conservancy (TNC), Friends of the White River, Alliance for Sustainability, Trout Unlimited, Ducks Unlimited and others to share information, implement projects, and distribute environmental education messages.

Ashland County LWCD staff and committee members actively participate in regional organizations like the Northwest Land Conservation Association (NWLCA) and Pri-Ru-Ta Resource Conservation and Development Area; and state organizations such as the Wisconsin Association of Land Conservation Employees (WALCE) and the Wisconsin Land and Water Conservation Association (WLWCA).

Plan Organization

The Ashland County Land and Water Resource Management Plan is organized into ten major sections:

- Chapter I – Introduction: provides a setting for the authority, procedure, and requirements that the county must include in a land and water resource management plan.
- Chapter II – Resource Assessment: provides a general overview of the county and a description of the county's resources.
- Chapter III – Issues, Goals, Objectives and Activities: identifies issues, concerns, and opportunities identified through public participation and a set of goals, objectives, and activities to address them.
- Chapter IV – NR151 Performance Standards and Implementation Strategy: outlines the state performance standards and prohibitions for agricultural and non-agricultural activities, and devises priorities and strategies for compliance with the statute.
- Chapter V - Information and Education Strategy: elaborates on the I&E component embedded in all of the activities of the LWCD.
- Chapter VI – LWRM Plan Implementation and Budget: outlines plan implementation or a work plan. It includes the priorities, roles, responsibilities, budget and staffing necessary for implementing the plan.
- Chapter VII – Monitoring and Evaluation: indicates how the LCC and LWCD will monitor the success of projects and programs, and an evaluation of the progress in reaching the goals of the plan.
- Chapter VIII – Coordination: provides recommendations to local governments, state and federal agencies, tribal governments and non-governmental organizations.
- References: whenever possible, the reader is directed to internet links to obtain the most current or updated information, but some additional references are provided here.
- Appendices: Provides supporting data, and materials pertinent to the development of the plan, including information about other resource management plans, a list of potential funding sources, generalized soil types list, glossary of terms, list of commonly used acronyms, and approved conservation practices.

The plan is intended to be a reference document for countywide resource information as well as a work plan for the Land and Water Conservation Department staff. The Land Conservation Committee should use the plan to outline annual work strategies, budgets and needs for Ashland County.

CHAPTER II: RESOURCE ASSESSMENT

General Description

Ashland County is located in northwestern Wisconsin and covers 2,294 square miles of which 1,044 square miles of it is land and 1,250 square miles of it is water. The U.S. Census Bureau estimated a 2006 population of 16,511. The county includes 17 of the 21 islands collectively known as the Apostle Islands, located in Lake Superior off the north shore of Ashland County and the east shore of Bayfield County. Devils Island in Ashland County is the northernmost point of the state. Ashland County is bordered by Bayfield County to the west, Price and Sawyer Counties to the south, Iron County to the east, and Lake Superior to the north. Ashland County's Mt. Whittlesey, in the Penokee Range near Mellen, is ranked the sixth highest elevation in the state. The southern one third of the county drains to the Upper Chippewa Basin, and the remainder drains to Lake Superior.

Geology

The present physiography of Ashland County is due largely to the glaciers that originated in northern Canada near Hudson Bay. The county is divided into two distinct drainage basins at the St. Lawrence Seaway Continental Divide. The Bad River and its tributaries drain most of the northern half of the county to Lake Superior and onward to the St. Lawrence Seaway and the Gulf of St. Lawrence. The Chippewa River and its tributaries drain to the Mississippi River and the Gulf of Mexico.

The Lake Superior Lowlands contain glacial lacustrine red clays or clay till (till is an unstratified glacial drift consisting of clay, sand, gravel, and boulders intermingled). These clays can be found on the historic lake plain adjoining present day Lake Superior. These clays were laid down under the waters of a much larger glacial lake that once occupied the Lake Superior Basin and surrounding areas. This calcareous red clay till soil is finely textured, resulting in very poor drainage. Streams cut very deep v-shaped valleys into the clay; some ranging anywhere from 40 to 100 or more feet below the level of the plain. The Apostle Islands were once covered by glacial lake waters. The ice sheet re-advanced over the islands after the clay was laid down, and in many places covered the clay with low ridges of red sand and silt.

Just south of the Lake Superior Lowland, the land surface is hilly and rough. Some of the hills are ridge-like accumulations of glacial sand, gravel, boulders, clay and silt, known as moraines. They were deposited by the ice sheet as it paused for a while or as it changed position slightly. Kettle shaped depressions can be found along the hills and ridges. Some of the hills are comprised of trap rock (hardened lava flows) and are narrow ridges with very steep rock walls. Waterfalls can occur where streams leave the lava formations and enter the clay plains. Copper Falls is a good example.

The Penokee Iron Range extends 80 miles beginning in Ashland County, through Iron County, and into Michigan where it is known as the Gogebic Iron Range. The Iron Range is about one-half to one mile wide and rises to 1,872 feet above sea level at Mt. Whittlesey near Mellen. The elevation at the City of Ashland is 671 feet above sea level, while Lake Superior sits at 602 feet above sea level. Extending south from the Penokee Range is a rolling area of generally low relief with glacial deposits forming the greatest irregularities. Glacial outwash soils, well sorted sand or sand and gravel deposited by water melting from the glacier exist in the area and loose rock is common.

Soils

Soil survey information is invaluable for making good land use decisions because it helps identify the development potential or limits of a particular site. The soil survey for Ashland County was completed by 2005. Unlike previous efforts, no soils manuscript was published, but detailed mapping tools and soils information is now found on the internet at:

http://websoilsurvey.nrcs.usda.gov

The Web Soil Survey provides a wealth of detailed information about specific soils in a defined area of interest. The generalized characteristics and limitations of soils provide a much broad overview of the distribution of soil types across Ashland County, and may help the less technical reader understand how the soils influence the landscape. The generalized soil types maps (Figures A and B) and list (Appendix D) were prepared in consultation with professional soil scientists and verified by the NRCS for use in this document. A brief description of the generalized soil types follows.

Bedrock-dominated Soils: These soils are relatively shallow, and excavation required for roads, foundations and utilities is limited. Shallow soil depths also limit filtering capabilities of drainage fields.

Transition Soils (Sand over Clay): Very deep, moderately well to somewhat poorly drained soils that formed in sandy sediments, underlain by clayey deposits. Often referred to as the "transition area", these soils separate the clay plain from the higher elevation area that is dominated by sand. These soils have a sand cap over clay or stratified loamy material. Seeps often are prevalent in these areas, especially in spring, and the headwaters of many streams originate here. Excavations in these soils are subject to cave-ins in spring. With seasonally high water tables, these areas often require alternative sanitary systems such as mounds. Roads in these areas are subject to break-up and often contain unstable wet zones. Seep areas must be avoided in winter because they often do not freeze. Some groundwater recharging of aquifers can also occur in these areas.

Sandy Soils: Sandy soils often are groundwater recharge areas. These areas are droughty because of low available water capacity and rapid permeability. The rapid permeability of these soils aid in ground water recharge but also provides a poor filter for contaminants. Sandy soils are subject to rutting because of their low soil strength. A gravel base often is necessary to provide adequate strength for roads and driveways. Sandy soils may also present a corrosion hazard for concrete structures.

Ravine and Floodplain Soils: These are steep, well drained to excessively drained soils on ravines. Some areas are freshly undercut by streams and are slumped. Typically these soils are stratified loamy, sandy, and clayey materials with water seeps exiting some strata. These areas are prone to slumping and instability and disturbances often result in excessive sedimentation of waterways. Ravine bottoms include alluvial deposits that are subject to flooding. Ravines and floodplains are subject to erosion problems and are generally unsuited for development. Mass soil wasting and severe gully erosion can occur unless proper safeguards are in place. Upstream watershed changes (i.e., housing, roads, and other impervious surfaces) can cause stable channels in these areas to degrade. The best practice for these areas is to maintain a permanent forest cover.

Wetland Soils: These areas are wet for part to most of the year and are typically capable of supporting wetland vegetation. Many areas do not freeze in the winter making winter logging difficult. They occur either where the groundwater table meets to surface of the land or in "perched" conditions where a confining layer in the soil retards downward flow through the soil. Because these soils are frequently wet, they present severe limitations for construction of buildings and roads. Because of the close contact with the water table, any contamination in these areas can readily spread to groundwater.

Clayey Soils: These areas include very deep, nearly level to steep soils that formed in clayey glacial till and/or clayey lacustrine deposits modified by wave action and in the underlying stratified loamy and/or sandy lacustrine deposits. The high clay content of these soils makes them susceptible to surface erosion, especially in areas where native vegetation has been removed. Because they have low soil strength when wet, a layer of cobble stone may be required under well graded, crushed rock

to reduce rutting of driveways and to support heavy vehicles such as fire trucks and snow plows. Because clay soils shrink and swell dramatically with varying moisture levels, special construction of foundations is necessary to prevent damage to buildings. The high water-holding capacity of clays encourages the use of level areas for agriculture, but clay soils also limit the availability of water to plant roots more than till soils do.

Till Soils: Till soils have a higher available water capacity, slower permeability, and higher nutrient holding capacity compared to sandy soils. Tills are best suited to growing trees and other plants. The moderate permeability of these soils aids in ground water recharge. Except in areas with steep slopes, these areas often are better suited for development because the silt and sand mixture provides soil strength for roads and foundations and filtering capability for drainage fields.

Figure A: Ashland County Generalized Soil Types - Mainland

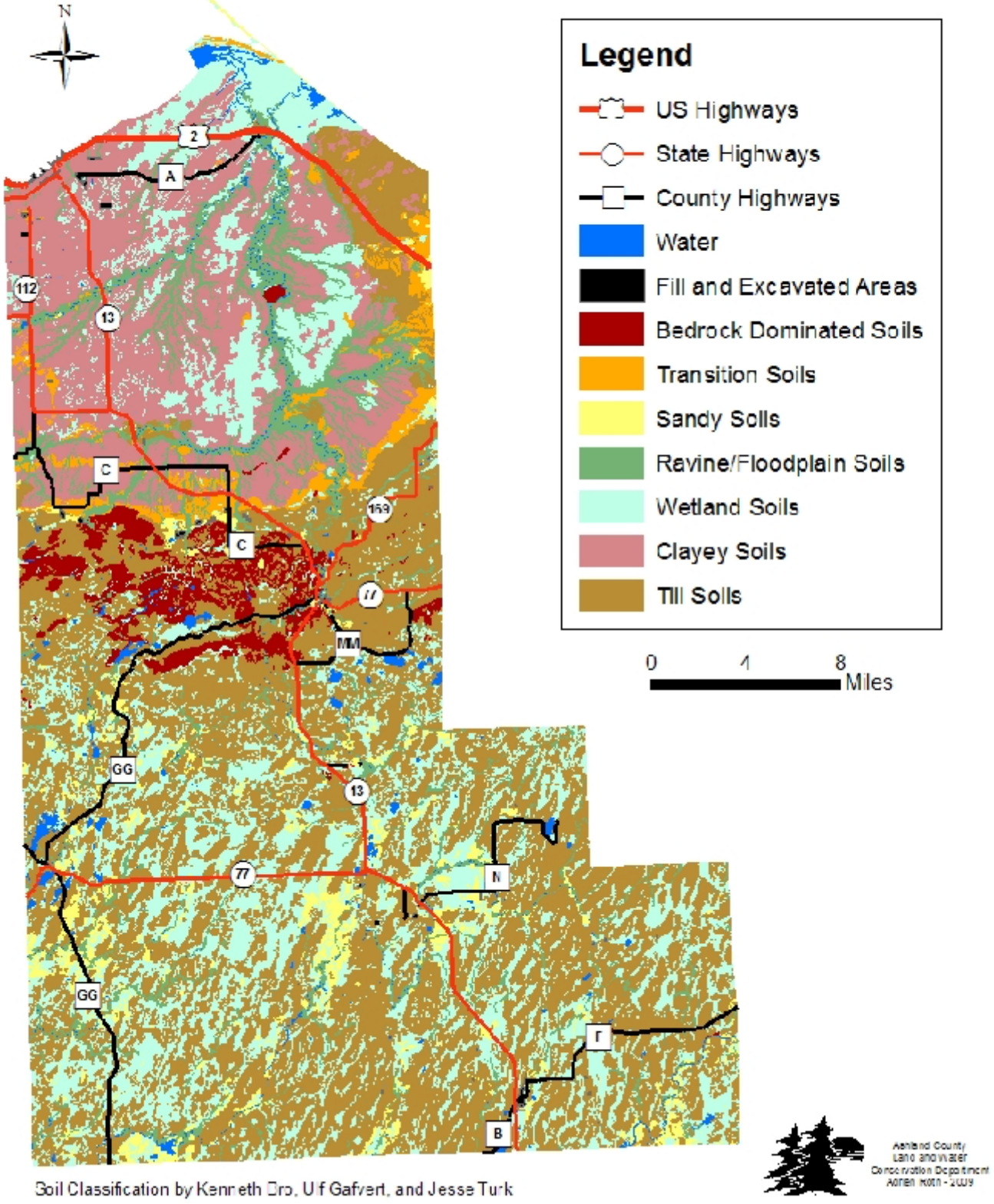
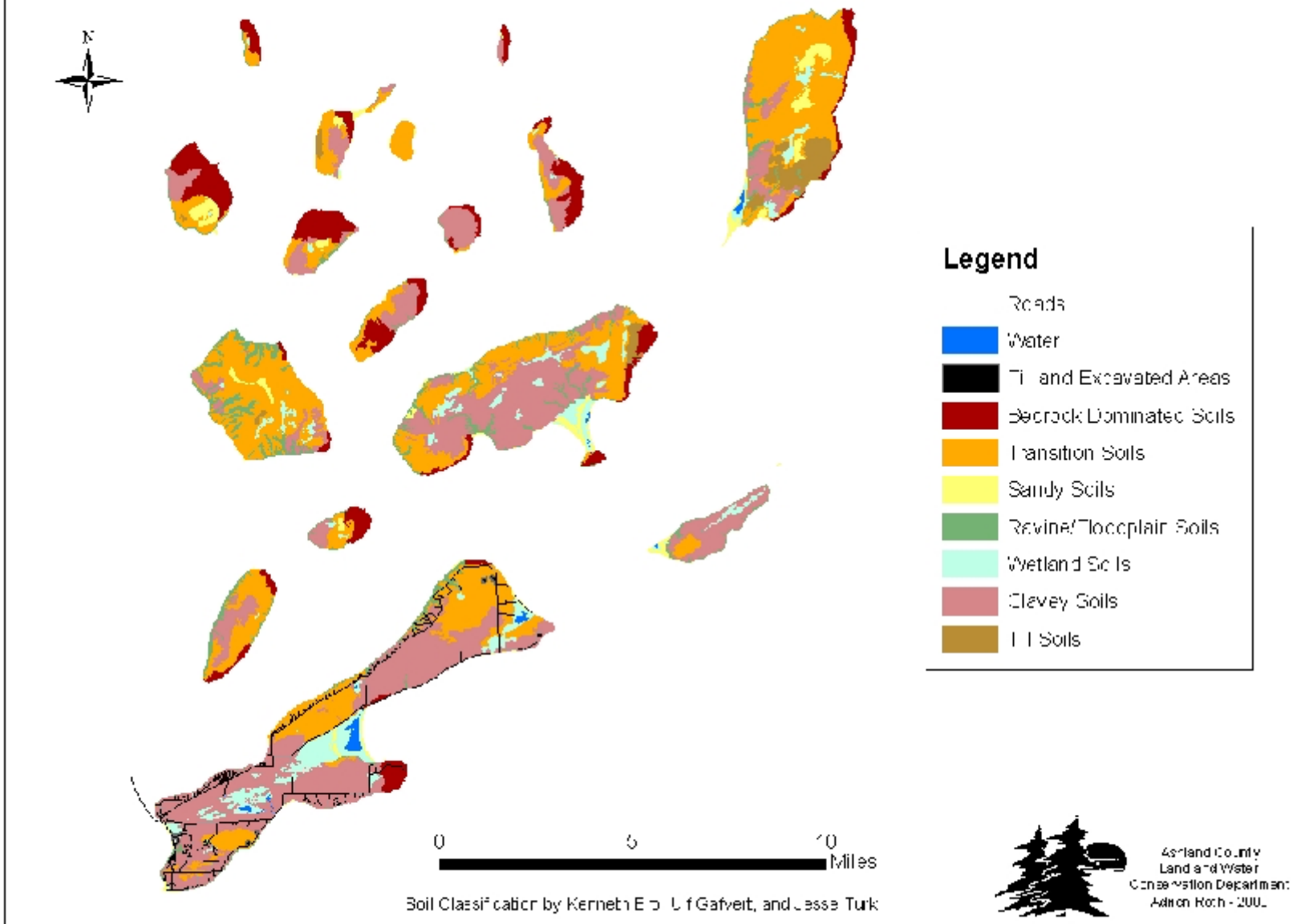


Figure B: Ashland County Generalized Soil Types - Apostle Islands



Ecological Landscapes

Ecological Landscapes are areas of Wisconsin that differ from each other in ecological attributes and management opportunities. They have unique combinations of physical and biological characteristics that make up the ecosystem, such as climate, geology, soils, water, or vegetation. They differ in levels of biological productivity, habitat suitability for wildlife, presence of rare species and natural communities, and in many other ways that affect land use and management. Two Ecological Landscapes occur within Ashland County, the Superior Coastal Plain Landscape covering the northern third of the county mainland and the Apostle Islands; and the North Central Forest Landscape covering the southern two thirds of the county mainland. Ecological Landscapes adjacent to Ashland County are the Northwest Sands and the Northern Highlands (Figure C). More information concerning these landscapes, including management opportunities and species of greatest conservation need, can be found at the following links:

Superior Coastal Plain Landscape
http://dnr.wi.gov/landscapes/index.asp?mode=detail&Landscape=1

North Central Forest Landscape
http://dnr.wi.gov/landscapes/index.asp?mode=detail&Landscape=4

Natural Communities and Forest Habitat Types

The Natural Heritage Inventory (NHI) Natural Communities and the Forest Habitat Type Classification System (FHTCS) are additional ways to describe habitat but are based on different underlying concepts and were developed for different purposes. The FHTCS is limited to forested types while the NHI system includes other vegetation types such as prairies, wet meadows, marshes, and cliffs. Consequently, cross-referencing these two classification systems is challenging. The FHTCS system is based on repeated patterns in the composition of understory vegetation in a forest stand (Kotar etal, 2002). The FHTCS can help resource managers better assess a site's habitat potential, even if stands are in less than desirable condition, and it can help identify management alternatives.

The NHI Natural Communities found in Ashland County and the forest habitat types associated with the natural communities follows. The FHTCS name is in the form of an acronym that refers to the scientific names of the three indicator species most commonly found in that habitat type.

Northern Mesic Forest (NHI)

ACaI	*Acer saccharum / Caulophyllum thalictroides - Impatiens capensis*
AH	*Acer saccharum / Hydrophyllum virginianum*
AHI	*Acer saccharum / Hydrophyllum virginianum - Impatiens capensis*
AOCa	*Acer saccharum / Osmorhiza claytoni - Caulophyllum thalictroides*
ATAtOn	*Acer saccharum - Tsuga canadensis / Athyrium filix-femina - Onoclea sensibilis*
ATD	*Acer saccharum - Tsuga canadensis / Dryopteris spinulosa*
ATM	*Acer saccharum - Tsuga canadensis / Maianthemum canadense*
TMC	*Tsuga canadensis / Maianthemum canadense - Coptis groenlandica*

Northern Dry-mesic Forest (NHI)

AVb	*Acer saccharum / Viburnum acerifolium*
AVVb	*Acer saccharum / Vaccinium angustifolium - Viburnum acerifolium*
PArVAa	*Pinus strobus - Acer rubrum / Vaccinium angustifolium - Aralia nudicaulis*

Northern Dry Forest (NHI)
Pine Barrens (NHI)

PArV	*Pinus strobus - Acer rubrum / Vaccinium angustifolium*
PQE	*Pinus strobus - Quercus rubra / Epigaea repens*

More information about the Natural Heritage Inventory (NHI) Natural Community classifications can be found at:
http://dnr.wi.gov/org/land/er/communities/pdfs/communities.pdf

More information on the Region 3 forest habitat types can be found at:
http://dnr.wi.gov/org/land/er/communities/habitats.asp?section=list&Region=3
and in the Wisconsin DNR Silviculture Handbook:
http://dnr.wi.gov/forestry/publications/Handbooks/24315/12.pdf

Vegetation and Land Cover

The Wisconsin Initiative for Statewide Cooperation on Landscape Analysis and Data (WISCLAND) developed a land cover data set that was derived primarily from 1992 satellite imagery (Figures D and E). After processing, the data have a minimum mapping unit of 5 acres, meaning that most land cover features 5 acres or larger can be resolved in the data. The classified land cover types can be summarized to indicate how much of each land cover is present over large areas of interest, such as counties or watersheds. More sophisticated analyses, such as assessing proximity or delineating land cover corridors, are possible with the appropriate application software. The land cover full data model is intended for use with the Spatial Analyst extension to ArcGIS, ArcInfo's GRID module, or ERDAS Imagine remote sensing software.

More information about the WISCLAND mapping effort can be found at:
http://www.dnr.state.wi.us/maps/gis/datalandcover.html

Figure C: Ecological Landscapes - Ashland County and Surrounding Area

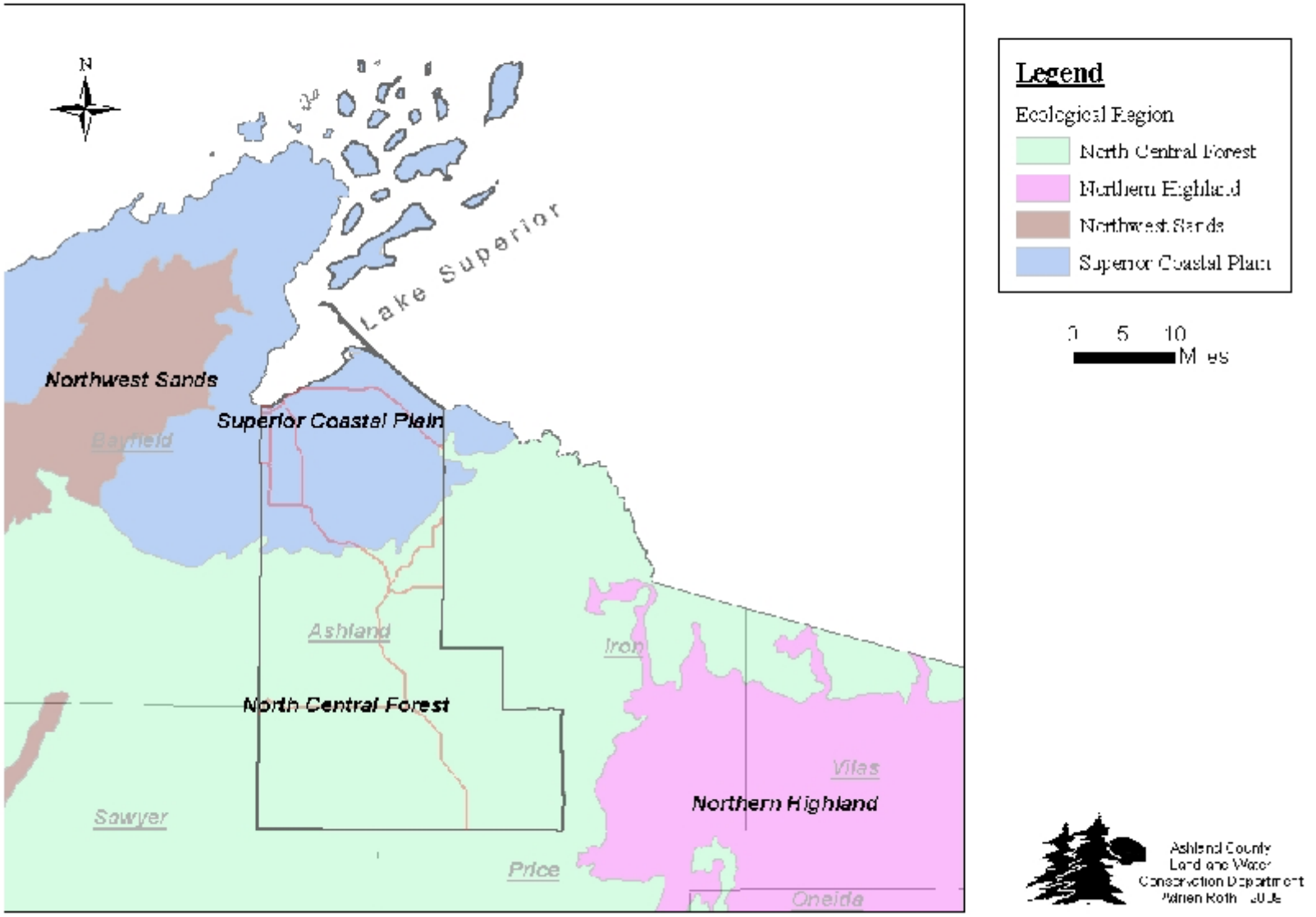


Figure D: Ashland County Landcover - Mainland

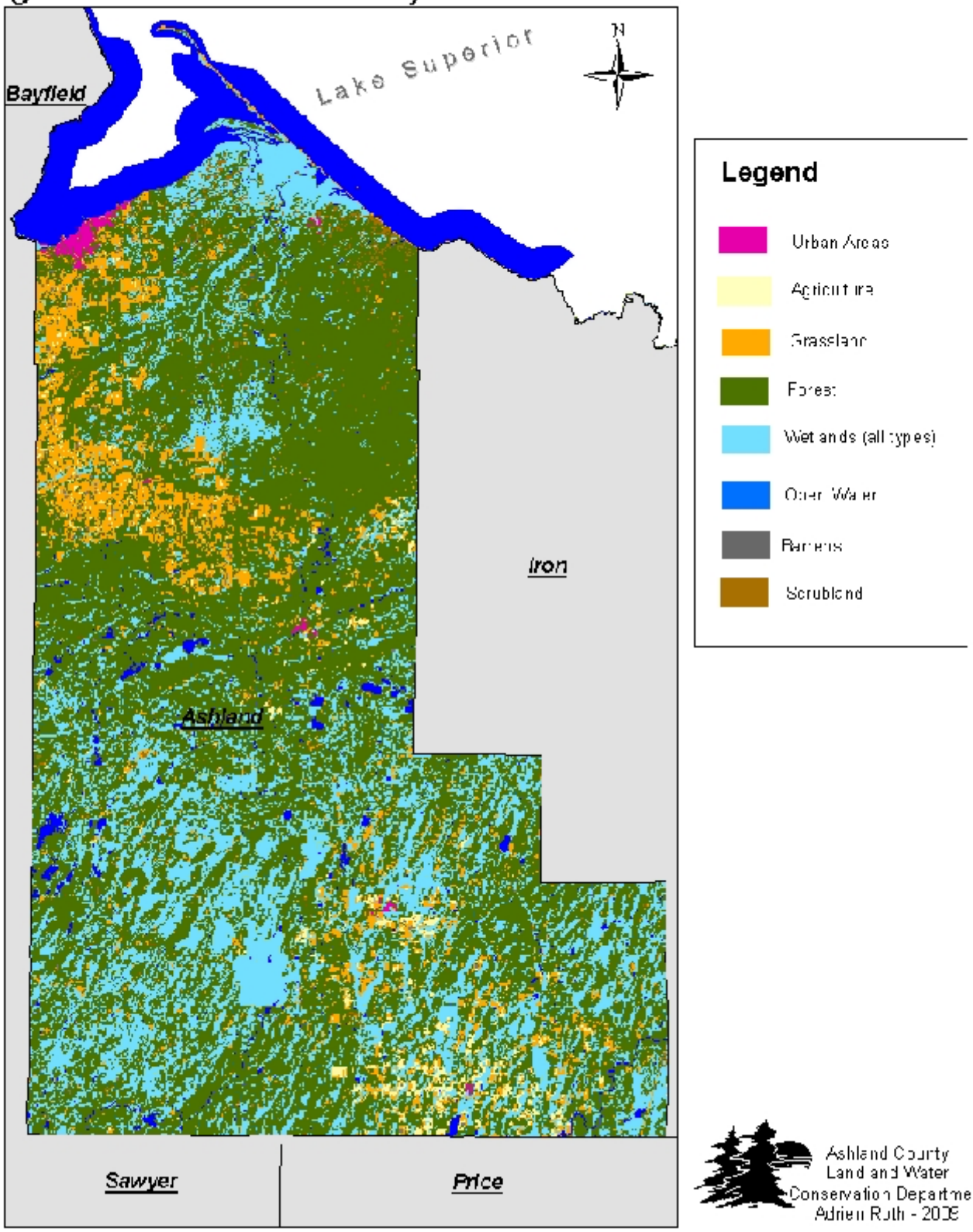
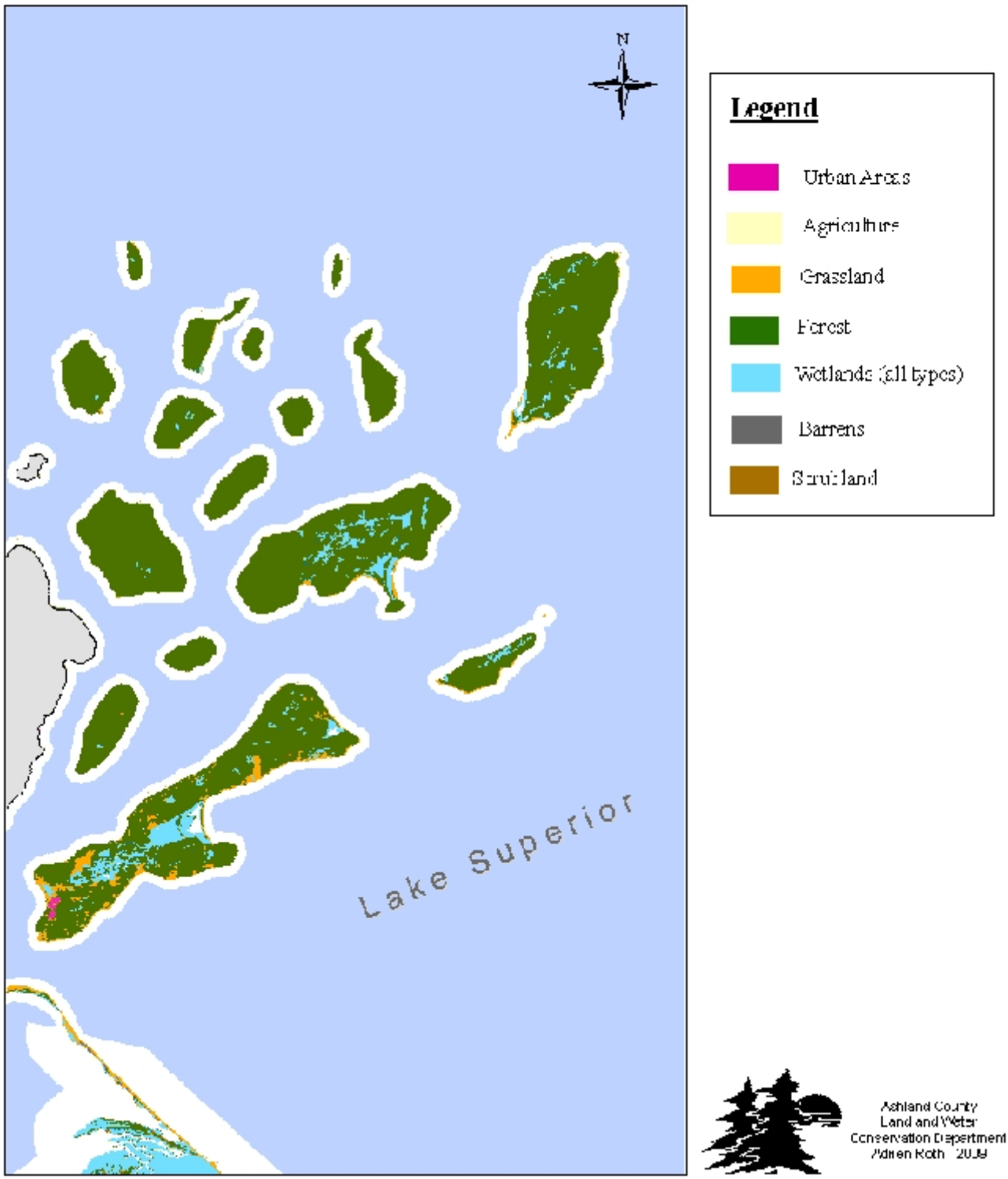


Figure E: Ashland County Landcover - Apostle Islands



Transportation System

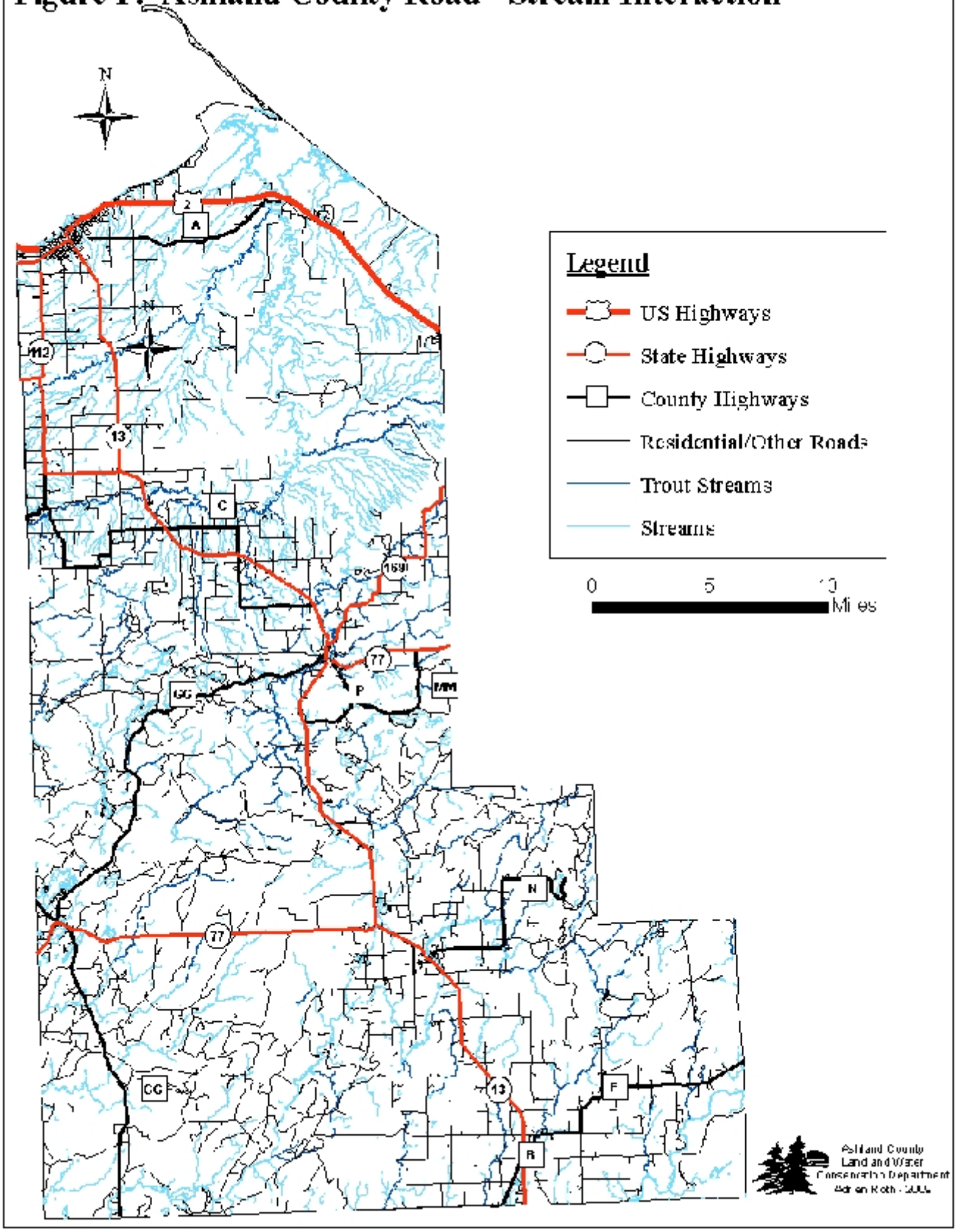
The county has experienced road construction and maintenance challenges, especially in the Lake Superior clay plain. Storm waters and snowmelt run off the impervious clay soils and sloping landscape quickly. The large volume of water and the fast runoff rate can erode streams and damage culverts and bridges constructed on them. Many crossings cannot handle water during flood events. Woody material and other debris washed in by floodwaters can block a crossing and back water up over adjacent land and over the roadway itself, resulting in severe washouts and damage to in-stream habitat. Road ditches also concentrate flow and are direct conduits to surface waters and wetlands. Ashland County contains approximately 1,167 miles of road, which includes 120 miles of State highways, 93 miles of county roads, 871 miles of local (city, village, town) roads, and 85 miles of forest and park roads. Not included in this total are the many miles of private roads, driveways, logging roads and trails that may also intersect a waterway. Figure F gives an overview of the extent of road and waterway interaction that occurs in Ashland County.

Highway E near Ashland/Bayfield County line, 2005

Silver Creek, Ashland County 2002

Other forms of transportation include Lake Superior shipping routes, motorized and non-motorized trails, air, and railroads. Harbor commerce still exists in Ashland County at the Ashland Harbor. Ninety-one short tons of coal were delivered by freighter to the Excel Energy power plant in Ashland in 2000.

Figure F: Ashland County Road - Stream Interaction



Water Resources

Ashland County's total land area covers 668,045 acres. The county has 1,250 square miles of surface water in the form of lakes, rivers, streams, and wetlands. There are 157 named lakes totaling 5,936 acres (9.28 square miles). Ashland County comprises 1.9 percent of Wisconsin's total land area and contains 1 percent of the total inland lakes in Wisconsin. Ashland County has two distinct drainage basins: the Lake Superior basin and the Mississippi basin (Figure G). All of the water that flows to the Mississippi is contained within the Upper Chippewa River sub-basin. Soil conditions, land cover, and land use vary within each basin.

Lake Superior Basin

Lake Superior has the largest surface area of fresh water in the world, second in volume only to Siberia's Lake Baikal, and is by far the deepest and cleanest of the North American "Great Lakes". The Lake Superior basin encompasses portions of Minnesota, Michigan, Ontario and Wisconsin.

The Lake Superior drainage basin in Wisconsin covers about 1.96 million acres (about 3,069 square miles) in parts of Ashland, Bayfield, Douglas and Iron Counties. Ashland County contains nearly one-third of the total Lake Superior basin in Wisconsin. The 17 Apostle Islands within Ashland County have a total shoreline length of 153 miles. The Apostle Islands are considered to be part of the Bayfield Peninsula Southeast watershed.

Most of the Wisconsin portion of the Lake Superior coastal area is composed of red clay deposits left behind by glaciers about 10,000 years ago. These geologically young deposits are highly erodible, especially in disturbed areas or on slopes. The red clay includes small particles of sand that remain behind in streambeds as the finer clay particles are carried out into the lake. Some sections of the southern portion of the basin are composed of rugged hill and kettle relief, formed by thick end moraine deposits and pitted outwash.

Ashland County contains parts of nine watersheds contributing to Lake Superior: Bayfield Peninsula Southeast, Fish Creek, Lower Bad River, White River, Potato River, Marengo River, Tyler Forks, Upper Bad River, and Montreal River (Figure G, Tables 3 and 4). Water quality in the basin is generally good, although localized point source pollution from municipal and industrial wastewater discharges have had a negative effect. Other issues, such as pollution from stormwater drains, runoff from farm fields and feedlots, and erosion from logging and construction-sites, have contributed to degraded habitat and water quality in some Ashland County streams. Additional nonpoint source pollution arises from erosion of stream banks, ditches, and lakeshores as a result of fast runoff from rain and snow events. Rapid overland flows cause streams and other channels to cut down and straighten, which in turn decreases the ability of adjacent wetlands and floodplains to store and filter water. Human changes to the landscape that increase the amount of impervious surface (buildings, parking lots, etc.) or that change drainage patterns (roads, culverts, wetland fills, etc.) further intensify the erosion problems.

The Lake Superior Basin Water Quality Management Plan (WDNR 1999) was drafted to be "A Five-Year Plan to Protect and Enhance our Water Resources". Unfortunately, due to staff and funding shortages within the WDNR, the plan has not been updated since that time. Nevertheless, the basin plan contains a wealth of information including a surface water quality report, recommendations for the entire basin and for individual watersheds within the basin, and an extensive reference section. Much of the information provided below and available on the WDNR's web sites has been extracted from this report. Efforts have been made to update the information contained in the LWRMP whenever possible.

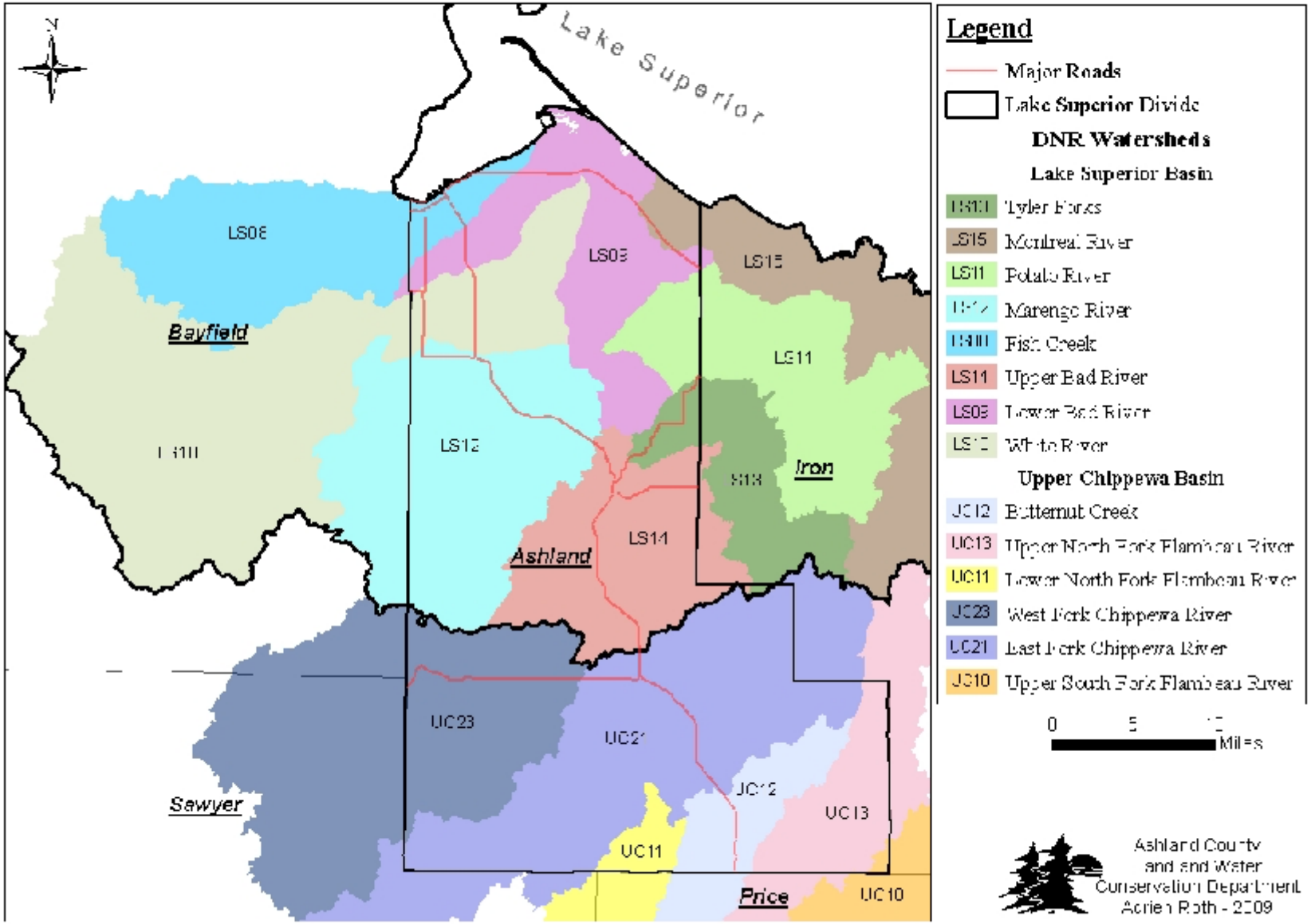
General information on the Lake Superior Basin can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/

Table 3: Watershed Overview – Lake Superior Basin

WS Code	Watershed Name	Size (ac)	% in Ashland County	Total Stream Miles
LS07	Bayfield Peninsula Southeast	192,960	24%	142
LS08	Fish Creek	100,096	25%	115
LS09	Lower Bad River	79,296	100%	129
LS10	White River	229,760	33%	271
LS11	Potato River	115,136	19%	160
LS12	Marengo River	139,200	67%	261
LS13	Tyler Forks	50,432	25%	124
LS14	Upper Bad River	86,208	89%	194
LS15	Montreal River	144,832	6%	264

Source (in part): WISCLAND and
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/Watersheds.html

Figure G: Ashland County Watersheds - Mainland



Note – the 17 Apostle Islands within Ashland County are considered part of the Bayfield Peninsula SE watershed, not depicted in Figure G.

Mississippi River Basin/Upper Chippewa River Sub-basin

The Upper Chippewa River Basin is divided from the Lower Chippewa River Basin purely for management purposes. The Upper Chippewa River Sub-basin encompasses 4,680 square miles of the Chippewa River from the headwaters downstream to the Holcombe Flowage. The basin has over 3,000 miles of rivers and streams, 156,200 acres of natural lakes, 22,711 acres of flowages, and more than 150 acres of freshwater springs.

Within Ashland County parts of six watersheds drain toward the Mississippi River: Upper South Fork Flambeau River, Lower North Fork Flambeau River, Butternut Creek, Upper North Fork Flambeau River, East Fork Chippewa River, and West Fork Chippewa River (Figure G, Tables 5 and 6).

The Upper Chippewa River Basin Water Quality Management Plan (WDNR 1996) was drafted to be "A Five-Year Plan to Protect and Enhance our Water Resources". As with the Lake Superior Basin Plan, the Upper Chippewa Basin plan has not been updated due to staff and funding shortages within the WDNR. Much of the information provided below and available on the WDNR's web sites has been extracted from this report. Efforts have been made to update the information contained in the LWRMP whenever possible.

General information on the Upper Chippewa Basin can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/upchip/index.htm

Table 4: Watershed Overview – Upper Chippewa Sub-basin

WS Code	Watershed Name	Size (ac)	Stream Miles	Lake Acres	Wetland Acres	Ashland County %
UC10	Upper South Fork Flambeau River	178,549	255	8,509	63,099	0.6%
UC11	Lower North Fork Flambeau River	98,541	172	2,087	20,812	10%
UC12	Butternut Creek	49,706	81	1,375	13,530	60%
UC13	Upper North Fork Flambeau River	101,257	164	630	33,476	34%
UC21	East Fork Chippewa River	195,300	311	2,431	65,074	70%
UC23	West Fork Chippewa River	182,257	257	6,208	60,036	39%

Source (in part): www.dnr.state.wi.us/org/gmu/upchip/watersheds

Table 5: Percent Land Use by Watershed – Upper Chippewa Sub-basin

WS Code	Watershed Name	Agricultural	Urban	Suburban	Wetland	Barren	Grassland	Forest	Open Water	Other	Ashland County %
UC10	Upper South Fork Flambeau River	1.1	0.0	0.0	35.3	1.5	2.4	51.0	5.0	3.8	0.6%
UC11	Lower North Fork Flambeau River	0.8	0.0	0.0	Missing data	0.2	4.3	69.5	3.7	21.6*	10.0%
UC12	Butternut Creek	8.6	0.1	0.1	27.2	0.3	9.0	51.3	3.0	0.4	60.0%
UC13	Upper North Fork Flambeau River	2.9	0.3	0.3	33.1	0.5	5.7	53.0	3.0	1.1	34.0%
UC21	East Fork Chippewa River	1.3	0.0	0.0	33.3	0.2	4.6	58.1	2.1	0.4	70.0%
UC23	West Fork Chippewa River	0.2	0.0	0.0	32.9	0.2	2.0	58.7	5.5	0.4	39.0%

Source (in part): www.dnr.state.wi.us/org/gmu/upchip/watersheds

* Includes wetland acreage

Lake Superior Basin Surface Waters

Lake Superior Basin, Bayfield Peninsula Southeast Watershed (LS07)

This watershed includes the eastern half of the Bayfield Peninsula and most of the Apostle Islands. The entire mainland is within Bayfield County, but the Apostle Islands (except Eagle, Sand, York, and Raspberry Islands) are considered part of Ashland County. All of the Apostle Islands except for Madeline Island are under the management of the National Park Service.

The WDNR's Natural Heritage Inventory Database documents that many water-dependent endangered, threatened or special concern species and/or communities are associated with the Apostle Islands. Several priority coastal wetland sites are found on the Apostle Islands including Big Bay on Madeline Island, Outer Island Sandspit and Lagoon, and the Stockton Island Tombolo. The Apostle Island include habitat identified by the Lake Superior Binational Program as important to the integrity of the Lake Superior ecosystem.

Madeline Island is the only Apostle Island not included in the National Lakeshore. The Lake Superior Binational Program identified a number of critical habitat sites on Madeline Island. Most of the island is privately held and experiencing development pressure.

More information on the entire Bayfield Peninsula Southeast Watershed, including water quality issues, resources of concern, priority wetland sites, and management recommendations can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/watersheds/ls07.html

More information specific to the individual streams of the Bayfield Peninsula Southeast Watershed can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/ws07.html

Lake Superior Basin, Fish Creek Watershed (LS08)

Seventy-five percent of the Fish Creek watershed lies within Bayfield County. The Ashland County portion of the watershed has a surface hydrologic connection to the rest of the watershed only in a small area that drains to the Fish Creek sloughs west of Ashland. The Elks Club Golf Course and associated developments all drain to the sloughs. The rest of the watershed in Ashland County contains Bay City Creek, which flows through the City of Ashland and numerous small streams that outlet directly to Lake Superior. Several of these small streams are completely within the City of Ashland where they function as stormwater drains for the City.

The city of Ashland draws drinking water from the lake, so sources of pollution are of increased local concern. Within Ashland County, most of the water quality issues are attributable to past and present urban and industrial impacts:

- Current WPDES permitted discharges
- Current stormwater discharges from the City of Ashland and surrounding area
- Historic contamination of Lake Superior sediments (EPA superfund site)
- Historic and current dumping in Bay City Creek and ravines
- Increasing stormwater discharges resulting from residential, commercial, and industrial development
- Occurrence of the pathogens *Cryptosporidium* and *Giardia* in outfall samples
- Increased levels of fecal coliform bacteria in Bay City Creek following rainfall events

More information on the entire Fish Creek watershed, including water quality issues, resources of concern, priority wetland sites, and management recommendations can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/watersheds/ls08.html

More information specific to the individual streams of the Fish Creek watershed can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/ws08.html

Lake Superior Basin, Lower Bad River Watershed (LS09)

The borders of this watershed have changed over the years for ecosystem management purposes. Much of the Lower Bad River watershed falls within the Bad River Band of Lake Superior Chippewa Indian Reservation. The 16,000 acre Kakagon/Bad River Sloughs receive a large amount of water flowing from and through Ashland and Bayfield Counties. These sloughs are identified as one of the priority wetlands in the Lake Superior Basin (Epstein et al. 1997). The Kakagon/Bad River Sloughs contain 10 distinct natural communities. The area is one of the largest coastal wetlands in Lake Superior and has been identified by the Lake Superior Binational Program as important to the integrity of the Lake Superior ecosystem. Data collected by the Bad River Natural Resources Department, the Bad River Watershed Association, the Nature Conservancy, and the Institute for Environmental Studies indicated the following issues and threats to the Lower Bad River Watershed:

- Elevated levels of fecal coliform bacteria due to inadequate wastewater treatment both on and off the reservation
- Forestry land use practices
- Agricultural land use practices
- Impediments to fish passage at road crossings
- Exotic species – most notably purple loosestrife, Eurasian ruffe, and sea lamprey

More information on the entire Lower Bad River watershed, including water quality issues, resources of concern, priority wetland sites, and management recommendations can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/watersheds/ls09.html

More information specific to the individual streams of the Lower Bad River watershed can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/ws09.html

Lake Superior Basin, White River Watershed (LS10)

The White River Watershed, a subwatershed of the Bad River Watershed, flows from its modest origin in Douglas County, through Bayfield County and Ashland County to its confluence with the Lower Bad River Watershed (LS09). The WDNR's White River Wildlife Area can be found east of Highway 13 in Ashland County. This area protects forest habitat and fisheries and is managed for wildlife.

Several smaller sub-watersheds, found wholly or partially in Ashland County, contribute to the White River. These sub-watersheds include the Lower White River, Meadow Creek, and Deer Creek. The White River watershed contains many miles of Class I and II trout waters, making this watershed important for the region, both ecologically and economically.

Land use in the White River watershed affects water quality of the White and Bad Rivers. Farming, logging operations, and failing municipal and private septic system likely contribute to water quality issues. Nutrient enrichment, habitat losses, sedimentation, cropland erosion, bacteriological contamination, losses in dissolved oxygen resulting from turbidity, and critical habitat for fish and wildlife competing with exotic species are a few of the issues identified in this watershed (WDNR 1999).

A group of watershed landowners and river users organized under the name of Friends of the White River and published a White River Watershed Management Plan on May 15, 2004. Its goal is to "protect and preserve the White River between Hwy 63 (Bayfield County) and Hwy 13 (Ashland County) as a natural

corridor for future generations to enjoy". Water quality, fishery improvements, walk-in public access, and ecological preservation and restoration are the major objectives outlined in the plan.

More information on the entire White River watershed, including water quality issues, resources of concern, priority wetland sites, and management recommendations can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/watersheds/ls10.html
More information specific to the individual streams of the White River watershed can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/ws10.html

Lake Superior Basin, Potato River Watershed (LS11)

The Potato River watershed has its origin in the Gogebic Range in Iron County and flows from east to northwest where it enters the Bad River. The watershed is largely forested and mostly managed for multiple-use, including commercial production. Metallic mining was common in this region and for many years was one of the largest copper and iron mining areas in the world. The Potato River contains whitewater areas and picturesque waterfalls, most notably Potato River Falls, Foster Falls, and Upson Falls, all in Iron County.

The sub-watersheds of the Lower Potato River and Vaughn Creek are found wholly or partially in Ashland County, and generally contain Class II and Class III trout streams.
Land use in the Potato River watershed affects water quality in the Potato and Lower Bad Rivers. Sedimentation, loss of habitat, reduced dissolved oxygen resulting from sedimentation, and temperature fluctuations resulting from forestry activities, nonpoint source pollution, beaver activity and municipal point source pollution are issues here (WDNR 1999).

More information on the entire Potato River watershed, including water quality issues, resources of concern, priority wetland sites, and management recommendations can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/watersheds/ls11.html
More information specific to the individual streams of the Potato River watershed can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/ws11.html

Lake Superior Basin, Marengo River Watershed (LS12)

The Marengo River Watershed originates in the granite outcroppings of the Gogebic Range within the Chequamegon National Forest of Ashland and Bayfield County. The watershed contains large tracts of agricultural land, composed of sands and red clays of old Glacial Lake Duluth. Many lakes, wetlands and small feeder streams can be found throughout this watershed.

The U.S. Forest Service Brunsweiler River Gorge Special Management Area is unique in the basin. It is a mile-long river gorge with cascading rapids, granite cliffs, hemlock, white pine and upland cedar forests containing many rare plants. The headwaters of the Brunsweiler River are also home to the USFS Spider Lake Black Ash Swamp Research Natural Area, which protects a high quality northern hardwood swamp. The USFS also manages St. Peter's Dome Area, which contains a unique geologic feature in an exposed granite dome with shaded cliffs, deep stream gorges, older hemlock forest and several rare plant species.

The Marengo River Watershed in Ashland County contains some or all of the following sub-watersheds: Upper Brunsweiler River, Lower Brunsweiler River, Marengo River Headwaters, Lower Marengo River, and Troutmere Creek. Class I, II and III Trout waters can be found in stretches throughout this watershed. Many of the smaller streams in the watershed do not have information about land use problems or impact and there is very little, if any water quality data available. Known impacts include habitat losses, iron bacteria, sedimentation and resulting reduction in dissolved oxygen, competition from

invasive species, threatened aquatic plant populations, and low macroinvertebrate species richness. These impacts stem from many sources including agricultural activities, beaver activity, point source pollution from failing private and municipal septic systems, and sources of non-point pollution.

A Nature Conservancy report prepared for a Great Lakes Protection Fund project (The Nature Conservancy 2001) contains maps showing the grassland, agricultural land, and aspen stand coverage in the watershed. Tables of wetland acres, percent wetland, lakeshore miles, river miles, road miles, and number of road/river crossings were also identified in the report. The report highlights areas that should be targeted for stream buffer restoration, retention pond construction, field filter strips, and other best management practices that will reduce flows and nonpoint pollution reaching the streams. The LWCD should take the lead in using information from this report and its own knowledge base to prioritize and address agricultural issues in this watershed.

More information on the entire Marengo River watershed, including water quality issues, resources of concern, priority wetland sites, and management recommendations can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/watersheds/ls12.html
More information specific to the individual streams of the Marengo River watershed can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/ws12.html

Lake Superior Basin, Tyler Forks Watershed (LS13)

The portion of the Tyler Forks watershed in Ashland County is relatively small – most of it lies within Iron County. All of the named streams in this watershed support trout populations, but sparse data exist on the fish populations or land use impacts. While a large percentage of the watershed is managed as county forest, livestock, barnyards and cropland were considered pollutant threats in the Ashland County portion of the watershed.

The sub-watershed found within Ashland County is called the Lower Tyler River. Named streams within the Ashland County portion of this watershed include Camp Four Creek, Feldcher Creek, Gehrman Creek, and Scott-Taylor Creek. Because many streams in this watershed lack data we do not have a good understanding of issues that are affecting the individual streams and what roles these issues play in the health of the entire watershed. The LWCD should take the lead in addressing agricultural issues in this watershed.

More information on the entire Tyler Forks watershed, including water quality issues, resources of concern, priority wetland sites, and management recommendations can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/watersheds/ls13.html
More information specific to the individual streams of the Tyler Forks watershed can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/ws13.html

Lake Superior Basin, Upper Bad River Watershed (LS14)

The Upper Bad River Watershed flows from its origin at Caroline Lake, a property owned by The Nature Conservancy (TNC), through the community of Mellen to its confluence with Tyler Forks at Copper Falls State Park. The USFS also manages McCarthy Lake and Cedars Research Natural Area at the headwaters of the Iron River to protect high quality old growth white cedar, hemlock and white pine forest, northern sedge meadow, headwater streams and a small undeveloped lake. Caroline Lake, managed as a demonstration area for watershed protection and forest best management practices, is also considered a priority wetland site in the Lake Superior Basin by the WDNR (Epstein et.al. 1997) and an area having lakewide significance by the Lake Superior Binational Program.

The sub-watersheds of the Upper Bad River watershed include Devils Creek, Minnow Creek, Iron River, Hardscrabble Creek, and the Headwaters Bad River. Iron bacteria, habitat losses, aquatic plant blooms, low macroinvertebrate richness, sedimentation, nutrient loading, and bacteriological contamination are concerns in this watershed. Likely sources may include beaver activity, natural or exacerbated hydrological modifications, cropland erosion and increased runoff, nonpoint source pollution and municipal point discharges. The LWCD should take the lead in addressing agricultural issues in this watershed.

More information on the entire Upper Bad River watershed, including water quality issues, resources of concern, priority wetland sites, and management recommendations can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/watersheds/ls14.html
More information specific to the individual streams of the Upper Bad River watershed can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/ws14.html

Lake Superior Basin, Montreal River Watershed (LS15)

This watershed stretches from the headwaters of the Montreal River, along the border with Michigan, down to Lake Superior and along the shore to the Kakagon Sloughs. Much of the Lake Superior shoreline in this watershed falls within the boundaries of the Bad River Indian Reservation, and very little of the watershed is within Ashland County. For a discussion of reservation lands, please see the Lower Bad River Watershed narrative. Much of the watershed within Iron County was heavily influenced by hard rock mining.

Named streams within the Ashland County portion of the Montreal River watershed include Bell Creek, Morrison Creek, and Nawago Creek. All of the streams within the Ashland County portion of this watershed have been classified by the WDNR as “Special Wetland Planning Streams” that contributes to the high quality coastal wetlands of the Kakagon Sloughs.

More information on the entire Montreal River watershed, including water quality issues, resources of concern, priority wetland sites, and management recommendations can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/watersheds/ls15.html
More information specific to the individual streams of the Montreal River watershed can be found on the WDNR website:
http://www.dnr.state.wi.us/org/gmu/superior/BasinPlan/ws15.html

Upper Chippewa River Basin Surface Waters

Upper Chippewa River Basin, Upper South Fork Flambeau River Watershed (UC10)

Less than 1% of this watershed is in Ashland County within the extreme southeast corner of the Town of Agenda. The majority of the watershed is in Price County, with additional acreage in Iron, Vilas and Oneida Counties.

More information on the streams within the Upper South Fork Flambeau River watershed can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/upchip/rivers/rivernarratives_uc10.htm

Upper Chippewa River Basin, Lower North Fork Flambeau River Watershed (UC11)

Ten percent of the Lower North Fork Flambeau River watershed is found in Ashland County, primarily within the Town of Chippewa.

More information on the streams within the Lower North Fork Flambeau River watershed can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/upchip/rivers/rivernarratives_uc11.htm

Upper Chippewa River Basin, Butternut Creek Watershed (UC12)

Sixty percent of the Butternut Creek watershed is found in Ashland County, within the Towns of Chippewa, Agenda, and Peeksville. Butternut Creek flows through Butternut Lake and enters the North Fork of the Flambeau River. Butternut Lake, a eutrophic lake, is part of the statewide Long-Term Trend Monitoring program (See Lakes Report). A portion of Butternut Creek upstream of the lake is listed as Class III trout water in the Wisconsin Trout Stream Book. This segment is marginal as trout water (Lealos 1993). Data from the 1970s indicate some impact from the village of Butternut Wastewater Treatment Plant, which discharged to the creek above Butternut Lake. The treatment plant has since gone to a groundwater discharge. There are two veneer mills in the village of Butternut that have had spills which could affect Butternut Creek or the lake. We have no recent information to characterize the water quality status of Butternut Creek. Town and country roads and other nonpoint sources may contribute excess sediment to the stream

More information on the streams within the Butternut Creek watershed can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/upchip/rivers/rivernarratives_uc12.htm

Upper Chippewa River Basin, Upper North Fork Flambeau River Watershed (UC13)

Thirty-four percent of this watershed is within Ashland County with the remainder found in Iron and Price Counties. This watershed begins at the Turtle Flambeau Flowage in Iron County and flows through southern Ashland County. Many small streams, mostly trout waters, feed the North Fork of the Flambeau. Generally, this watershed shows excellent water quality and little or no known organic pollution. This is a mostly forested watershed. Water quality monitoring is recommended and work with the Flambeau Paper Corporation should continue. Deer, Bosner, Hoffman, and the Flambeau Rivers are cold-water fisheries with beaver dam concerns. Ashland County recommendations include conducting water quality monitoring from the Turtle-Flambeau Flowage to Park Falls to test for water quality problems.

More information on the streams within the Upper North Fork Flambeau River watershed can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/upchip/rivers/rivernarratives_uc13.htm

Upper Chippewa River Basin, East Fork Chippewa River Watershed (UC21)

This watershed has 17 listed trout streams, more than any other watershed in the Upper Chippewa River Basin. Mostly covered by wetland and forest, nonpoint source pollution is probably not widespread here, but agriculture is scattered throughout the watershed. No use information is available for many of the watershed's streams, and with the exception of the East Fork of the Chippewa River, current water quality data for most of these streams is lacking. The part of the watershed located in the Chequamegon National Forest in southwestern Ashland County has also had very little fisheries survey work. Glidden and Shannagolden are the only two communities in the watershed. Glidden maintains a wastewater treatment plant that discharges into the East Fork of the Chippewa. Virtually all trout streams in this watershed have beaver dams. There is some scattered agriculture with the potential to cause local water quality effects to trout streams.

More information on the streams within the East Fork Chippewa River watershed can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/upchip/rivers/rivernarratives_uc21.htm

Upper Chippewa River Basin, West Fork Chippewa River Watershed (UC23)

This watershed includes the drainage of the West Fork Chippewa River above the Chippewa Flowage, a portion of the headwaters are found in Ashland County. Day Lake Flowage, Twin Lakes, Woodtick Lake, Dead Horse Slough, Dingdong Creek, Clam Lake, Mud Lake, West Torch River, East Torch River, Moose River, Black Creek, Upper Clam Lake, Little Clam Lake, and McLaren Lake all comprise this watershed in Ashland County. WDNR suggested regional basin management team activities include water quality monitoring on the West Fork to determine if there are water quality problems, assess the threat of beaver activity, sample fish for mercury in sections of this watershed, conduct point source impact study on the West Fork, and aquatic plant surveys to establish sensitive area designations. We have no data on many streams in this watershed, or they are listed as only supporting a warm water forage fishery.

More information on the streams within the West Fork Chippewa River watershed can be found on the WDNR website:

http://www.dnr.state.wi.us/org/gmu/upchip/rivers/rivernarratives_uc23.htm

Impaired and Imperiled Waters

303(d) Impaired Waters: Impaired waters are those waters that are not meeting state water quality standards as defined by Section 303(d) of the federal Clean Water Act. Every two years, states are required to submit a list of impaired waters to the United States Environmental Protection Agency (USEPA) for approval. The Wisconsin Department of Natural Resources (WDNR) previously submitted lists to the USEPA in 1998, 2002, 2004, 2006, and 2008. The USEPA did not require and the WDNR did not submit a list in 2000. The Clean Water Act requires each state to publish updated lists of streams and lakes that are not meeting water quality standards and designated uses. Designated uses are goals or intended uses for surface waterbodies in Wisconsin which are classified into the categories of recreation, public health and welfare, wildlife, and fish and aquatic life. The designated uses are described in detail in Chapter NR102 of the Wisconsin Administrative Code. The draft 2010 303(d) impaired waters list contains the following sites in Ashland County. The list is currently available for a 45-day public comment period from December 1, 2009 through January 15, 2010. Because the 2010 list has not yet been approved by the USEPA, please consult the WDNR website for the most current information: http://www.dnr.state.wi.us/org/water/wm/wqs/303d/303d.html

Table 6: 2010 Proposed 303(D) list for Ashland County

Waterbody	Category	Pollutants	Impairments
Chequamegon Bay - Ashland Coal Tar Site	Contaminated Sediment	PAHs	Chronic Aquatic Toxicity, Contaminated Sediment
Chequamegon Bay - Maslowski Beach	Other Factors	Escherichia coli	Recreational Restrictions - Pathogens
Bear Lake	Atmospheric Deposition	Mercury	Contaminated Fish Tissue
Black Lake	Atmospheric Deposition	Mercury	Contaminated Fish Tissue
Butternut Lake	Atmospheric Deposition	Mercury	Contaminated Fish Tissue
Day Lake	Atmospheric Deposition	Mercury	Contaminated Fish Tissue
English Lake	Atmospheric Deposition	Mercury	Contaminated Fish Tissue
Gates Lake	Atmospheric Deposition	Mercury	Contaminated Fish Tissue
Lake Galilee	Atmospheric Deposition	Mercury	Contaminated Fish Tissue
Lake Three	Atmospheric Deposition	Mercury	Contaminated Fish Tissue
Mineral Lake	Atmospheric Deposition	Mercury	Contaminated Fish Tissue
Potter Lake	Atmospheric Deposition	Mercury	Contaminated Fish Tissue
Spider Lake	Atmospheric Deposition	Mercury	Contaminated Fish Tissue
Spillerberg Lake	Atmospheric Deposition	Mercury	Contaminated Fish Tissue

Fish Consumption Advisories

In 2001, Wisconsin began to provide consumption advice on eating fish caught from all Wisconsin waters. Prior to that, advice was given only for specific surface waters. The change reflects recent scientific findings and the recommendation of Wisconsin's top medical official to use a standard that better protects human health. It is also based on the mercury concentrations found in Wisconsin fish. As a result, most - but not all - inland waters carry the same statewide advice for how many meals of fish people can safely eat while reducing their risk of exposure to mercury. There are separate recommendations for sensitive populations including pregnant women and young children and for all other individuals.

More information of fish consumption advisories, including recommendations for specific waters within Ashland County can be found on the WDNR website at:

http://www.dnr.wi.gov/fish/consumption/

Wisconsin Beach Monitoring Program

2009 marks the seventh year for the Wisconsin Beach Program. In 2003, the Wisconsin Department of Natural Resources, in cooperation with local, state and federal authorities, began implementation of the federal BEACH (Beaches Environmental Assessment and Coastal Health) Act of 2000. The BEACH Act is an amendment to the Clean Water Act requiring all coastal states, including Great Lakes states, to develop programs for effective water quality monitoring and public notification at coastal recreational beaches. The US Environmental Protection Agency has made grants available to participating states to develop and implement a statewide beach program. The WDNR offers grant support to communities along Lake Michigan and Lake Superior to monitor beach water for elevated E.coli levels. This information helps the community health officials notify the public so beach visitors can make informed choices about how to use the beach. The information collected through the program is made available to the public so beach visitors can make informed choices about how to use beach water resources.

There are currently three City of Ashland and four Madeline Island beaches being monitored. For the years 2003 through 2007, the percent of beach samples in Ashland County that exceeded safe levels of E.coli ranged from a low of 3.2% in 2003 to 10.2% in 2004.

For more information on the beach monitoring program visit the following websites:
http://www.dnr.state.wi.us/org/water/wm/wqs/beaches/
http://www.dnr.state.wi.us/org/water/wm/wqs/beaches/AnnualReport2007.pdf
http://www.wibeaches.us/traverse/f?p=BEACH:HOME:127335791248841

Wetlands

Wetlands are defined as areas where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and contains soils indicative of wet conditions. Wetlands can be seasonal or permanent. There are 11 wetland community types identified in the Lake Superior area (Eggers and Reed 1997), and many of these occur within Ashland County. The community types are alder thicket, coniferous bog, coniferous swamp, fen, floodplain forest, lowland hardwood swamp, marsh, open bog, seasonally flooded basin, sedge meadow, and shrub carr. Wetlands can be found throughout Ashland County (Figure H, Figure I), the Wisconsin Wetland Inventory Maps (WWI) indicated that Ashland County had 168,388 acres of wetland out of a total surface area of 668,103 acres (25.2% of the county). Ashland County's wetlands make up 3.1% of the state total.

More information on the wetland community types of the Lake Superior area can be found on the website of the Wisconsin Wetlands organization:
http://www.wisconsinwetlands.org/wetlofwisc.htm

Historically, wetlands were thought of as wastelands, serving no particular function on the landscape. We now know that wetlands have many important functions and are considered the "kidneys" of a watershed. Wetlands filter pollutants before they enter surface and groundwater, provide critical habitat and increase habitat diversity for both fish and wildlife, reduce flooding by storing and slowly releasing water from rain and snowmelt, reduce peak stormwater flows, and serve as recharge and discharge areas for groundwater. Many rare, threatened and endangered species are found in wetlands. Draining and filling wetlands remove these valuable functions.

Priority wetland and aquatic sites in Ashland County have been previously identified (Epstein et.al. 1997; WDNR 1999). The Wisconsin portion of the Lake Superior Basin contains rare coastal wetlands not found anywhere else in the entire basin, and the aquatic sites should be protected and managed to sustain and improve rare taxa or high species diversity. The priority wetland sites include Big Bay on Madeline Island, the Outer Island sandspit and lagoon, Stockton Island tombolo, Fish Creek slough, Long Island/Chequamegon Point, Bad River/Kakagon sloughs, White River, and Caroline Lake wetlands. In addition to the wetlands themselves, the WDNR has also classified many Ashland County tributaries as "wetland waters" – surface waters that are hydrologically connected to ecologically significant coastal wetlands of Lake Superior.

Wetland restoration projects continue to be implemented by the Ashland County land & Water Conservation Department and partner agencies and organizations. This multi-agency habitat team has involved representatives of the Lake Superior Land & Water Conservation Departments, Natural Resources Conservation Service, Wisconsin Department of Natural Resources, the U.S. Fish & Wildlife Service, the Bad River Band of Lake Superior Chippewa, the Red Cliff Band of Lake Superior Chippewa, the Nature Conservancy, Sigurd Olson Environmental Institute, Ducks Unlimited and the Great Lakes Indian Fish and Wildlife Service

Figure H: Ashland County Wetlands - Mainland

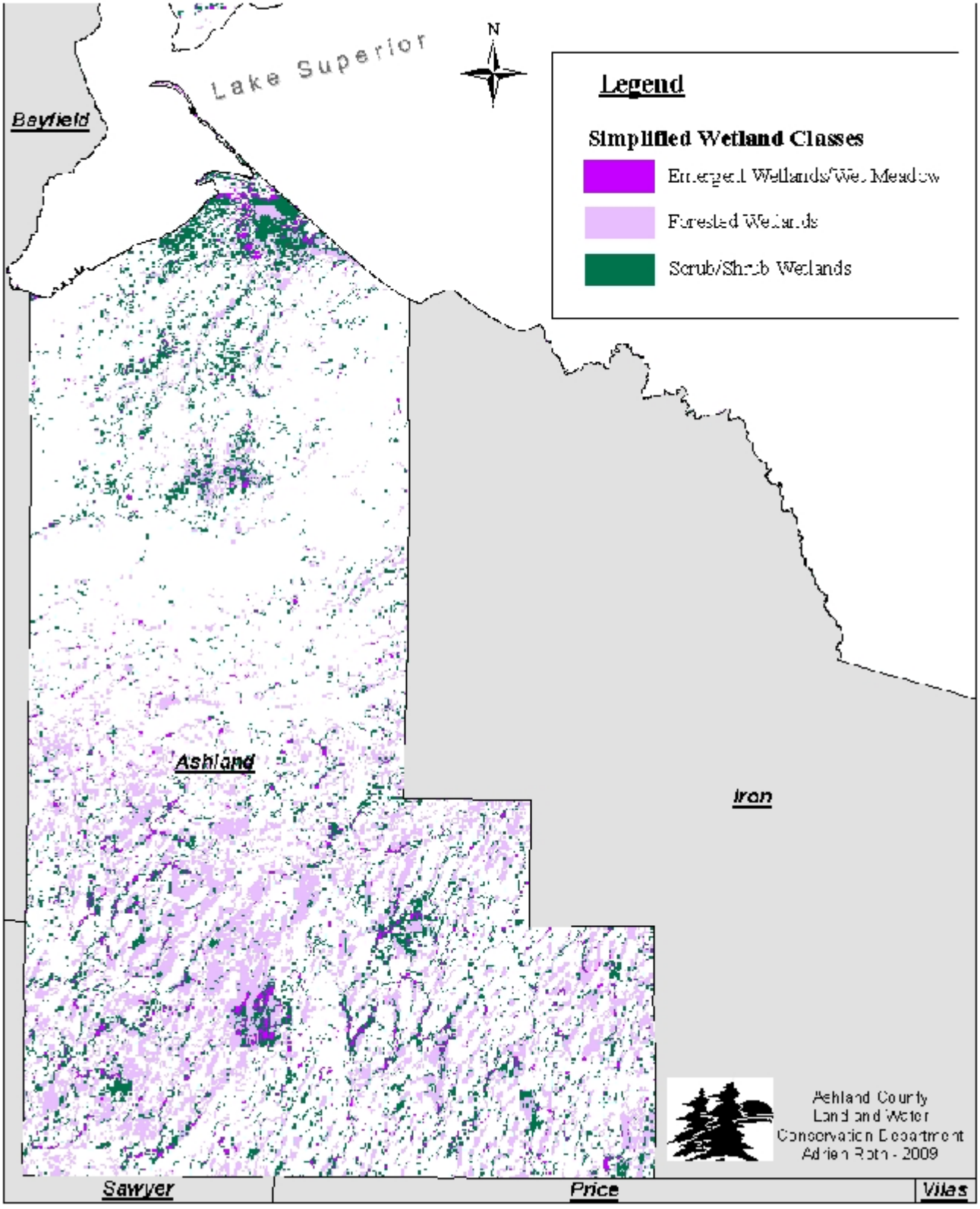
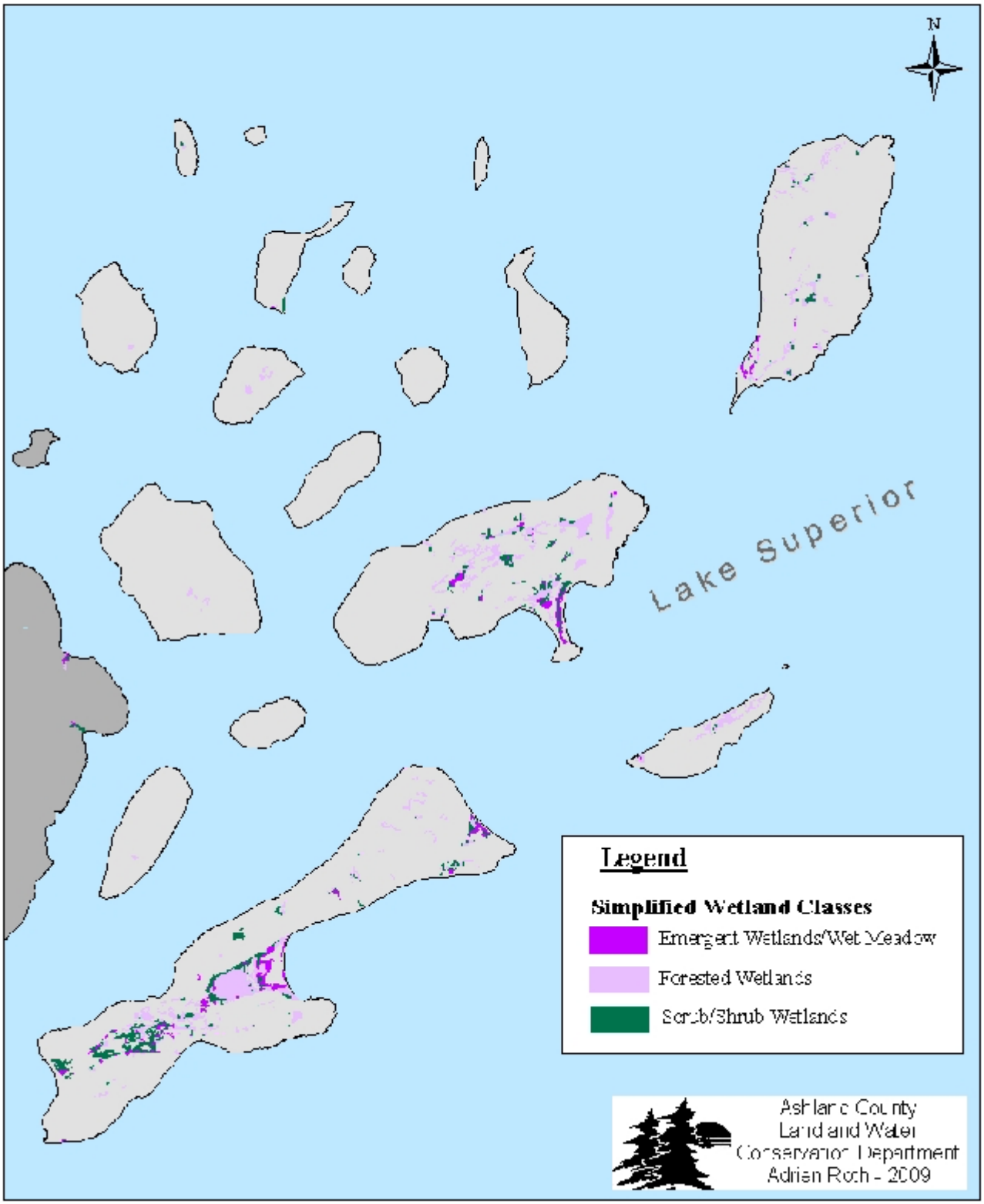


Figure I: Ashland County Wetlands - Apostle Islands



Riparian Areas

Riparian areas are lands in or abutting lakes, rivers or streams and open water wetlands. They have become ever more popular for residential building because of their natural scenic beauty and recreation and wildlife viewing opportunities. Shorelands, however, provide much more than desirable human habitat. Many aquatic and terrestrial animal and plant species depend on riparian lands to survive. Undisturbed riparian zones act as buffers by filtering pollutants before they enter surface water and control bank erosion by protecting soil from the impacts of wave action and runoff. Riparian protection can be accomplished through regulatory and voluntary efforts.

Outstanding Resource Waters (ORW) and Exceptional Resource Waters (ERW)

In response to requirements of the Clean Water Act, Wisconsin adopted a new anti-degradation policy in 1989. Since that time, Wisconsin has identified outstanding and exceptional resource waters in the NR 102 of the Wisconsin Administrative Code. In 2006 the Wisconsin legislature approved additions to the list of ORW and ERW classifications. In Ashland County, many stream segments retain these classifications (Appendix B6). ORWs receive the state's highest protection standards, with ERWs a close second. ORWs and ERWs share many of the same environmental and ecological characteristics. They differ in the types of discharges each receives, and the level of protection established for the waterway after it is designated. ORWs typically do not have any point sources discharging pollutants directly to the water (for instance, no industrial sources or municipal sewage treatment plants), though they may receive runoff from nonpoint sources. New discharges may be permitted only if their effluent quality is equal to or better than the background water quality of that waterway at all times—no increases of pollutant levels are allowed. If a waterbody has existing point sources at the time of designation, it is more likely to be designated as an ERW. Like ORWs, dischargers to ERW waters are required to maintain background water quality levels; however, exceptions can be made for certain situations when an increase of pollutant loading to an ERW is warranted because human health would otherwise be compromised.

Groundwater

The source of drinking water for the City of Ashland is Lake Superior, but groundwater is the primary source of drinking water for most Ashland County residents, conveyed through private wells or municipal water systems. As with 70% of the state, the sand and gravel aquifer is the main source of groundwater. This aquifer includes primarily glacial deposits of unconsolidated sand and gravel. It is not a continuous layer, but rather is deposited in lenses or layers of sand and gravel interspersed with other fine-grained or low permeability deposits. As a result, well yields vary and depend primarily on the permeability and thickness of the sand and gravel at a particular location The Status of Groundwater Quantity Report (WDNR 1997) states that groundwater in general is abundant in Ashland County. Statewide there is a concern about the overall amount of water being removed from the aquifer and how it may affect the base flow streams and water levels in our lakes and wetlands - although this may not affect this county at this time. While groundwater quantity problems occur naturally, they can be accelerated by human activities such as high capacity wells.

Extensive information about groundwater has been compiled in a web site developed by the UW-Extension Center for Land Use Education and the USGS Wisconsin Water Science Center titled *Protecting Wisconsin's Groundwater through Comprehensive Planning:*

http://wi.water.usgs.gov/gwcomp/.

The purpose of the web site is to make Wisconsin groundwater information and data accessible and usable, thereby encouraging government officials and planners to incorporate groundwater into their comprehensive-planning processes. Comprehensive plans that adequately address the range of groundwater issues will play a very important role in protecting the groundwater resources of their communities and the state. Information specific to Ashland County can be found on the internet at the following address:

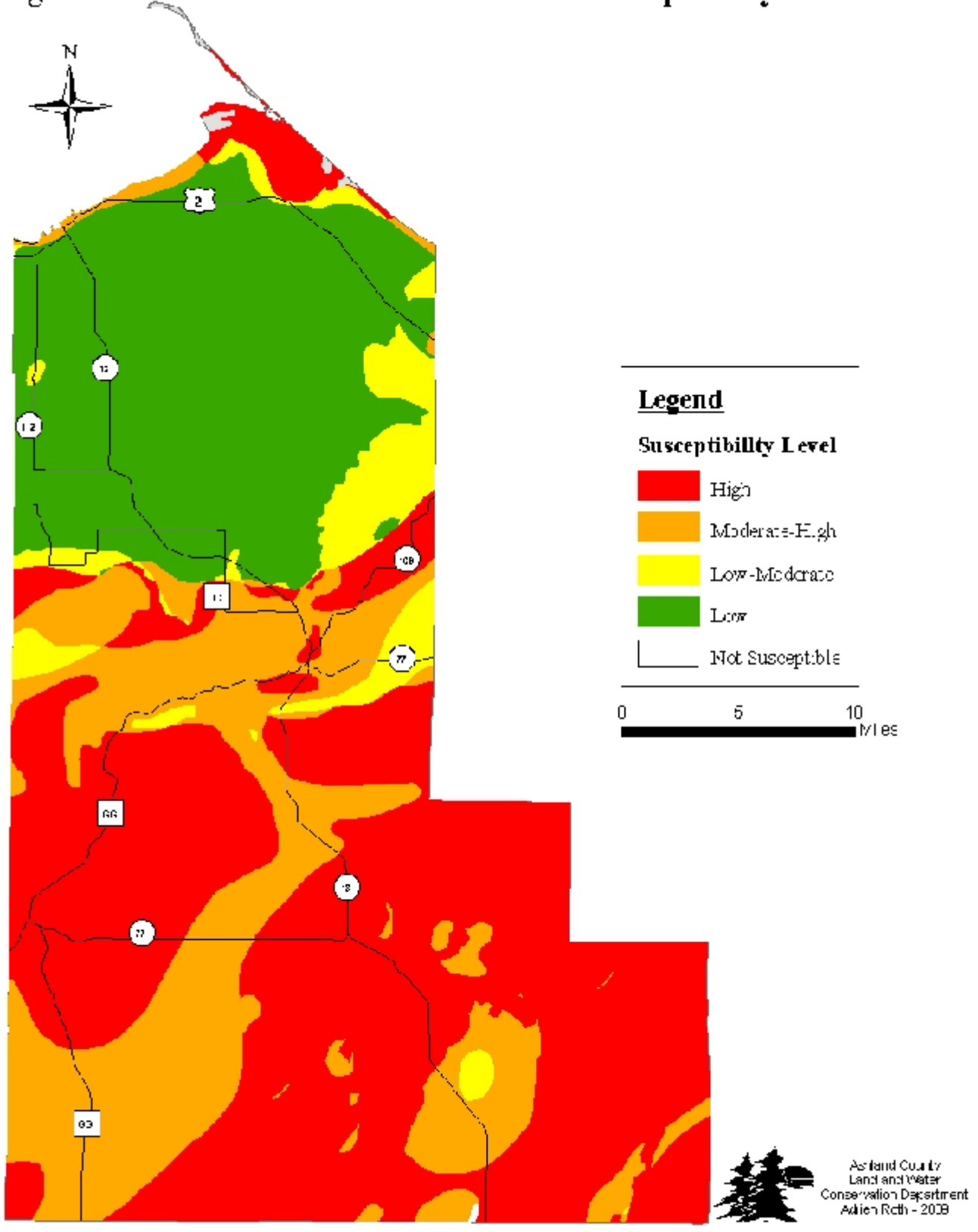
http://wi.water.usgs.gov/gwcomp/find/ashland/index_full.html

Some of the notable information concerning Ashland County groundwater from the website includes:

- Ashland County has four municipal water systems – the Ashland Water Utility (Lake Superior source), the Butternut Waterworks, the Glidden Sanitary District, and the Mellen Water Utility. Of these systems, none have wellhead protection ordinances, and only the Butternut Waterworks has a wellhead protection plan for their wells.
- Ashland County has not adopted an animal waste storage ordinance that may help to protect the groundwater and surface water resources.
- As of May 31, 2007, over 8 million dollars ($514 per county resident) had been spent on petroleum cleanup from leaking underground storage tanks.
- From 1979 to 2004 (not including thermoelectric and mining use), total water use in the county increased from just over 3.2 million gallons per day to over 4.5 million gallons per day, due primarily to the increase in industrial use.
- Groundwater contamination susceptibility is generally low in the northern part of Ashland County, but moderately high to high in the southern part of the county, along the Lake Superior shoreline, and portions of the Apostle Islands including Madeline Island (Figures J and K).

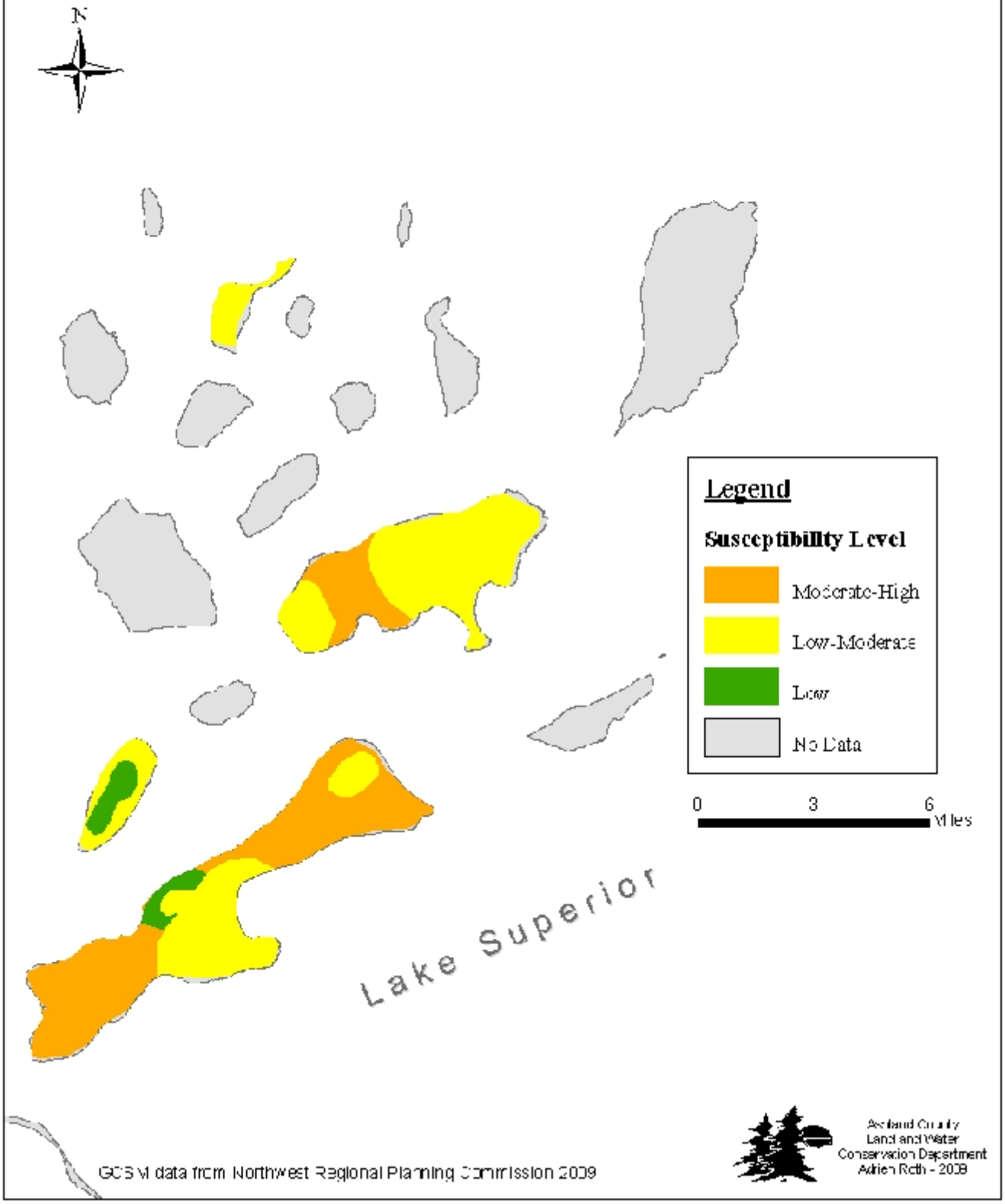
Misuse of pesticides and fertilizers, petroleum and hazardous waste spills, and illegal dumping are some of the threats to groundwater. Instituting wellhead protection plans and an animal waste storage ordinance are two methods that could be used to protect our groundwater. Failing that, using best management practices to prevent misuse and accidents can help prevent groundwater contamination.

Figure J: Groundwater Contamination Susceptibility - Mainland



GCS Mi data from Northwest Regional Planning Commission 2009

Figure K: Groundwater Contamination Susceptibility
Apostle Islands



Invasive Species

Wisconsin faces an onslaught of invasive species from other regions and countries. Non-native plants, animals and pathogens displace native species, disrupt ecosystems, and harm recreational activities such as fishing, boating, and hiking. They also damage commercial, agricultural, and aquacultural resources. Some invasive species may cause human health problems. Nationwide, control efforts and ecological effects of invasive species cost an estimated $137 billion per year. Because they lack the predators and competitors they faced in their homelands, invasive species can spread rapidly and aggressively. Controlling invasive species is difficult, and getting rid of them is often impossible. People play a major role in spreading invasive species and can also help keep them from spreading.

The Department of Natural Resources and the Wisconsin Council on Invasive Species have been working over the last four years to develop rules to classify and regulate invasive species. The purpose of these rules is to prevent and minimize the introduction and spread of invasive species in the state. The key components of the rule package include: 1) the legal classification categories - prohibited and restricted; 2) criteria for classifying species; 3) a listing or identification of invasive species by category; 4) actions that would be prohibited or restricted; 5) exemptions for possession, sale or other activities involving some invasive species under specific conditions or when authorized by a permit from the Department 6) control requirements and 7) specific enforcement actions that could be taken.

Chapter NR 40 - Invasive Species Identification, Classification and Control (August, 2009) identifies invasive species as prohibited or restricted in each of the following categories:

- Algae and cyanobacteria
- Plants
- Fish and crayfish
- Aquatic invertebrates except crayfish
- Terrestrial invertebrates and plant disease−causing microorganisms
- Terrestrial and aquatic vertebrates except fish

The Chapter NR 40 rule also contains provisions for preventative measures, enforcement, and interagency coordination. The current list of Wisconsin NR 40 classified plants, including fact sheets, literature reviews, and photo galleries can be found at the following internet location:

http://dnr.wi.gov/invasives/classplants.asp

The current list of Wisconsin NR 40 classified animals, fish, algae and other species - including fact sheets, literature reviews, and photo galleries can be found at the following internet location:

http://dnr.wi.gov/invasives/classanimals.asp

Additional information about invasive species in general can be found on the web in many locations including:

http://dnr.wi.gov/invasives/
http://www.glifwc-maps.org/
http://nas.er.usgs.gov/queries/default.asp

Although all invasive species pose threats to the people and resources of Ashland County, our proximity to Lake Superior along with extensive wetlands, rivers and streams make prevention and control of aquatic invasive species (AIS) a high priority. Bayfield County to the west and Iron County to the east both have AIS program specialists funded through grants from the WDNR at this time. Additional information on aquatic invasive species and AIS laws in Wisconsin can be found on the WDNR website at:

http://dnr.wi.gov/invasives/aquatic/
http://dnr.wi.gov/invasives/aquatic/laws/

Current as of August, 2009, the following aquatic invasive species are known to occur in Ashland County.

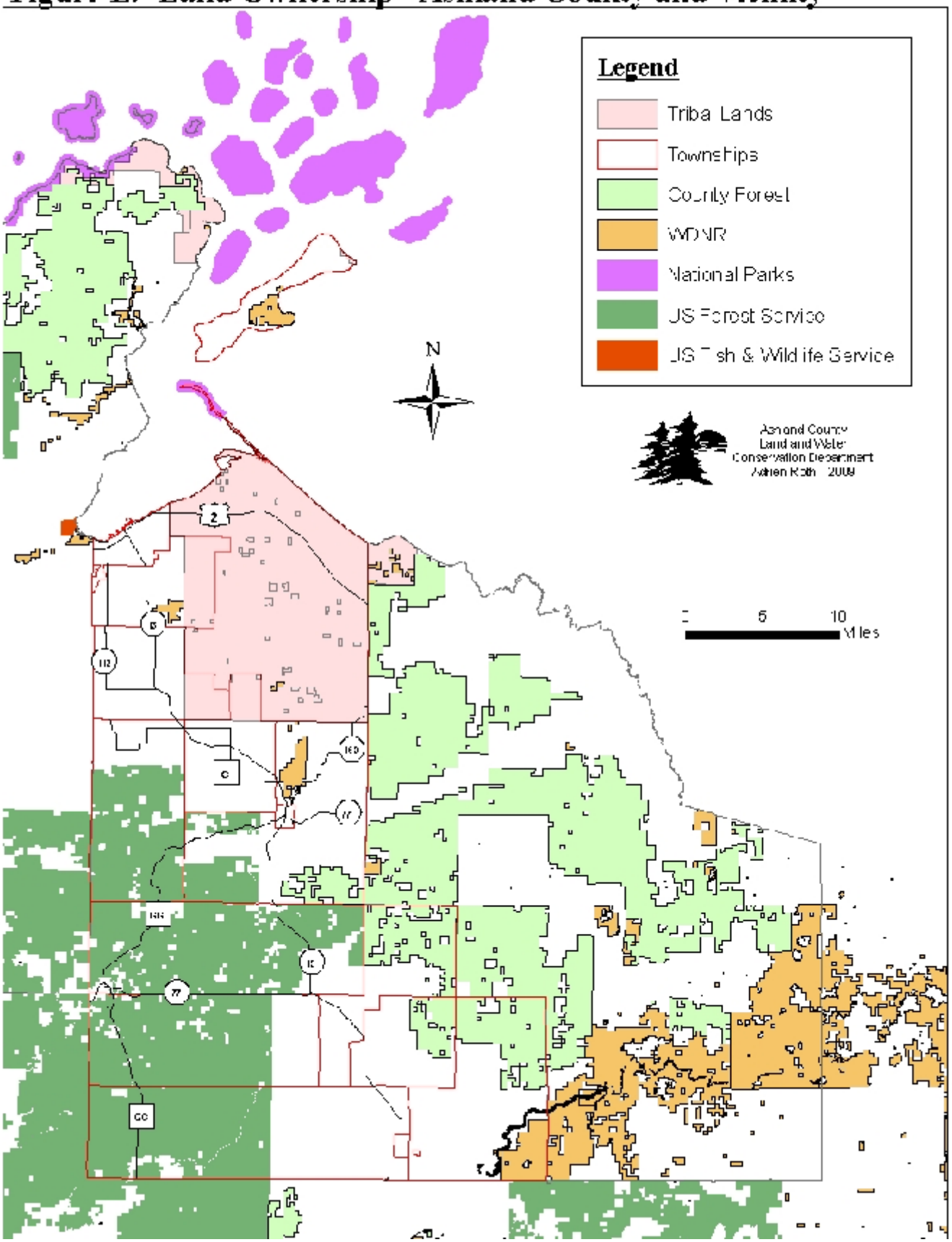
- Banded Mystery Snail
- Chinese Mystery Snail
- Curly-Leaf Pondweed
- Eurasian Water-Milfoil
- Eurasian Water-Milfoil / Northern Milfoil Hybrid
- Freshwater Jellyfish (non-native but not invasive)
- Japanese Mystery Snail
- Purple Loosestrife
- Rainbow Smelt
- Rusty Crayfish
- Spiny Waterflea
- Viral Hemorrhagic Septicemia
- Zebra Mussels

Land Ownership and Use

Federal, state, county and municipal lands make up a significant portion of Ashland County's land base with over 272,571 acres in public ownership (Figure L). The Bad River Band of Lake Superior Chippewa Indian Reservation lands also comprise a significant portion of the county. Both public and tribal lands are managed by their respective land management departments. The balance of land is in private ownership and is managed privately, or with assistance from public agencies involved with land management including the LWCD, NRCS, FWS and DNR.

A vast majority of the county is forested and dotted with lakes and wetlands. However, a significant portion of Ashland's clay plain in the Lake Superior basin is in agricultural production. This area is mostly highly productive grassland, with some row crops and small grains grown for seed and forage. The mix of agriculture, grassland, forest and wetlands, bisected by numerous streams and ravines creates important habitat for a wide variety of grassland songbirds, migratory birds and other wildlife species. The lands that are reverting to trees and shrubs provide important edge habitat for small and big game species. The LWCD continues to consult and cooperate with the WDNR and FWS to consider the needs of all wildlife species when planning and implementing conservation projects.

Figure L: Land Ownership - Ashland County and Vicinity



Comprehensive Planning

All of the Towns in Ashland County, the City of Ashland, the City of Mellen, the Village of Butternut, and Ashland County completed their comprehensive plans between 2005 and 2007. These plans are being used to guide the future of the Cities, Village, Towns and County and also provide information and direction for potential new businesses, residents, and visitors as to what the vision is for the County. The LWCD can use these documents to determine what type of assistance can be provided to these local municipalities.

According to Land Use Planner Tim Schwiekie of Vierbicher & Associates (personal communication March 2005), the most pressing problems facing Ashland County during the development of the comprehensive plans were:

- Second home construction and developments;
- Farms being divided and sold for recreational land; and
- Large block forests being split and sold for recreational land and timber harvests.

It was anticipated that these issues would be addressed by the comprehensive plans, but would require the assistance of the LWCD to address agriculture issues and the environmental affects of forest fragmentation and second home construction.

The Ashland County Comprehensive Plan for the years 2006 to 2025 identifies several goals, objectives, and implementation action items that should directly involve the LWCD. It is curious that the only implementation action item where the Land Conservation Committee is identified as the responsible entity is "Update the County's Land and Water Management Plan." Accomplishment of Goals and Objectives from the comprehensive plan that, as written, could benefit from the assistance of the Land Conservation Committee and Department are:

Goal #1. – Housing: Provide for a variety of housing choices that promote affordable and decent housing for all County residents.

Objectives:

- Minimize the environmental impact of residential growth.

Goal #4. – Agriculture: Preserve the County's agricultural land base to protect the County's aesthetics, rural character, and agricultural heritage for future generations.

Objectives:

- Maintain the operation of existing farms.
- Encourage the preservation and protection of agriculturally productive soils.
- Decrease non-point water pollution.
- Increase the number of acres of agricultural land that is voluntarily protected through conservation easements.

Goal #5. – Natural Resources: Preserve and protect the County's natural resource base from potential degradation and contamination.

Objectives:

- Encourage the preservation and protection of environmental corridors for wildlife, water quality values, and habitat protection.
- Increase collaboration with watershed associations.
- Increase protection of the surface and groundwater resources.
- Maintain and encourage the sustainable use and development of natural resources.

Goal #8. – Intergovernmental Cooperation: Achieve a high level of cooperation and consistency among local units of government.

Goal #9. – Land Use: Support a land use pattern that facilitates the growth of cities, villages and hamlets and the protection of forests and agricultural lands.

Objectives:

- Maintain the integrity and viability of forestry and forestry-related practices.
- Minimize the negative effects of incompatible land uses.
- Minimize the conflicts between forest and non-forest related uses.
- Maintain a well-balanced mix of land uses within the County including commercial and industrial.
- Support the Land and Water Conservation Plan

Agriculture

Agriculture, once the main source of income for many, still retains an important foothold in Ashland County's economy. The number of producers and agricultural land has diminished over the years, as it has statewide. According to the 2007-2008 Wisconsin Blue Book and the National Agricultural Statistics Service (http://www.nass.usda.gov/Statistics_by_State/Wisconsin/index.asp), Ashland County had 227 farms totaling 59,000 acres in 2002. The average farm size was 259 acres. In comparison with other Wisconsin counties, Ashland County ranked 64th of 72 in total acres devoted to agriculture in 2002. More recent data is not available.

Additional data provided by National Agricultural Statistics Service for 2002 indicates that Ashland County had 29,353 acres of cropland on 215 farms, 22,536 acres of harvested cropland on 181 farms, and 5,270 acres of pasture and grazing occurring on 125 farms. During the period of 1997 through 2002 the per acre estimated market value of farmland increased from $660 to $1,129.

Trends in farm ownership are continuing to affect our area. Farms are being purchased as recreational properties and taken out of production or converted to "hobby farms", small family dairy operations are being replaced with larger multi-family operations with larger numbers of animals, and partnerships and family corporations are now in place. There continues to be a switch from dairy to beef production on some farms. Smaller organic farm operations are an emerging trend in Ashland and adjacent counties, providing low input produce, fruit and plants to the local communities. Within the last 3 years, production of crops for bio-diesel took a sharp rise, and then subsided in 2009 with diminished markets.

Although most farms in Ashland County are dairy and beef operations; other farming activities are increasing. They include organic truck-type farms, flower and landscape plant producers and small orchard fruit growers. These important industries provide valuable services by raising native and organic produce for local consumption. Crops produced in the county include sunflowers, oats, trefoil (forage and seed), turf grass seed, corn, legumes, grass hay, fruits, vegetable crops (cabbage, pumpkins and various other crops), and nursery stock.

Animal operations must address an increasingly difficult part of farming – manure management. Manure is generally stockpiled or stored and spread on fields when condition allow. Some producers still allow cattle unlimited access to streams, and in many cases this has contributed to streambank erosion, sedimentation, nutrient loading, and shoreland degradation. Periodic testing by the Bad River Natural Resources Department (BRNRD) and the Bad River Watershed Association has identified high fecal coliform bacteria counts in the Marengo River watershed during certain times of the year. The LWCD continues to partner with these organizations to refine sampling methods, and has been working to address water quality issues by providing staff time for education and technical assistance. In addition, the LWCD is actively encouraging the development of nutrient management plans by providing "farmer education" in coordination with UWEX and NRCS in DATCP-approved training courses. Over $50,000

in cost-share has been provided to Ashland County producers for development of nutrient management plans in 2008 and 2009, although the demand for this program greatly exceeds the available cost-share funds. Cropland soil erosion is not generally an issue due to long hay rotations and limited row crop production.

Ashland County's Farmland Preservation Plan (FPP) includes goals and policies regarding land use and agricultural preservation. Updated Farmland Preservation Soil and Water Standards are incorporated into this LWRM Plan, according to 92.104 and 92.105, Wis. Statute, ATCP 50.16, Wis. Adm. Code, and related guidelines, and standards and prohibitions outlined elsewhere in this document. Conformance with these standards is necessary for landowners to remain eligible for farmland tax credits.

Most Ashland County farmers recognize the environmental and economic benefits of proper use and management of nutrients and pesticides. Funding and technical assistance for nutrient management, cropland erosion control, habitat improvement, livestock management and other conservation practices has been available from federal and state sources for many years.

Working Lands Initiative

The Working Lands Initiative (WLI) is an update to Wisconsin's 30-year-old farmland preservation program. It modernizes current tools for farmland preservation, introduces new incentives for farmers and creates new tools for planning and conservation professionals. WLI can be summarized under three separate, but related, ideas: updated farmland preservation planning and zoning, agricultural enterprise areas, and agricultural conservation easements.

Under farmland preservation zoning, county and local governments may update or adopt local ordinances for protection of farmland. While it is not required that these ordinances be certified, certification is required in order for farmers to claim farmland tax credits. In addition to being covered by a certified farmland zoning ordinance, farmers seeking tax credits must also have received at least $6,000 in gross farm revenue in the past year, or $18,000 in gross farm revenue in the past three years. Farmers in the program will also be required to comply with the state soil and water conservation standards and prohibitions established in NR 151.

An agricultural enterprise area (AEA) is a contiguous land area, devoted primarily to agricultural uses that DATCP designates in response to an application submitted by a local government. These areas are targeted for agricultural preservation and development. Only farmers in AEAs will be eligible to enter into new farmland preservation agreements with DATCP, which allows them to claim a tax credit. Any existing farmland preservation agreements will remain in effect until they expire. Currently, Ashland County is scheduled to update its farmland preservation plan in 2015, but will need to implement zoning or develop AEAs to enable farmers to qualify for the tax benefits of the Farmland Preservation Program in the interim.

WLI also creates a new state program to purchase agricultural conservation easements (PACE) from willing landowners. While ownership of the land covered under the easement is retained by the farmer, these easements will restrict nonagricultural development of that land. Easements are permanent and run with the land. This means the farmer may sell the land, but the easement remains in place and is binding on subsequent landowners.

Ashland County will be responsible for ensuring participants in these programs are compliant with current state soil and water conservation standards and prohibitions. The county will be required to check compliance every four years through the procedures outlined earlier in this chapter.

Forestry

People depend on forests in Ashland County because they provide many sustainable economic benefits and recreational opportunities. Forests play a critical role in maintaining healthy hydrologic conditions in watersheds and by helping to desynchronize snowmelt. A properly managed forest can provide wildlife habitat, forest products, and contribute to watershed health.

The estimates of total forest-land in Ashland County range from over 531,000 acres to nearly 539,000 acres depending on the source of information and the year. This amount represents over 80% of the total land in the county. About 50% of the total forest lands are publicly-owned and managed for multiple or special uses. The publicly owned forests include nearly 217,000 acres of national forest, 43,000 acres of county and municipal forest, and nearly 13,000 acres managed by the WDNR (2007-2008 Wisconsin Blue Book, and USDA Forest Service 1996). All of the publicly owned forest is managed using best management practices. The Ashland County forest system is the most productive county forest in the state, providing the largest financial return to the county per acre owned.

Poor forest management practices and unmanaged forests can contribute to sedimentation and increased peak flows in a watershed. Soil compaction, poorly designed stream crossings, harvest on steep slopes, and over-cutting a watershed all contribute to degrading a watershed's natural hydrology. Studies in northern Minnesota and neighboring Douglas County indicate that over-cutting a watershed leaves too many young stands (0-15 year age class) that will not adequately hold snow cover in the spring. Basin resource managers are using this information and designing plans that result in having less than 40% of any watershed in open or young age-class. Having 40% or more of a watershed in open or young forest significantly increases runoff volume and velocity, resulting in increased peak flow events and greater instability of waterways in a watershed. Interestingly, the studies also showed that peak flows are increased when there are no open lands or young forest in a watershed. (Verry, 1983).

The LWCD completed a project in 2005 with Community GIS, Inc. of Duluth to assess the age-class of forest stands and determine the percentage of open lands within subwatersheds throughout Wisconsin's Lake Superior basin using 16 years of satellite imagery. This work has been used by several organizations to evaluate threats to watersheds in the basin and to help identify priority work areas. This effort is currently being updated by the Wisconsin Department of Natural Resources with additional data and analysis refinements. The LWCD will continue to work with foresters and private landowners to plan forest management and install conservation practices such as wetland restorations, riparian buffer plantings, and waterway crossings to maintain watersheds below the 40% threshold and ensure waterway stability by slowing the flow.

Recreation

Recreation and tourism are important to Ashland County and there are many ways to enjoy the cultural and natural scenic beauty of the area. Trail riding, dog sledding, skiing, fishing (inland and "big lake"), hunting, boating, swimming, hiking, kayaking and canoeing are just a few of the outdoor activities enjoyed by many residents and visitors. Tourism brings an economic boon to the area that few industries provide. The positive economic impact of tourism is directly related to the quality of Ashland's natural resources. While clean water, clean air, beautiful scenery, good tourist facilities, and abundant fish and game draw many visitors to the area, recreation itself can degrade the very resources that draw people to the area. Improper use of motorized equipment near water can pollute lakes, streams, wetlands and groundwater. ATVs, motorcycles and snowmobiles can cause damage to trails, vegetation, streams, lakes, wetlands and important wildlife habitat. Construction of trails, boat landings, and parking areas has led to the rapid increase in the establishment of noxious weeds, such as spotted knapweed. Motorboat use adds to air pollution and can lead to the spread of aquatic invasive species, and can also directly damage aquatic habitat (WDNR 2000). All recreational activities, motorized or not, can increase the risk of some

sort of environmental degradation and must be carefully managed. The LWCD should expand our work with recreational planners and private landowners to correct known negative impacts and prevent problems from occurring.

Urban and Rural Development

The 2000 population for Ashland County was estimated at 16,866, with 8,620 in the City of Ashland. That translates to 16.3 people per square mile. The City of Ashland has experienced a declining population, roughly 5% every 10 years, for the period 1900 through 1990. From 1990 through 2000, the city's population declined less than 1%, indicating that the population and Ashland's economy had begun to stabilize. From 1990 through 2000 the population of Ashland County as a whole increased by 3.4%, particularly in the towns surrounding the city due to the desire of many to have a rural lifestyle. Increased development for year-round housing along lakeshores may be resulting in an increase of seasonal residents in many rural areas of the county. Agricultural and forested lands are now being sold to be used for recreational purposes and seasonal housing, although local farmers continue to harvest hay on many of these properties.

Urban areas pose many threats to water quality. Nonpoint pollution is the number one water quality issue in Wisconsin. Residential, industrial, and commercial development increases the amount of impervious surfaces, adds storm drains, and often fills wetlands - all of which cause problems for the natural movement of water through a watershed. Pollutants from petroleum products, road salt, lawn fertilizers and herbicides, debris, sediment, and industrial waste are carried down storm drains and are generally untreated when they dump into a natural surface water or wetland. These polluted storm waters can cause increased water temperatures, flooding, decreased oxygen levels, streambank erosion and increased sedimentation in what would otherwise be high quality fish and wildlife resources. Because they do not exceed a population threshold, the Cities of Ashland, Mellen, Glidden, and Village of Butternut and Town of La Pointe are not required to adopt stormwater management plans by the WDNR. Stormwater system upgrades are still necessary, however, and some communities have moved forward to make these improvements. Any community or private development impacting an area of 1 acre or more are subject to Wisconsin's stormwater rules under the Pollution Discharge Elimination System (WPDES) Program. Generally, these rules require temporary and permanent construction erosion control plans and a provision for storing stormwater on site. Careful stormwater planning will protect water quality and habitat.

Development around lakes, rivers, and wetlands in urban and rural settings is also a concern. According to Larry Hildebrandt, Ashland County Zoning Administrator, the number of illegal developments and activities impacting water resources continues to climb. The resulting destruction of wetlands, floodplains, unique habitats and trout streams is immense. Changes will need to occur by adding staff to enforce and implement the county's zoning ordinance in all parts of Ashland County if we hope to maintain the status of our land and water resources. Shoreland issues also include failing or inadequate septic systems and holding tanks, addition of impervious surfaces, stormwater management, chemical applications (herbicides and fertilizers) and removal of shoreland vegetation. All of these factors contribute to reducing the quality of Ashland County waters.

Ashland County Ordinances

The following ordinances are administered by the Ashland County Zoning Department. A full copy of the ordinances can be obtained at the zoning department office in the courthouse at 201 West Main Street or by downloading it from the Ashland County website:
http://www.co.ashland.wi.us/departments/zoning/AshlandCountyZoningOrdinance2009April.pdf

- **Private Sewage System Ordinance** – adopted 2000, amended 2003
- **Floodplain Zoning Ordinance** - adopted 1987, amended 1999 and 2008

- **Shoreland Zoning Amendatory Ordinance** - adopted 1971, amended 1985, 1991, 1996, 1997, 2000, 2001, 2002, 2003, 2006
- **Subdivision Control Ordinance** - adopted 1970, amended 2009
- **Scenic Ordinance**
- **Zoning Ordinance** -adopted 1934, amended in 1975 and 2002.

❖ **Nonmetallic Mining Reclamation Ordinance (2001).** This ordinance is administered by the Ashland County Highway Department. For a copy of the ordinance, please contact Highway Commissioner Emmer Shields at his office in Highbridge.

Related Municipal Regulations

Under Ss. 61.351 & 62.231, Wisconsin Statutes and NR 117, Wisconsin Administrative Code, cities and villages must regulate activities in wetlands located in the shoreland zone. Cities and villages are required by s. 87.30 (1), Wisconsin Statutes to adopt reasonable and effective floodplain zoning ordinances to zone their flood-prone areas. Cites and Villages include: Ashland, Butternut, Gordon, La Pointe, (encompasses all of Madeline Island), Marengo, Mellen, Morse, and Sanborn.

Related Federal Regulations

National Pollution Discharge Elimination System (EPA)

As authorized by the Clean Water Act, the NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

Farm Bill (NRCS, FSA)

The NRCS provides the technical services to implement all federal farm programs under the federal farm bill. NRCS maintains landowner files for those cooperators, and work cooperatively with the LWCD. Some of the more popular Farm Bill programs in Ashland County are the Environmental Quality Incentive Program (EQIP), the Wetland Reserve Program (WRP), the Wildlife Habitat Incentive Program (WHIP), and the Conservation Reserve Enhancement Program (CREP)

Clean Water Act (EPA)

This program implements the Environmental Protection Agency's Clean Water Act. In Wisconsin, most of these programs are implemented through the Department of Natural Resources.

Federal Wetland Regulations (USACOE, EPA, DNR)

Section 404 of the Federal Clean Water Act (CWA) regulates the placement of fill material into U.S. waters including all wetlands. It is administered by the U.S. Army Corps of Engineers with collaboration from the EPA and the DNR.

Related State Regulations

State laws that govern the use of Wisconsin waters and make them a public resource are known as the Public Trust Doctrine. The state constitution requires the state legislature to administer this "trust" for the benefit of the general public. Following are the laws:

Chapter 30, Wisconsin Statutes (DNR)

- NR 320: Bridges and Culverts in or over Navigable Waters
- NR 328: Shore Erosion Control Structures in Navigable Waterways
- NR 329: Miscellaneous Structures in Navigable Waters
- NR 343: Ponds and Artificial Waterways

- NR 345: Dredging in Navigable Waterways

Private Water Wells (DNR)
- NR 812 (formerly NR 112): Well Code.

Public Water Systems (DNR)
- NR 809: Municipal, Other than Municipal (OTM), Non-Transient, Transient
- NR 811: Municipal, Other than Municipal (OTM)
- NR 812: Non-Transient, Transient

Groundwater Quality Standards (DNR)
- NR 140

Wisconsin Pollution Discharge Elimination System (DNR -WPDES)

Construction Site Erosion Control and Wisconsin Pollution Discharge Elimination System (DNR – WPDES)

Storm Water Discharge Permits (DNR –WPDES)
- NR 216

  Under subchapter III of NR 216 Wis. Adm. Code a notice of intent shall be filed with the WDNR by any landowner who disturbs one or more acres of land. Agriculture is exempt from this requirement for activities such as planting, growing, cultivating, and harvesting of crops for human or livestock consumption and pasturing or yarding of livestock as well as sod farms and tree nurseries.

  Agriculture is not exempt from the requirement to submit a notice of intent for one or more acres of land disturbance for the construction of structures such as barns, manure storage facilities or barnyard runoff control systems (NR216.42(2) Wis. Adm. Code). Construction of an agricultural building or facility must follow an erosion control and sediment control plan consistent with NR 216.46 and meeting the performance standards of NR 151.11, but the agricultural building or facility is not required to meet the post-construction performance standards of NR 151.12.

Best Management Practices, Conditions and Standards (DNR)
- NR 154

  This rule identifies urban and BMP, cost-share conditions, and technical standards for NR 153 - Targeted Runoff Management, NR 155 - Urban Nonpoint Source Water Pollution Abatement and Storm Water Management, and NR 243 - Animal Feeding Operations. This rule also provides a basis for determining cost-share availability requirements under NR151 - Runoff Management.

Agricultural Nonpoint Pollution Rules (DATCP)
- ATCP 50

  This rule essentially mirrors NR 151 and 154 and provides more specific information about agricultural standards and best management practices.

Runoff Management (DNR)
- NR 151 Subchapter II: Agricultural Performance Standards and Prohibitions

This rule provides performance standards related to cropland soil erosion (sheet, rill, and wind erosion), manure storage facilities, clean water diversions, nutrient management, and manure management.

- NR 151 Subchapter III: Non-Agricultural Performance Standards and Prohibitions
  This rule outlines performance standards related to post-construction site erosion control, total suspended solids control, peak discharge rate control, infiltration standards (residential and non-residential areas), protection areas, fueling and maintenance areas, permitted municipalities, non-municipal property fertilizer, and technical standard development.

CHAPTER III – ISSUES, GOALS, OBJECTIVES & ACTIVITIES

Development of Goals, Objectives and Activities

The Ashland County Local Advisory Group identified goals, objectives and activities based on public input, resource assessment data, review of county and municipal comprehensive plans, and evaluation of State priorities. The work group also used the information to develop a comprehensive strategy for addressing land and water issues for Ashland County. Key terms used in this section are:

- **Goals.** Goals outline broad directions that the county wishes to pursue to protect resources.
- **Objectives.** Objectives provide more specific direction on the programs or projects that are needed to implement each goal.
- **Activities.** Activities describe specific measures that the county will take to implement programs or projects listed under each objective.

The Local Advisory Group, with input from the general public and partner organizations, identified and prioritized the natural resource issues in Ashland County. These issues were grouped under four broad goals. Objectives were developed for each goal to refine the specific direction of various programs, and activities were defined to outline specific measures that the county will take to attain their goals. Technical assistance, cost-share, education, and coordination with partners are the main tools that will be used to implement activities needed to reach the goals and objectives outlined in the LWRMP.

Land & Water Resource Management Plan Relationship to County Comprehensive Plans

The Towns of Agenda, Ashland, Morse, Peeksville; and the City of Ashland completed comprehensive plans in 2005. Ashland County, the City of Mellen, the Village of Butternut; and the Towns of Chippewa, Gingles, Gordon, Jacobs, LaPointe, Marengo, Shanagolden, and White River completed their comprehensive plans in 2006. The Town of Sanborn completed their comprehensive plan in 2007. These guiding documents are generally valid through the year 2025. The previous Ashland County LWRMP was developed concurrently with the comprehensive plans with the intent of ensuring a high level of consistency. The LWRMP is a composite of information, ideas, policies, programs, and activities related to existing and potential uses of land and water resources. The LWRMP is just one component of a comprehensive plan and is equivalent to other components such as the zoning ordinance or county forest plan. The Ashland County LWRMP sets priorities and directs the work of the LCC and LWCD, just as a forest plan directs the workload of the forestry department.

Goals, Objectives, and Activities

The goals and objectives identified in this Ashland County LWRMP represent the priorities and direction that the county wishes to follow to manage soil and water resources. The activities needed to attain the goals and objectives of the LWRMP will be implemented by the LWCD and cooperators during the ten year period 2010 through 2020.

GOAL #1: PROTECT AND ENHANCE THE QUALITY OF ASHLAND COUNTY'S SURFACE AND GROUND WATER RESOURCES.

Objective A: Reduce non-point source pollution and environmental risks to water quality in agricultural, rural-residential, and urban situations.

Activity 1: Provide technical assistance and cost-share to private landowners, local governments, and industry to voluntarily reduce erosion while promoting infiltration, water retention, diversion, and other activities to "slow-the-flow" and clean the runoff. Prevent or reduce the amount of sediment, nutrients, and other pollutants delivered to water resources from agricultural operations; public, private, and forest roads; construction sites; urban and rural dwellings; boat ramps; recreational trails; and forest landings.

Activity 2: Provide technical assistance and cost-sharing to farmers to develop nutrient management plans, adhere to agricultural performance standards, and implement other best management practices to protect water resources.
Activity 3: Provide cost-share and technical assistance for development of new manure storage systems and closure of old facilities.
Activity 4: Encourage landowners to test drinking water from private wells and springs by developing a testing program. Maintain a database containing test results and work with landowners and agencies to ensure safe drinking water.
Activity 5: Provide cost-share and technical assistance for well abandonment.
Activity 6: Offer services to perform Uniform Dwelling Code (UDC) erosion control compliance inspections on a fee basis.
Activity 7: Assist City and County Zoning Departments, the WDNR, and others in developing ordinances or other tools to ensure compliance with NR115, NR117, NR151, ATCP 50, and other administrative rules designed to protect water quality.
Activity 8: Assist the City of Ashland, Northland College, EPA, WDNR, and other organizations with efforts to identify and control the sources of pathogens resulting in recreational restrictions at Maslowski Beach and other beaches throughout Ashland County.
Activity 9: Support the development of citizen based watershed groups and water quality monitoring efforts.

Objective B: Identify and reduce point source pollution originating from industrial, urban, and rural settings.

Activity 1: Inventory and map potential point sources of groundwater pollution including land spreading of industrial waste and septage.
Activity 2: Identify areas of contamination and concentrated dumping sites within Ashland County. Prioritize clean-up of all contaminated sites and develop a broad coalition to help coordinate, support, and fund remediation efforts.
Activity 3: Support the City of Ashland and the Environmental Protection Agency in efforts to remediate environmental damage at the Chequamegon Bay coal tar "Superfund" site.
Activity 4: Assist the County Zoning Department and other organizations with a process to **e**valuate the effectiveness of private and municipal septic systems and devise funding strategies to correct deficiencies.

Objective C: Minimize the environmental effects of non-metallic and metallic mining while ensuring public safety.

Activity 1: Coordinate with the Ashland County Board, the County Highway Department, DATCP, and the WDNR to identify the role and responsibilities of the LWCD in regards to mining activities.
Activity 2: Identify locations, materials, and practices of active and inactive mines in a GIS system.
Activity 3: As requested, provide review of metallic and non-metallic mining operation plans for new and existing mines. Provide review of metallic and non-metallic mining reclamation plans for existing mines in accordance with NR 135.
Activity 4: Demonstrate best management practices for slope stability, erosion control and water quality protection on mined sites.
Activity 5: Minimize hazards of old shaft mines by locating and sealing entrances.
Activity 6: Offer technical assistance to towns, contractors, and County Departments to minimize the environmental effects of non-metallic and metallic mining.

GOAL #2: CONSERVE AND ENHANCE THE SOIL AND TERRESTRIAL RESOURCES OF ASHLAND COUNTY.

Objective A: Encourage good stewardship of public and private forest lands, open spaces, and wetlands.

Activity 1: Evaluate and correct erosion, stability, and location problems on existing recreational trails and forest roads by providing technical assistance and cost-sharing. Encourage proper location and construction of new trails, roads and crossings by providing technical assistance on route selection, design, and implementation of best management practices.

Activity 2: Cooperate with FSA, NRCS and other conservation partners to promote implementation of CREP, CRP, and other programs designed to protect riparian areas. Seek funds to provide staff stability, establish demonstration sites, solve implementation roadblocks, and provide cost-sharing for eligible landowners.

Objective B: Preserve agricultural lands for sustainable production of crops and livestock while protecting soil resources, wildlife habitat, scenic values and human health.

Activity 1: Encourage farmers, through technical assistance and cost-sharing, to develop nutrient management plans.

Activity 2: Promote conservation tillage through field demonstrations and rental of no-till and reduced-till technologies.

Activity 3: Support managed intensive grazing for livestock producers through development and implementation of grazing plans by the Lake Superior Grazing Specialist(s).

Activity 4: Evaluate and encourage the establishment of Agricultural Enterprise Areas and Agricultural Zoning to provide the opportunity for agricultural producers to participate in the Farmland Preservation Program under the Wisconsin Working Lands Initiative.

Activity 5: Support the efforts of the Bayfield Regional Conservancy, the West Wisconsin Land Trust, and the State of Wisconsin to develop agricultural conservation easements.

GOAL #3: PROTECT AND IMPROVE AQUATIC AND TERRESTRIAL WILDLIFE HABITAT IN ASHLAND COUNTY.

Objective A: Restore or enhance habitat within and adjacent to lakes, rivers, and streams.

Activity 1: Provide technical assistance and cost-sharing to landowners who voluntarily work to restore or enhance their shoreland habitat.

Activity 2: Assist local governments and non-government entities in obtaining grant funding for local projects that would benefit habitat along lakes, rivers, and streams.

Activity 3: Encourage development of state-recognized individual and county-wide lake associations and districts.

Activity 4: Develop conservation incentives for landowners including a conservation easement purchase program or shoreland habitat incentive program.

Activity 5: Assist realtors and the Ashland County Zoning Department with development of shoreland owner packets informing prospective buyers of the responsibilities and best management practices concerning lake and stream property ownership.

Activity 6: Monitor construction activities adjacent to lakes, streams and wetlands. Assist riparian homeowners, contractors, and local governments with planning and implementation of erosion control, stormwater, and road construction best management practices.

Activity 7: Assist the Ashland County Zoning Department and the WDNR with shoreland mitigation issues by developing or reviewing shoreland restoration and stormwater management plans, evaluating peak watershed flows and culvert capacities, and other projects through implementation of a fee-based mitigation program.

Activity 8: Support efforts to reduce the speed of powerboats, curtail the use of personal watercraft, and manage other activities that may negatively affect lakeshore stability and wildlife habitat on smaller lakes within Ashland County.

Objective B: Restore, conserve, or enhance wetlands for wildlife habitat and watershed health.

Activity 1: Provide technical assistance and cost-sharing to restore interior wetlands in Ashland County. Provide technical assistance to landowners who want to voluntarily protect or enhance these wetlands.

Activity 2: Continue to work with the multi-agency habitat team to evaluate the effectiveness of interior wetland restoration projects. Determine landowner satisfaction and identify opportunities for improving future projects.

Activity 3: Identify opportunities with private landowners and local governments to protect and enhance coastal wetlands.

Activity 4: Pursue funding from the Wisconsin Coastal Management Program and other entities to implement coastal wetland protection and acquisition projects.

Activity 5: Support the development and approval for a National Estuarine Research Reserve (NERR) on Lake Superior and support the "String of Pearls" concept to expand research, monitoring, protection, and restoration of coastal wetlands outside of the NERR area.

Objective C: Identify, classify, and protect sensitive areas.

Activity 1: Work with the DNR and other agencies to improve knowledge of the ecology of sensitive areas and the potential risks of degradation. Heighten the awareness of sensitive areas with the public and local governments.

Activity 2: Identify sensitive environmental areas and potential risks of degradation on GIS maps to use in project planning.

Activity 3: Encourage landowner incentives such as tax breaks, easements, purchase of development rights, and other tools to help protect sensitive areas.

Activity 4: When needed to ensure protection of particular sensitive areas, develop signs or other tools to educate others on the benefits of and threats to those habitats.

Objective D: Develop a comprehensive invasive species management and control program.

Activity 1: Recognize areas with existing populations of invasive species and ensure that those areas and species are mapped within the invasive species GIS website maintained by the Great Lakes Indian Fish and Wildlife Commission.

Activity 2: Participate with other conservation partners to control existing populations of invasive species and to prevent the introduction of new invasive species to the region.

Activity 3: Support the efforts of the Northwoods Cooperative Weed Management Area in combating invasive terrestrial plants.

Activity 4: Promote the use of native plants when establishing vegetation.

Activity 5: Support local efforts to develop native seed and plant sources for the area.

Activity 6: Pursue funding to establish an invasive species control and education coordination position at the LWCD.

Objective E: Maintain or enhance habitat connectivity for terrestrial and aquatic wildlife.

Activity 1: Pursue funding and support for research, monitoring, and evaluation tools to help determine where and how much habitat is needed to meet the needs of specific wildlife species or groups.

Activity 2: Identify wildlife populations that require large blocks of specific habitat and implement education and conservation efforts to protect those habitats. Review county zoning,

local land use, and comprehensive planning maps to identify opportunities to retain forested areas in an unfragmented condition.

Activity 3: Encourage landowner incentives such as tax breaks, easements, purchase of development rights, and other tools to help maintain unfragmented forests and riparian corridors.

Activity 4: Encourage conservation design options for rural housing and business development.

Activity 5: Provide technical assistance and cost-sharing to local governments and landowners to identify and correct culverts that pose barriers to passage of aquatic organisms.

Objective F: Support the ABDI County Wildlife Damage Abatement and Claims Program (WDACP).

Activity 1: Continue to host the Wildlife Damage Specialist position for the four Lake Superior Counties.

Activity 2: Attend conservation congress meetings and other forums to provide input to the WDNR and the public on issues relating to wildlife damage.

Activity 3: Promote the deer donation program and solicit funding from private sources as needed to support the program.

Activity 4: Provide technical assistance to producers who qualify for WDACP.

Activity 5: Provide articles for local media to increase the understanding of impacts to agricultural crops from wildlife populations.

GOAL #4: PROVIDE INFORMATION AND EDUCATION CONCERNING NATURAL RESOURCE CONSERVATION TO PRIVATE LANDOWNERS, LOCAL GOVERNMENTS, NON-GOVERNMENTAL ORGANIZATIONS, AND THE GENERAL PUBLIC THROUGH COOPERATION AND COORDINATION WITH OTHER RESOURCE MANAGEMENT ENTITIES.

Objective A: Promote cooperation among conservation partners.

Activity 1: Identify the scope of activities of conservation groups operating in Ashland County and determine how to collaborate with them.

Activity 2: Organize, host, and participate in regular meetings among conservation partners to identify and support the various priorities and activities, coordinate funding, reduce duplication, and pool resources to attain common goals.

Activity 3: Help develop education strategies for the Lake Superior and Upper Chippewa Basins with UW-Extension, Sigurd Olson Environmental Institute, Northland College, Wisconsin Indianhead Technical College, local schools, and others. Encourage schools to include conservation education in their curriculum.

Activity 4: Cooperate with the Natural Resources Conservation Service (NRCS) and the Farm Service Agency (FSA) to develop a flexible, multiyear field office work plan to address annual technical workload, conservation planning needs, and shared programs.

Activity 5: Network with statewide organizations to inform them of local, county and basin-wide priorities and activities.

Objective B: Work to attain a common vision and a conservation land use ethic among government representatives, land managers, and conservation partners in Ashland County and surrounding areas.

Activity 1: Evaluate county zoning ordinances, municipal land use and comprehensive plans, basin and watershed plans, forestry plans, and Land and Water Resource Management Plans of Ashland and adjacent counties to identify and resolve inconsistencies.

Activity 2: Provide review of proposed revisions to county and city zoning ordinances and make recommendations to preserve green space and minimize environmental impacts in the revisions.

Activity 3: Develop recommendations for land management practices, setbacks, and other zoning requirements based on assessment of sub-watershed condition, stream morphology and habitat needs of wildlife species.

Objective C: Inform and educate people about land use regulations, land management plans, watershed assessment techniques, and best management practices necessary to protect and improve soil, water, and habitat resources.

Activity 1: Educate people about the potential non-point source pollution impacts to surface and ground water from agriculture, forestry, recreation, stormwater, mining, pesticides and heavy metals and provide information on best management practices and other tools that can be used to minimize or remediate the impacts.

Activity 2: Provide information and educational materials about the location and extent of point sources of pollution in Ashland County, and collaborate with government officials and scientific experts to minimize or eliminate the impacts.

Activity 3: Educate realtors and buyers of shoreland property about the responsibilities and best management practices for ownership, including Federal and State laws, and local zoning ordinances.

Activity 4: Provide information and educational materials about the location, extent, and effects of invasive species in Ashland County, and collaborate with others to reduce existing infestations, prevent their spread, and identify future threats.

Activity 5: Encourage participation in conservation programs by providing information and education about cost-share and other landowner incentives to protect natural resources while encouraging sustainable use.

Activity 6: Collaborate with partners to develop science-based programs to assess water quality and wildlife habitat needs.

Activity 7: Coordinate with UWEX, the Bayfield Regional Conservancy, the Living Forest Cooperative and others to provide information on BMPs and landscape considerations in private forest management.

Activity 8: Provide information, programs, and management recommendations to landowners in a watershed context to promote an understanding of ecosystem management.

Activity 9: Define and assess subwatersheds using the best scientific information and appropriate scale. Identify high risk subwatersheds based on the percentage of open land, areas of existing erosion and man-induced impacts, and occurrence of sensitive habitats.

CHAPTER IV – NR 151 PERFORMANCE STANDARDS AND IMPLEMENTATION STRATEGY

NR151 Performance Standards, Prohibitions, and Implementation Strategies

In 1998, the Animal Waste Advisory Committee (AWAC) developed four general guidance animal waste prohibitions. The prohibitions were considered the basic animal waste guidelines needed to protect water quality. Building upon the guidance of the AWAC and becoming effective October 1, 2002, NR151 of the Wisconsin Administrative Code defined the minimum performance standards and prohibitions for farms, rural development, and urban areas needed to achieve water quality standards by limiting non-point source pollution. NR151 is one of eight WDNR rules that address runoff pollution, the major cause of degraded waters in Wisconsin and the United States. It is the responsibility of landowners to meet the performance standards and prohibitions – the Ashland County LWCD will assist implementing NR151 by providing technical assistance and cost-sharing of Best Management Practices.

NR 154 of Wisconsin's Runoff Management Program, entitled *Best Management Practices, Conditions, and Standards* is an important tool for implementing NR 151. This rule is mirrored by ATCP 50, promulgated by DATCP. Under these new rules, WDNR encouraged each county to adopt applicable performance standards. Details about the NR151 program were presented to the Ashland County LCC at a workshop on October 1, 2004, and subsequently adopted by the county.

NR151 Agricultural Performance Standards and Prohibitions

For farmers who grow agricultural crops:

- Farmers growing agricultural crops must meet "T" (tolerable soil loss) on all cropped fields.
- Agricultural producers must follow a nutrient management plan designed to limit entry of nutrients into waters of the state in 2005 for high priority areas such as impaired or ORW/ERW and 2008 for all other areas.

For farmers who raise, feed or house livestock:

- Allow no direct runoff from feedlots or stored manure into state waters.
- Limit livestock access to waters of the state where high concentrations of animals prevent the maintenance of adequate sod cover.
- Agricultural producers must follow a nutrient management plan when applying or contracting to apply manure to limit entry of nutrients into waters of the state starting in 2005 for high priority areas such as impaired or ORW/ERW and starting in 2008 for all other areas.

For farmers who have or plan to build a manure storage structure:

- Maintain a structure to prevent overflow, leakage and structural failure.
- Repair or upgrade a failing or leaking structure that poses an imminent health threat, or violates groundwater standards.
- Meet technical standards for newly constructed or substantially-altered structure.
- Close an existing structure according to accepted standards.

For farmers with land in a water quality management area (defined as 300 feet from a stream, or 1000 feet from a lake or areas susceptible to groundwater contamination):

- Do not stack manure in unconfined piles.
- Divert clean water away from feedlots, manure storage areas and barnyards located within this area.

Agricultural Waste Prohibitions

- No overflow of manure storage structures
- No unconfined manure piles in a water quality management area, 1,000 feet up-gradient from sinkholes, or less than 3 feet to groundwater or bedrock.
- No direct runoff from a feedlot with stored manure to waters of the state.
- No unlimited access by livestock to waters of the state in a location where high concentrations of animals prevent the maintenance of adequate sod cover.

NR151 Agricultural Implementation Strategy

During workshops held in 2004, the LCC, LWCD, and other county officials agreed that time was needed to educate farmers, other landowners, government officials, and agency partners about the rules set forth in NR151. It was further recognized that Ashland County did not have the staff, expertise, or funding to fully implement NR151. Because of these reasons, the county chose to begin implementing NR151 using voluntary compliance techniques that included education, technical assistance, and cost-share. Tier 1 of the 2004 strategy was to develop political and public support while developing staff expertise within the LWCD - providing assistance to the WDNR and awareness of the standards and prohibitions through a watershed health initiative that targeted the Marengo River watershed. The 2004 strategy identified Tier 2 activities as an annual evaluation of LWCD activities related to NR151, an assessment of the progress made during Tier 1. During Tier 2, the county would annually evaluate the relative need to fully implement NR151 activities, and re-assess the level of readiness of the county and LWCD to administer and enforce the standards and prohibitions.

In 2009, Ashland County continues to strive for voluntary compliance with NR151 rather than regulating manure storage and related management through county ordinance. Significant progress has been achieved by the LWCD with voluntary implementation of BMPs and development of nutrient management plans through the cost-share program. Although the level of expertise within the LWCD has grown since 2004, staff time needed to advance the program has been curtailed through reorganization and lack of funding. Political support of NR151 through ordinance development or other enforcement techniques has not materialized within the county government. Enforcement of NR151 agricultural standards and prohibitions currently exists only through the WDNR's NR243 program, a complaint based program.

NR151 - Agricultural Information and Education

The Ashland County Land and Water Conservation Department will continue to provide information and education concerning NR151 in coordination with the WDNR, UW Extension, DATCP, and other partners. Information and educational materials will be provided via newspaper and radio, occasional newsletters and direct mailings, and public gatherings such as the County fair and the spring farm and garden show. Many of the benefits expected of NR151 will be achieved through direct contact with agricultural landowners. The LWCD will continually evaluate additional incentives to achieve voluntary compliance with NR151, such as through the Federal Conservation Reserve Enhancement Program (CREP) and the Environmental Quality Incentives Program (EQIP), State cost-share funding (DATCP LWRM), and other grant opportunities.

NR151 - Agricultural Inventories

The Ashland County LWCD will continue to compile information about the type, extent, and distribution of agricultural activities across the county. Companion to this effort will be the necessary task of maintaining and updating mailing lists, spreadsheets, databases, and Geographical Information Systems. Due to limited staff, many of these tasks may be accomplished with the use of student interns or volunteers.

NR151 - Agricultural Priority Farm Identification

Although Ashland County has a relatively small number of traditional farm operations, the small acreages, clay soils, steep ravines, and abundant water resources combine to result in unique and challenging management situations. Limited financial resources and a general distrust of government programs limit the number of voluntary participants, and an understaffed office makes outreach and follow-up difficult. In general, the following priorities will be followed:

- **1st Priority:** Voluntary requests for funding and technical assistance. Those wishing to receive cost-share funding are evaluated based on the department's annual ranking process. The ranking accounts for the impacts to natural resources, a simple cost to benefit evaluation, the availability of other funding such as EQIP, and the amount of staff time estimated to complete the project.
- **2nd Priority:** Farms where a valid complaint concerning a violation of an agricultural performance standard or prohibition has been received by the LWCD from a conservation partner, local government official, tribal government representative, or public citizen.
- **3rd Priority:** Landowners with new Farmland Preservation Agreements; or are within an established Agricultural Enterprise Area or under Farmland Preservation Zoning as part of the 2009 Working Lands Initiative.
- **4th Priority:** A separate process will be used to determine the priority for establishing nutrient management plans based on landowner willingness and ability to develop their own plan with the assistance of UW Extension, NRCS, and the LWCD. The number of farmers developing nutrient management plans in a given year will be determined by the availability of cost-share funds and further prioritized by the type and amount of livestock and/or crops raised, and proximity to water resources.

NR151 - Agricultural Compliance Determination and Landowner Notification

In the absence of a voluntary request, a valid complaint, or a Farmland Preservation Agreement, evaluation of agricultural inventories and other information will be the primary method of determining if an on-site compliance evaluation will be conducted. An evaluation form (NR151 checklist) will be developed to provide a consistent review of the landowner's farming operations. Landowners receiving an on-site evaluation will be provided with a copy of the evaluation checklist, signed by the landowner and evaluator, and a Letter of Determination, signed by the County Conservationist and Chairman of the Land Conservation Committee. The Letter of Determination shall contain the following additional information:

- Instructions on appeal procedures if the landowner disagrees with the evaluation and/or determination.
- Recommend BMP measures needed to achieve compliance with NR151 standards and prohibitions.
- A schedule for landowner response and achieving compliance.
- The amount, source(s), and availability of cost-sharing funds for installing recommended BMPs.
- The consequences of not voluntarily complying with the NR151 determination including enforcement action through DATCP and/or the WDNR.
- A Letter of NR151 Compliance will be issued once the BMPs are implemented, inspected, and certified for payment.

NR 151 - Agricultural Funding & Technical Assistance

- Secure funding and provide technical assistance to landowners following the priority farm identification.

- Administer funding and technical assistance.
- Provide technical services and oversight through conservation plan assistance, review of past plans, design assistance, construction oversight, evaluation and certification of project installation.
- Provide certification and payment to landowner once compliance inspection is done following practice installation.

NR 151 - Agricultural Enforcement

Most enforcement actions associated with Chapter NR151 Agricultural Performance Standards and Prohibitions will be the responsibility of the WDNR. Ashland County will coordinate with the WDNR Basin Supervisor and Water Quality Management Specialist to dispense information regarding violations of Chapter NR151. Landowners that have received a NR151 Letter of Determination from the County but have not responded or voluntarily implemented the recommended BMP(s) within the specified time frame may receive a formal NR 151 Notice from the Department of Natural Resources. Landowners and operators will be required to meet the management requirements set forth in the NR 151 Notice. If an offer of cost sharing is required, it must be included in the NR 151 Notice. NR 151 Notices will be hand delivered or sent via certified mail. The NR 151 Notice will clearly state that failure to comply with the regulatory notice may lead to referral to the Wisconsin Department of Justice for enforcement action under s. 281.98, Wis. Stats.

NR 151 - Agricultural Appeals

A landowner that does not agree with the compliance determination of the LWCD may file a written appeal of the decision and be allowed to contest the findings at the next regularly scheduled meeting of the Land Conservation Committee. Regulatory notices issued by the Department of Natural Resources may be appealed under state procedures.

NR151 Non-Agricultural Performance Standards & Prohibitions

For new construction and redevelopment on sites of 1 acre or more:

- Implement an erosion/sediment control plan using BMPs to control sediment runoff.

For most sites covered by construction site erosion control plan:

- Implement a written storm water management plan to control runoff. The plans shall conform to standards for total suspended solids, peak discharge rates, infiltration, protective areas, fueling and vehicle maintenance areas, timing, and location.

For developed urban areas (population densities of 1000 or more people per square mile):

- Implement a storm water management plan that includes public education, leaf and grass management where appropriate, nutrient application on municipally-owned land, and detection and elimination of illicit discharges.
- Permitted municipalities shall meet additional control requirements for reducing total suspended solids.

For non-municipal property covering 5 or more acres of turf or other pervious surface:

- Apply nutrients in accordance with a nutrient management schedule.

For transportation facilities:

- Implement erosion and sediment control plans during construction, and management plans for runoff after construction.

NR151 Non- Agricultural Implementation Strategy

The LCC determined that the state requirements and enforcements are adequate, and chose not to prioritize any of the main categories. LWCD staff will make decisions related to the Non-Agricultural Performance Standards based on their workload and whether they will have time to assist other agencies with implementation.

NR 151 - Non-Agricultural Information & Education

- Educate landowners about Wisconsin's Non-Agricultural performance standards and prohibitions, applicable conservation standards, conservation practices, and cost share grant opportunities.
- Promote implementation of conservation practices necessary to meet performance standards and prohibitions.
- Deliver information and education materials (via news media, newsletter, public information meetings and one-on-one contacts) as outlined in the County LWRM Plan.
- Establish expectations for compliance and consequences for non-compliance.
- Inform landowners about procedures and agency roles to be used statewide and locally for ensuring compliance with the performance standards and prohibitions.

NR 151 - Non-Agricultural Inventories

- The LWCD will retain records of landowners who have received services from LWCD for erosion and nonpoint source pollution control.

NR 151 - Non-Agricultural Compliance Determination and Landowner Notification

- The LWCD will cooperate with the WDNR and local governments to develop and maintain a system to track and monitor non-agricultural compliance upon request.
- Upon request, the LWCD will cooperate with the WDNR and local governments to develop and maintain a system to notify landowners concerning compliance issues.

NR 151 - Non-Agricultural Funding & Technical Assistance

- Secure funding and provide technical assistance to landowners and local governments who voluntarily seek assistance.
- Provide technical assistance to landowners referred to the LWCD by the WDNR or County and City Zoning Departments (mitigation). As needed, provide review of past plans, design assistance, construction oversight, evaluation, and certification of project installation. Develop a fee schedule to accommodate the referrals and obtain reasonable compensation.
- Administer funding, technical assistance, and mitigation components of the non-agricultural standards and prohibitions program.

NR 151 - Non-Agricultural Voluntary Compliance

- Assist landowners upon request.
- Perform annual compliance inspection of a percentage of cost-shared practices.
- Develop and maintain cooperative agreements with the Ashland County Zoning Department, Forestry Department, Highway Department, and others as necessary to coordinate activities and provide technical assistance and plan review in a responsive manner and in consideration of department workloads.
- Assist the WDNR, City Planning and Zoning Department, Tribal Governments, Town Boards, and other local governments with review of NR151 plans; trail and road construction and maintenance; site evaluations and other activities as workload allows.

NR 151 - Non-Agricultural Enforcement

- The LWCD will continue to provide assistance to the County Zoning Department and the WDNR on permit applications, violations, and plan review as workload allows. Develop a fee schedule to accommodate the referrals and obtain reasonable compensation.
- The WDNR and/or the County Zoning Department will initiate and follow-up with enforcement activities.
- If requested, the LWCD may participate in enforcement conferences.

NR 151 - Non-Agricultural Reporting

- The LWCD will maintain office records related to non-agricultural performance standards and prohibitions. These records may include timelines, maps, photos, and documentation of phone and in-person conversations.
- The LWCD may maintain records of estimated costs of corrective measures, costs and staff time needed to complete site evaluations, and costs and staff time needed to review documents and provide correspondence.
- Other reports that may be required under ATCP 50.
- The LWCD will include information on non-agricultural NR151 activities within annual reports provided to the County Board, LCC, and DATCP.

NR 151 - Priority Non-Agricultural Priority Project Identification

Due to limited staff time, the LWCD will prioritize assisting landowners and other county departments above all other requests.

- **1st Priority:** Voluntary requests for funding and technical assistance. Those wishing to receive cost-share funding are evaluated based on the department's annual ranking process. The ranking accounts for the impacts to natural resources, a simple cost to benefit evaluation, the availability of other funding, and the amount of staff time estimated to complete the project. Those wishing to receive technical assistance only will be evaluated on a case-by-case basis in respect to the existing workload.
- **2nd Priority:** Landowners where a valid complaint concerning a violation of an non-agricultural performance standard or prohibition has been received by the LWCD from a conservation partner, local government official, tribal government representative, or public citizen. If an enforcement action is undertaken or the referral is necessary due to requirements to obtain a permit, a fee may be charged to the landowner to obtain the service.

CHAPTER V: INFORMATION AND EDUCATION STRATEGY

The general actions that will be used for implementing the information and education (I&E) strategy of the LWRMP are described in this section. Providing meaningful and effective I&E is one of the four goals of the plan, and these efforts will always relate to one of the other three goals identified in the LWRMP:

- ❖ Protect and enhance the quality of Ashland County's water resources
- ❖ Conserve and enhance the soil and terrestrial resources of Ashland County
- ❖ Protect and improve aquatic and terrestrial wildlife habitat in Ashland County

Full implementation of I&E strategies is currently restricted by staff and funding limitations. Whenever possible, I&E components are integrated with project implementation and program administration.

I&E Methods and Activities

The Land Conservation Department may employ multiple methods of providing information and education to the public. Some of these techniques include:

- Technical Assistance
- Project planning, design, inspection and follow-up
- Newsletters and accomplishment reports
- News articles and features
- Demonstrations and field days
- School presentations and activities
- Tours and workshops
- Farm & garden shows, county fairs, and other exhibitions
- Web site development and improvement
- Provide "hands on" restoration opportunities
- Participate in comprehensive planning processes
- Share information, resources, and expertise with other agencies and organizations
- Develop comprehensive resource databases and geographical information systems

I&E Target Audience

A successful I&E program must be broad based and designed for a diverse target audience including:

• Elected Public Officials • Tribal Officials • Professional Resource Managers • General Public • Realtors • Students and Educators	• Appointed Public Officials • Agency Representatives • Non-Government Organizations • News Media • Recreational Users • Educational Groups

- Landowners
  - Agricultural community
  - Lake property owners
  - Stream property owners
  - Wetland Property Owners
- County Government
  - Zoning Department and Committee
  - Highway Department and Committee

- Forestry Department and Committee
- Agriculture and Extension Department and Committee

I&E Messages

The messages that the LWCD delivers through I&E efforts will be related to reaching the goals of the LWRMP. Some of the specific messages are:

- Promote use of Best Management Practices (BMPs) for forestry, agriculture, transportation systems, construction, stormwater management, and recreational facilities
- Encourage agricultural producers to voluntarily implement agricultural performance standards, including the development of nutrient management plans
- Technical assistance and cost-share is available for voluntary implementation of BMPs.
- Conservation easements, land trusts, Farm Bill conservation programs, and purchase of development rights are additional tools to protect land and water resources
- "Slow the flow"
- Buffers provide increased protection from runoff, nutrients, and help slow the flow of water off the landscape
- Red clay soils and clay/sand transitional areas are susceptible to runoff and erosion, and warrant special consideration for all activities.
- Large percentages of open (non-forested) landscapes and impervious surfaces can degrade watershed health
- Lakeshore and other riparian landowners have added responsibilities to protect public waters and wildlife habitat
- Invasive and exotic species, whether aquatic or terrestrial, may have negative effects on wildlife habitat, recreational opportunities, tourism, and the economy
- Management of stormwater runoff is not just an urban issue – it should be considered in all construction activities, in rural residential situations, and during land management activities such as agriculture and forestry
- Groundwater is the source of drinking water for most Ashland County residents, and groundwater quality is directly related to proper land use
- Lake Superior is the source of drinking water for the City of Ashland
- Different types of wetlands have different values. Lake Superior coastal wetlands are especially rare
- Effective management of soil and water resources on a landscape scale requires a team approach and partnerships among diverse groups and individuals

CHAPTER VI: PLAN IMPLEMENTATION AND BUDGET

Role of County in Plan Implementation

The Land Conservation Committee is responsible for oversight of the LWRMP while the Land and Water Conservation Department staff is responsible for implementation of the plan. Annually, the LCC and LWCD should review the LWRM plan and determine what can be accomplished with the resources and staff available.

Role of other Agencies and Organizations in Plan Implementation

Because of the magnitude of the plan and the fact that implementation activities cross political and social boundaries, participation of a wide variety of partners is essential to success. Many other agencies and organizations work collaboratively with the Ashland County LWCD and LCC to implement the county's LWRMP. The Department of Agriculture, Trade and Consumer Protection (DATCP) and the Department of Natural Resources (WDNR) both have major roles in providing funding and direction on state-wide priorities. The LWCD works cooperatively with federal agencies such as the Natural Resources Conservation Service (NRCS), Farm Service Agency (FSA), Forest Service (USFS), Fish and Wildlife Service (FWS), National Parks Service (NPS), Geological Survey (USGS), and others. The cities of Ashland and Mellen, the village of Butternut, and all of the townships in Ashland County are part of the local government partnership. Non-governmental organizations such as the Bad River Watershed Association (BRWA), Living Forest Cooperative (LFC), Friends of the White River (FOWR), Northwoods Cooperative Weed Management Area (NCWMA), Trout Unlimited (TU), Ducks Unlimited (DU), Alliance for Sustainability (AFS), the Bayfield Regional Conservancy (BRC), the West Wisconsin Land Trust (WWLT), and The Nature Conservancy (TNC) are strong advocates for conservation in the area. The Sigurd Olson Environmental Institute (SOEI) at Northland College (NC), local schools, and the Pri-Ru-Ta Resource Conservation and Development (RC&D) are annual collaborators. The newly formed Chequamegon Bay Area Partnership (CBAP) holds promise of leveraging consistent grant funds for the area. The Bad River Band of the Lake Superior Tribe of Chippewa Indians (BRB) and the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) provide guidance and direction on issues within the reservation and ceded territories through government to government consultation.

Although a combination of private, local, state and federal sources will be sought to implement the plan priorities, the funding received through DATCP, WDNR, and the County have been the most consistent and serve to fund many of the priority activities accomplished by the LWCD. It is likely that funding will not be available to implement all of the priority activities outlined in the work plan. Inadequate staffing at the LWCD has been consistently identified as the major factor limiting the attainment of the LWRMP goals. In some cases the availability of specific project funds limits the ability to accomplish the activities. In many instances, funds obtained from outside sources require modification of plan priorities to fit with the requirements and priorities of the grantor.

The following budget and workplan outlines the 5-year funding strategy to address the goals and objectives identified in the LWRMP. All activities should be considered as priorities, but the highest priorities - *those that we feel can reasonably be accomplished with existing staff and project funds* - are indicated in **bold print and shaded gray** in the work plan table. Key cooperators are identified with the realization that much additional cooperation is often needed to be successful. In addition, the many benefits of a strong and involved LWCD are somewhat intangible and cannot easily be expressed in the "annual outcomes/benchmark" column.

Budget Scenarios

In 2010, a Full Time Equivalent (FTE) in Ashland County will work 1950 hours per year at an average cost of $30/hour for salary and benefits ($58,000/year). Costs in subsequent years are adjusted upwards by 2% per year, but actual cost will vary.

Table 7: Estimated Staffing & Funding Needed for Priority Activities

	Staff or Contract Time			Estimated Cost			Annual Cost by Goal			
Fiscal Year	**Existing Staff or Contract *(FTE)***	**Needed Staff or Contract *(FTE)***	**Shortfall *(FTE)***	**Staff Cost**	**Project & Support Cost**	**Total Cost**	**Goal #1 "Water"**	**Goal #2 "Soil"**	**Goal #3 "Habitat"**	**Goal #4 "I & E"**
2010	2.25	3.5	1.25	$203,000	$100,000	$303,000	$121,200	$75,750	$75,750	$30,300
2011	2.25	4.0	1.75	$236,640	$120,000	$356,640	$142,656	$89,160	$89,160	$35,664
2012	2.25	4.0	1.75	$241,372	$120,000	$361,372	$144,549	$90,343	$90,343	$36,137
2013	2.25	4.0	1.75	$246,200	$120,000	$366,200	$146,480	$91,550	$91,550	$36,620
2014	2.25	4.0	1.75	$251,124	$120,000	$371,124	$148,450	$92,781	$92,781	$37,112
TOTAL	**11.25 FTE**	**19.5 FTE**	**- 8.25 FTE**	**$1,178,336**	**$580,000**	**$1,758,336**	**$703,335**	**$439,584**	**$439,584**	**$175,833**

Table 8: Estimated Staffing & Funding Needed for All Activities

	Staff or Contract Time			Estimated Cost			Annual Cost by Goal			
Fiscal Year	**Existing Staff or Contract *(FTE)***	**Needed Staff or Contract *(FTE)***	**Shortfall *(FTE)***	**Staff Cost**	**Project & Support Cost**	**Total Cost**	**Goal #1 "Water"**	**Goal #2 "Soil"**	**Goal #3 "Habitat"**	**Goal #4 "I & E"**
2010	2.25	6.0	3.75	$348,000	$120,000	$468,000	$187,200	$117,000	$117,000	$46,800
2011	2.25	6.0	3.75	$354,960	$150,000	$504,960	$201,984	$126,240	$126,240	$50,496
2012	2.25	6.0	3.75	$362,058	$150,000	$512,058	$204,823	$128,014	$128,014	$51,205
2013	2.25	6.0	3.75	$369,300	$150,000	$519,300	$207,720	$129,825	$129,825	$51,930
2014	2.25	6.0	3.75	$376,686	$150,000	$526,686	$210,674	$131,671	$131,671	$52,668
TOTAL	**11.25 FTE**	**30.0 FTE**	**- 18.75 FTE**	**$1,811,004**	**$720,000**	**$2,531,004**	**$1,012,402**	**$632,751**	**$632,751**	**$253,100**

Work Plan

Table 9: Ashland County Plan of Work for Goal #1

GOAL #1: PROTECT AND ENHANCE THE QUALITY OF ASHLAND COUNTY'S SURFACE AND GROUND WATER RESOURCES		
Objective A: Reduce non-point source pollution and environmental risks to water quality in agricultural, rural-residential, and urban situation.		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**ANNUAL OUTCOMES/BENCHMARK**
Provide technical assistance and cost-share to reduce erosion and "slow-the-flow"	**NRCS, FWS, DU, WDNR**	• **Implement 4+ conservation practices** • **Technical assistance to 5+ landowners**
Provide technical assistance and cost-sharing to farmers for NR151 and BMPs	**NRCS, UWEX, WDNR**	• **Implement 4+ conservation practices** • **Technical assistance to 5+ landowners**
Provide cost-share and technical assistance for new manure storage systems and closure of old facilities	**NRCS, WDNR**	• **Implement 2+ conservation practices** • **Technical assistance to 2+ landowners**
Encourage a drinking water testing program	**UWEX, WDNR**	• **Secure cost-share funding through grants** • **Provide cost-share to 50+ landowners annually**
Provide cost-share and technical assistance for well abandonment	**NRCS, WDNR**	• **Provide cost-share to abandon 1-5 wells**
Provide Uniform Dwelling Code (UDC) erosion control compliance inspections	City Zoning, County Zoning, WDNR	• Develop fee schedule to implement in 2010 • Provide 0-5 UDC erosion control inspections for fee
Assist City and County Zoning Departments, the WDNR, and others in developing rules designed to protect water quality	City Zoning, County Zoning, WDNR	• 10-20 hours of review and support
Identify and control pathogens resulting in beach recreational restrictions	EPA, WDNR, SOEI, NC	• 5-10 hours of review and support
Support the development of citizen based watershed groups and water quality monitoring efforts	BRWA, UWEX	• 10-20 hours of facilitation and support • Participate in 10-20 hours of monitoring
GOAL #1: PROTECT AND ENHANCE THE QUALITY OF ASHLAND COUNTY'S SURFACE AND GROUND WATER RESOURCES		
Objective B: Identify and reduce point source pollution originating from industrial, urban, and rural settings		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Inventory and map potential point sources of groundwater pollution including land spreading of industrial waste and septage	**WDNR**	• **Develop GIS data layer** • **Provide data in annual report/newsletter**
Identify areas of contamination and concentrated dumping sites within Ashland County	City of Ashland, WDNR	• Develop GIS data layer • Provide data in annual report and newsletter
Support the City of Ashland and the EPA at the Chequamegon Bay coal tar "Superfund" site	EPA, City of Ashland	• 10-20 hours of review and support
Assist County Zoning and others with evaluation of private and municipal septic systems and devise funding strategies to correct	**County Zoning, WDNR, BRWA**	• **20+ hours of coordination, support, and grant development**
GOAL #1: PROTECT AND ENHANCE THE QUALITY OF ASHLAND COUNTY'S SURFACE AND GROUND WATER RESOURCES		
Objective C: Minimize the environmental effects of non-metallic and metallic mining while ensuring public safety		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Identify the role and responsibilities of the LWCD in regards to mining activities	**County Board, LCC, Highway Dept., WDNR**	• **Initiate dialogue to develop agreement**
Identify active and inactive mines in a GIS system	WDNR	• Develop GIS data layer • Provide data in annual report and newsletter
Provide review of metallic and non-metallic mining operation and reclamation plans	County Board, LCC Highway Dept., WDNR	• 10-20 hours of technical assistance as requested
Demonstrate BMPs for slope stability, erosion control and water quality protection on mined sites	**WDNR**	• **10-20 hours of technical assistance as requested**
Minimize hazards of old shaft mines by sealing entrances	WDNR	• 5-10 hours of technical assistance, research and referrals as requested
Offer technical assistance to minimize the environmental effects of mining	WDNR	• 5-10 hours of technical assistance, research and referrals as requested

Work Plan (continued)

Table 10: Ashland County Plan of Work for Goal #2

GOAL #2: CONSERVE AND ENHANCE THE SOIL AND TERRESTRIAL RESOURCES OF ASHLAND COUNTY		
Objective A: Encourage good stewardship of public and private forest lands, open spaces, and wetlands		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Evaluate and correct erosion, stability, and location problems on existing recreational trails, forest roads, landings, and crossings	**Forestry Dept., Towns, WDNR, Snowmobile & ATV Clubs**	• **10-20 hours technical assistance** • **Implement 1-4 conservation practices with cost-share** • **10-20 hours of participation and contribution to landowner workshops**
Promote implementation of CREP, CRP, and other programs designed to protect riparian areas	**NRCS, FSA, WDNR**	• **Inform 5-10 landowners of programs** • **Publish 1 news release** • **Secure cost-share for tree planting outside of CREP-eligible areas**
GOAL #2: CONSERVE AND ENHANCE THE SOIL AND TERRESTRIAL RESOURCES OF ASHLAND COUNTY		
Objective B: Preserve agricultural lands for sustainable production of crops and livestock while protecting soil resources, wildlife habitat, scenic values and human health		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Encourage farmers to develop nutrient management plans.	**NRCS, UWEX**	• **1000 ac. of nutrient management cost share** • **Technical assistance to 5+ landowners**
Promote conservation tillage through field demonstrations and rental of no-till and reduced-till technologies.	**NRCS, Iron Co. LWCD, UWEX, WDNR, FWS**	• **500+ ac. of no-till** • **2 field demonstrations and trainings** • **1-2 research trials** • **Technical assistance to 5+ landowners**
Support managed intensive grazing for livestock producers.	NRCS, Pri-Ru-Ta	• 5-10 hours logistical and office support • 5+ farmers referred to grazing specialist
Provide the opportunity to participate in the Farmland Preservation Program.	**DATCP, County zoning**	• **Develop Agricultural Enterprise Areas (AEAs) and/or exclusive agricultural zoning** • **1-5 spot checks on existing agreements** • **Revise County Farmland Pres. Plan by 2015**
Support the efforts to develop agricultural conservation easements.	DATCP, BRC, WWLT	• Develop Agricultural Enterprise Areas (AEAs) and/or exclusive agricultural zoning • 5-10 landowner referrals for purchase or donation of agricultural easements

Work Plan (continued)

Table 11: Ashland County Plan of Work for Goal #3

GOAL #3: PROTECT AND IMPROVE AQUATIC AND TERRESTRIAL WILDLIFE HABITAT IN ASHLAND COUNTY		
Objective A: Restore or enhance habitat within and adjacent to lakes, rivers, and streams		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Provide technical assistance and cost-sharing to voluntarily restore shoreland habitat	**UWEX, FWS, County zoning, WDNR**	• **Market cost-share and technical assistance to riparian landowners** • **Implement 1-2 shoreland restoration projects with cost-share**
Assist entities in obtaining grant funding for local projects to benefit lakes, rivers, and streams	UWEX, FWS, WDNR	• Pursue grant funds for landowner incentives and demonstration projects
Encourage lake associations and districts	**CBAP, UWEX, County zoning, WDNR**	• **Develop Ashland County Lakes Association** • **Coordinate formation of Lake Superior District**
Develop conservation incentives for riparian landowners	UWEX, FWS, WDNR	• Evaluate success of programs in other counties and implement the most successful examples • Pursue grant funds for landowner incentives and demonstration projects
Assist realtors and the Ashland County Zoning Department with development of shoreland owner packets	**UWEX, County zoning, WDNR**	• Review existing information and revise as necessary
Monitor construction activities adjacent to lakes, streams and wetlands and provide technical assistance	**County zoning, WDNR**	• **Conduct field reviews and provide technical assistance as issues are identified**
Assist the Ashland County Zoning Department and the WDNR with shoreland mitigation issues through implementation of a fee-based program	**County zoning, WDNR**	• **Develop fee schedule for mitigation plans** • **Prepare or review 5-10 mitigation plans**
Support efforts to manage activities that may negatively affect lakeshore stability and wildlife habitat on lakes	UWEX, FWS, County zoning, WDNR	• Develop Ashland County Lakes Association • Attend meetings and conferences to stay current with laws and recommendations
GOAL #3: PROTECT AND IMPROVE AQUATIC AND TERRESTRIAL WILDLIFE HABITAT IN ASHLAND COUNTY		
Objective B: Restore, conserve, or enhance wetlands for wildlife habitat and watershed health		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Provide technical assistance and cost-sharing to voluntarily restore wetlands	**UWEX, FWS, DU, City zoning, County zoning, WDNR**	• **Coordinate with airport authority to resolve conflicts** • **Implement 2-4 wetland restorations with cost-share** • **Technical assistance to towns, landowners, highway department, or WDNR**
Work with the habitat team to evaluate the effectiveness of wetland restoration projects and determine landowner satisfaction	UWEX, FWS, WDNR	• Attend annual meetings of habitat team • Develop a landowner satisfaction survey • Publicize results in newsletter or annual report
Identify opportunities with private landowners and local governments to protect and enhance coastal wetlands	**UWEX, FWS, DU, County zoning, SOEI, WDNR**	• **Coordinate with airport authority to resolve conflicts** • **Pursue grant funds for purchase or easements**
Pursue funding to implement coastal wetland protection and acquisition projects	UWEX, FWS, County zoning, WDNR	• **Pursue grant funds for purchase or easements**
Support the development of a Lake Superior NERR and the "String of Pearls" concept	**UWEX, FWS, DOA, SOEI, NC, WDNR**	• **10-20 hours coordination and technical advisory meetings**

Work Plan (continued)

Table 11 (continued): Ashland County Plan of Work for Goal #3

GOAL #3: PROTECT AND IMPROVE AQUATIC AND TERRESTRIAL WILDLIFE HABITAT IN ASHLAND COUNTY		
Objective C: Identify, classify, and protect sensitive areas		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Work with agencies to improve knowledge of the sensitive areas	**UWEX, FWS, USFS, SOEI, WDNR**	• **Obtain clarification from partners on definition, distribution and threats to sensitive areas**
Identify sensitive environmental areas on GIS maps to use in project planning	FWS, SOEI, WDNR	• Develop GIS data layer • Prepare environmental sensitivity checklist for use in project design documentation • Provide data in annual report and newsletter
Encourage landowner incentives to help protect sensitive areas	**UWEX, FWS, WDNR**	• Evaluate success of programs in other counties and implement the most successful examples • Pursue grant funds for landowner incentives and demonstration projects
Develop signs or other tools to educate others on the benefits of and threats to sensitive habitats	**UWEX, SOEI, FWS, WDNR**	
GOAL #3: PROTECT AND IMPROVE AQUATIC AND TERRESTRIAL WILDLIFE HABITAT IN ASHLAND COUNTY		
Objective D: Develop a comprehensive invasive species management and control program		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Recognize and map areas with existing populations of invasive species	GLIFWC, NCWMA, USFS, UWEX, Forestry Dept., SOEI, WDNR	• Identify aquatic and terrestrial invasives posing greatest risk in Ashland County • Contribute to GLIFWC GIS mapping effort
Control existing populations of invasive species and to prevent new introductions	**GLIFWC, NCWMA, USFS, UWEX, Forestry Dept., SOEI, WDNR**	• **Develop seasonal work crew to assist NCWMA**
Support the efforts of the Northwoods Cooperative Weed Management Area	**GLIFWC, NPS, USFS, UWEX, Forestry Dept., SOEI, WDNR**	• **10-20 hours coordination meetings** • **10-20 hours participation in control efforts** • **Develop seasonal work crew to assist NCWMA**
Promote the use of native plants when establishing vegetation	**NCWMA, NRCS, WDNR**	• **20+ hours assistance for annual native plant sale** • **Develop cost-effective erosion control seed mixture of native or benign species.** • **Recommend only native tree and shrub species in riparian buffer restorations** • **Develop source of weed free straw mulch to use on erosion control projects**
Support local efforts to develop native seed and plant sources for the area	USFS, SOEI, WDNR	• 10-20 hours technical support to WDNR, USFS, and private growers
Pursue funding to establish an invasive species control and education coordination position at the LWCD	**CBAP, NCWMA, WDNR**	• **Apply for grants to establish position for 1-3 years** • **Provide training, support, and supervision for employee**

Work Plan (continued)

Table 11 (continued): Ashland County Plan of Work for Goal #3

GOAL #3: PROTECT AND IMPROVE AQUATIC AND TERRESTRIAL WILDLIFE HABITAT IN ASHLAND COUNTY		
Objective E: Maintain or enhance habitat connectivity for terrestrial and aquatic wildlife		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Pursue funding and support for tools to help determine where and how much habitat is needed	**CBAP, FWS, USFS, WDNR**	• **Apply for grants to test decision support tools in Chequamegon Bay area of Ashland County** • **20-30 hours of coordination meetings and proposal review**
Identify opportunities to protect unfragmented habitat to meet specific wildlife habitat needs	USFS, County Zoning, WDNR	• Apply for grants to test decision support tools in Chequamegon Bay area of Ashland County • 20-30 hours of coordination meetings and proposal review
Encourage landowner incentives to maintain unfragmented forests and riparian corridors	UWEX, WDNR, BRC, WWLT	• 5-10 landowner referrals for purchase or donation of conservation easements
Encourage conservation design options for rural housing and business development	County zoning, UWEX	• Review 1-5 urban or rural development proposals
Provide technical assistance and cost-sharing to correct culverts that pose barriers to passage of aquatic organisms	**BRWA, FWS, WDNR**	• **Implement 2-4 culvert replacements or modifications with cost-share** • **Technical assistance to 2-4 towns, landowners, or highway department**
GOAL #3: PROTECT AND IMPROVE AQUATIC AND TERRESTRIAL WILDLIFE HABITAT IN ASHLAND COUNTY		
Objective F: Support the ABDI County Wildlife Damage Abatement and Claims Program (WDACP)		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Continue to host the Wildlife Damage Specialist position	**Bayfield Co., Douglas Co., Iron Co., WDNR**	• **Provide office space, computer support and vehicle**
Attend conservation congress and other forums to provide input on wildlife damage issues	Bayfield Co., Douglas Co., Iron Co., WDNR	• 5-10 hours of meetings
Promote the deer donation program	Bayfield Co., Douglas Co., Iron Co., WDNR	• Annual news release prior to deer season • Coordination with 3-5 processors and food shelves
Provide technical assistance to producers who qualify for WDACP	Bayfield Co., Douglas Co., Iron Co., WDNR	• Technical assistance – abatement • Technical assistance – damage assessment • Technical assistance – claims
Provide articles for local media to increase the understanding of wildlife damage impacts	Bayfield Co., Douglas Co., Iron Co., WDNR	• 2-5 news releases and articles • Activity reports to 4 Land Conservation Committees • Annual report summary

Work Plan (continued)

Table 12: Ashland County Plan of Work for Goal #4.

GOAL #4: PROVIDE INFORMATION AND EDUCATION CONCERNING NATURAL RESOURCE CONSERVATION TO PRIVATE LANDOWNERS, LOCAL GOVERNMENTS, NON-GOVERNMENTAL ORGANIZATIONS, AND THE GENERAL PUBLIC THROUGH COOPERATION AND COORDINATION WITH OTHER RESOURCE MANAGEMENT ENTITIES		
Objective A: Promote cooperation among conservation partners		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Identify activities of conservation groups and determine how to collaborate with them	All Conservation Groups	
Organize, host, and participate in regular meetings among conservation partners	**UWEX, FWS, USFS, NPS, BRB, GLIFWC, WDNR**	• **Attend 10+ coordination meetings and workshops** • **Host 1 meeting annually to review LWRMP activities**
Help develop education strategies for the Lake Superior and Upper Chippewa. Encourage schools to include conservation education in their curriculum	**UWEX, WITC, SOEI, NC, Ashland School District**	• **Provide learning experiences for 1-4 school groups** • **Involve NC in volunteer & employment opportunities** • **10-20 hours of assistance to teachers and administrators** • **1-4 scholarships for students and teachers for conservation camp and other opportunities**
Cooperate with the NRCS and FSA to develop a flexible, multiyear field office work plan	NRCS, FSA	• 5-10 hours coordination and review of MOU
Network with regional and statewide organizations	**NWLCA, WLWCA, WALCE**	• **Attend 6-12 regional and statewide meetings and trainings**
GOAL #4: PROVIDE INFORMATION AND EDUCATION CONCERNING NATURAL RESOURCE CONSERVATION TO PRIVATE LANDOWNERS, LOCAL GOVERNMENTS, NON-GOVERNMENTAL ORGANIZATIONS, AND THE GENERAL PUBLIC THROUGH COOPERATION AND COORDINATION WITH OTHER RESOURCE MANAGEMENT ENTITIES		
Objective B: Work to attain a common vision and a conservation land use ethic among government representatives, land managers, and conservation partners in Ashland County and surrounding areas		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Evaluate county zoning ordinances and land use plans to identify and resolve inconsistencies	City Zoning, County Zoning, Towns	• 5-10 hours of review and comparison • Provide written documentation to highlight issues
Provide review and recommendations of county and city zoning ordinances	**City Zoning, County Zoning, Towns**	• **Provide 20+ hours of assistance for review and recommendations on ordinance revisions**
Develop recommendations for land management practices, setbacks, and other zoning requirements	**City Zoning, County Zoning, Towns**	• **5-10 hours of meetings and ordinance review** • **Attain agreement on minimizing potential conflict between airport safety and wetland restoration** • **5-10 hours to provide written recommendations**
GOAL #4: PROVIDE INFORMATION AND EDUCATION CONCERNING NATURAL RESOURCE CONSERVATION TO PRIVATE LANDOWNERS, LOCAL GOVERNMENTS, NON-GOVERNMENTAL ORGANIZATIONS, AND THE GENERAL PUBLIC THROUGH COOPERATION AND COORDINATION WITH OTHER RESOURCE MANAGEMENT ENTITIES		
Objective C: Inform and educate people about land use regulations, land management plans, watershed assessment techniques, and best management practices necessary to protect and improve soil, water, and habitat resources		
ACTIVITY (paraphrased)	**KEY COOPERATORS**	**OUTCOMES**
Educate people about the potential non-point source pollution and provide information on BMPs to remediate impacts	**UWEX, BRWA,WDNR**	• **1-2 workshops and trainings** • **Handouts and displays at fairs and other events**
Provide information and educational materials about the location and extent of point sources of pollution	UWEX, WDNR	• Provide handouts and displays at fairs and other events
Educate realtors and buyers of shoreland property about the responsibilities and BMPs for ownership	**City zoning, County zoning, realtors**	• **1-2 workshops and trainings** • **Handouts and displays at fairs and other events**
Provide information and educational materials about the location, extent, and effects of invasive species	**UWEX, NCWMA, GLIFWC**	• **Handouts and displays at fairs and other events**
Encourage participation in conservation programs	**NRCS, FSA, FWS, UWEX, WDNR**	• **Publish 1-2 news releases** • **Direct mailings to 20-50 targeted landowners** • **Handouts and displays at fairs and other events**
Collaborate to develop science-based programs to assess water quality and wildlife habitat needs.	BRWA, SOEI, UWEX, WDNR	• 1-2 workshops and trainings • Pursue funding to provide training and demonstrations from technical experts

Work Plan (continued)

Table 12 (continued): Ashland County Plan of Work for Goal #4.

Provide information on BMPs, landscape considerations, and cost share assistance in private forest management in coordination with conservation partners	**UWEX, BRC, LFC, WDNR**	• **1-2 workshops and trainings** • **Handouts and displays at fairs and other events**
Provide information, programs, and management recommendations to landowners in a watershed context	BRWA, SOEI, UWEX, WDNR	• 1-2 workshops and trainings • Handouts and displays at fairs and other events
Define and assess subwatersheds using the best scientific information and appropriate scale	BRWA, SOEI, UWEX, WDNR	• Provide GIS internships or other employment to complete watershed assessments

CHAPTER VII: MONITORING AND EVALUATION

Plan Evaluation

Plan evaluation is important component of the LWRMP, and assesses if goals, objectives and activities are being attained. However, the LWCD does not have adequate staff or funding to perform in-depth analysis to determine to what degree the cost-share projects, educational activities, and partner collaboration are contributing toward completion of the LWRMP. Using any or all of these simple evaluation tools will provide the LWCD and LCC with needed information to identify strengths and weaknesses and improve their program delivery throughout Ashland County.

- A written annual accomplishment report may be provided to the LCC, County Board, and DATCP. Additional copies will be made available for partner groups and the general public.
- The LWCD staff will review provide progress reports on cost-share project status and other activities at each scheduled LCC meeting.
- In March of each year, the LCC will be provided the opportunity to evaluate how the projects and activities of the previous year served to address the goals and objectives of the LWRMP.
- Ongoing planning meetings will provide an opportunity for the LCC, staff, and partners to discuss progress on the LWRMP and match the current year's work plan with the available funding.
- The LCC, County Board, partners, and other interested individuals will be invited to attend an annual field review and evaluation of conservation practices and other aspects of program implementation.
- The County Conservationist and LCC may evaluate the professional needs of each employee needs and develop training plans and funding strategy to address those needs.
- The County Conservationist and LCC may develop annual work plans for each employee that contains measureable outcomes and serves to attain the goals and objectives of the LWRMP.
- The LWCD and LCC will complete annual financial reports, DATCP accomplishment reports, provide audit information, and implement recommendations for improvement as requested and in a timely manner.

Project and Program Monitoring

As with plan evaluation, the LWCD does not have adequate staff or funding to perform in-depth monitoring of the effectiveness of each project or program. Several tools will be employed to provide the LWCD and LCC with the information to identify project effectiveness, learn from our mistakes and successes, and adapt new techniques to improve the decision making and delivery of projects and programs in Ashland County.

- The LWCD will participate in engineering spot checks and reviews.
- The LWCD will conduct yearly field reviews of project effectiveness and maintenance needs.
- The LWCD staff will provide workshop evaluations for programs they take the lead on, and provide meaningful feedback to the workshop evaluations of others to improve the connection to LWCD programs and projects.
- The LWCD may provide customer satisfaction surveys to individuals and organizations to help improve customer service and better understand the needs of others.
- The LWCD staff and LCC will document written and verbal feedback concerning project and program planning and implementation.
- The LWCD will cooperate and coordinate with other partners to develop a monitoring strategy that is watershed based and includes components of water quality monitoring (surface, ground, and well water); water and sediment quantity monitoring; and wildlife species and habitat monitoring. Through implementation of a comprehensive monitoring program, the LWCD and other resource management partners will gain the information to make better decisions needed to implement projects and programs on a landscape scale in a cost-effective manner.

CHAPTER VIII: COORDINATION

Coordination with other resource management agencies, local governments, and non-governmental organizations is essential to achieving the goals and objectives of the LWRMP. The importance of collaboration has been identified by the formation of Goal #4 of this LWRMP. There is lots of work to do across the diverse and vast landscape of the county, and help from a multitude of partners is needed to be successful.

Local Government

County Land Conservation Committee

- Maintain close association with Bayfield, Douglas, and Iron Counties despite the dissolution of the 4-County organization.
- Carefully consider how to better implement land and water programs on a watershed and regional level.
- Provide increased guidance concerning interactions with the County Board and other county departments.

County Agriculture and Extension Department

- Increase coordination and support of educational activities with youth, local communities, and agricultural interests.

County Planning and Zoning Department

- LWCD continues to provide technical review and recommendations for projects affecting water quality.
- Increase communication and coordination between departments and committees
- Develop a fee schedule and implementation strategy to address shoreland zoning and stormwater mitigation.

County Land Records Department

- Build the relationship between the LWCD and the county's Land Records Department. Devise ways to share GIS resources and records.

County Highway Department

- Improve coordination between the LWCD and the Highway Department concerning culvert replacements, metallic and non-metallic mining, and other activities affecting water quality and erosion concerns.

County Forestry Department

- Increase coordination between the LWCD and the Forestry Department concerning forest road construction, invasive species prevention and control, and management of recreational facilities including boast landings.

Town and Community Governments and Communities

- Develop relationships with local governments to improve communication concerning road and culvert projects, floodplain issues, invasive species, and other issues potentially affecting water quality, soil erosion, and wildlife habitat.

City of Ashland

- Increase collaboration on Lake Superior waterfront issues, stormwater management, invasive species and beach health.
- Work with the planning and zoning office, and the airport authority to resolve potential conflicts between air safety and wetland restoration and development.

State Agencies

University of Wisconsin Extension

- Include UWEX in items mentioned under county agriculture and extension department.

- Improve linkage and coordination between Northern Great Lakes Visitor Center programs, staff, and basin educators.

Department of Agriculture, Trade, and Consumer Protection (DATCP)

- DATCP should continue to show a presence in northern Wisconsin and to assist LCCs in understanding and implementing their programs by providing clear guidance to the counties.
- DATCP should continue to assist LCCs in implementing their programs by streamlining program requirements and providing increased and consistent funding and support to counties.
- DATCP should develop a targeted training program to support LWCDs in northern Wisconsin.

Wisconsin Department of Natural Resources

- Continue to build protection programs for northern Wisconsin waters.
- Provide a representative to be an involved advisor to the Ashland County LCC and LWCD.
- Provide staff assistance to educate local officials and assist in grant applications for protection and implementation funding.
- Increase, not eliminate DNR staff positions in northern Wisconsin, including improved customer service.
- Develop protocols for watershed and basin monitoring programs and involve local municipalities, NGOs and the LWCD in the implementation of the strategy.
- Cooperate with the LWCD to develop a fee schedule and implementation strategy to address mitigation and after-the –fact permit issues.
- Continue to improve timing and streamlined approaches to DNR permit requirements for projects that the LWCD leads.

Federal Agencies

Natural Resources Conservation Service (NRCS)

- Support Conservation Reserve Enhancement Program implementation including improved communication on eligibility and application requirements.
- Continue providing technical assistance and funding for non-agricultural conservation practices.
- Continue providing technical assistance and funding for agricultural conservation practices through EQIP and other Farm Bill programs.
- Continue to provide assistance and training for LWCD staff.
- Continue to provide leadership in development of conservation plans and farmer education for nutrient management plans.
- Promote Wetland Reserve Program & continue providing technical assistance for wetland restoration.
- Recognize contributions of the LWCD and other partners, promote open partnership with county staff.
- NRCS hire soil conservationist to assist with workload and provide soils information.

Farm Service Agency (FSA)

- Support Conservation Reserve Enhancement Program implementation including improved communication on eligibility and application requirements.
- Continue providing technical assistance and funding for agricultural conservation practices through farm loans and other programs.

U.S. Fish and Wildlife Service (FWS)

- Continue to provide funding for wetland restoration
- Continue providing funding for fish passage and habitat restoration.

- Provide technical and grant writing assistance to local officials for fish and wildlife restoration and enhancement activities.
- Continue and improve collaboration on watershed based non-point source pollution reduction and habitat improvement projects.

U.S. Forest Service (USFS)

- Provide technical and grant writing assistance to local officials for fish and wildlife restoration and enhancement activities.
- Continue and improve collaboration on watershed based non-point source pollution reduction and habitat improvement projects.
- Continue and improve communication on other activities such as invasive species control and lake management.

National Park Service (NPS)

- Continue and improve collaboration on watershed based non-point source pollution reduction, and habitat improvement, and invasive species projects in the Apostle Islands and Long Island areas of Ashland County.

Tribal Governments and Entities

Bad River Band of Lake Superior Chippewa

- Continue collaboration on watershed-based nonpoint source pollution reduction and habitat improvement projects on the reservation and within the ceded territory.
- Develop a memorandum of understanding to share information related to water quality monitoring information.

Red Cliff Band of Lake Superior Chippewa

- Continue collaboration on watershed-based nonpoint source pollution reduction and habitat improvement projects within the ceded territory.

Great Lakes Indian Fish and Wildlife Commission

- Continue collaboration on invasive species issues, inland lake habitat within the ceded territory, and near-shore habitat and population projects in Lake Superior.

Non-Governmental Organizations

The LWCD should continue to work cooperatively with NGOs to provide technical assistance and financial whenever possible. Some organizations are comprised primarily of volunteers and private citizens, while others are primarily agency people organized around some common interest. These groups will continue to provide the volunteer citizen workforce for accomplishing many under funded activities such as water quality monitoring and invasive species control. In some cases the NGOs provide the glue to solidify the agency and government vision for the area, bring grant funds to accomplish projects for the region, or develop strategic planning documents. Many of the NGOs participated by reviewing and commenting on this LWRMP and will have a major role in reaching the goals outlined within it. The LCC and LWCD should continue to collaborate with these organizations and build on the strength of the partnerships. Some of the NGOs are listed below, in no particular order:

Bad River Watershed Association
Chequamegon Bay Area Partnership
Lake Superior Partner Team
Superior Habitat Team
Sigurd Olson Environmental Institute
Northland College
Living Forest Cooperative
Friends of the White River
Trout Unlimited
Wild Rivers Chapter of TU
Alliance for Sustainability
Inland Sea Society
Bayfield Regional Conservancy
West Wisconsin Land Trust

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APPENDICES

Appendix A: Other Resource Management Plans

There have been many resource management plans within the region that have had a connection, directly or indirectly, to the development of this plan and management of resources within Ashland County. This appendix provides a list of some these plans and how to locate them for more information.

A1. Red Clay Project Report - 1980

The Red Clay Project in the Lake Superior Basin was a research and demonstration project sponsored by five Soil & Water Conservation Districts (SWCDs) from two states during the period from 1974-1980. The SWCDs were charged with the task of seeking practical solutions to the many forms of red clay erosion and the resulting water quality problems. Non-point source pollution, especially in the red clay region, has historically degraded water quality and fisheries habitat. Much of this naturally occurring bank erosion is difficult to control on a wide scale. However, efforts to better plan upland land uses and management objectives can have a significant impact on the hydrology of the area. Issues and goals identified during the project planning include:

Issues:

- Shoreline and stream bank stability
- General slope stability
- Roadside erosion control
- Non-point source pollution
- Contaminated sediments
- Loss of fish habitat
- Land use
- Forest management

Goals:

- Streambank and roadside erosion control
- Shoreline stabilization
- Water quality monitoring
- Rainfall and temperature monitoring

A2. Ashland County Resource Conservation Program - 1981

Authorized under Chapter 92 Wisconsin Statutes, the Ashland County Soil and Water Conservation Districts (SWCD) had the responsibility for developing a resource conservation program for the county. The document represents the SWCD's long range plan for soil and water conservation in Ashland County, and served as the basis for developing the district's annual plan of work. In the resource use and recommendations section, the program document outlined goals, objectives, and actions in the categories of agriculture, forestry, urban and non-farm, outdoor recreation, and mining. Many of these goals remain viable today and have been incorporated into the Land and Water Resource Management Plan:

Agriculture Goals

- Protect soil resources so as to maintain the resource base for food and fiber production and to ensure environmental protection.
- Reduce or maintain non-point source water pollution to levels acceptable under guidelines in the State-wide Water Quality Plan.
- Promote wise and resourceful management of animal wastes.
- Promote wise and prudent management of energy resources in agriculture
- Preserve and protect prime agricultural lands and continuation of the family farm as a viable operation in Ashland County.

Forestry Goals

- Increased utilization of forest resources in a wise prudent manner.
- Erosion and sedimentation reduced in woodlands and during harvest.

Urban and Non-Farm Goals

- Encourage development and construction activity in an environmentally sound and economically efficient manner.

Outdoor Recreation Goals

- Continued existence of recreation and a major amenity and economic resource for Ashland County visitors and residents.

Mining Goals:

- No mining goals, objectives or actions were identified, although the SWCD indicated that they would be addressed if activity or interest intensifies in the area.

A copy of this plan is available for review at the Ashland County Land and Water Conservation Department Office

A3. Ashland County Farmland Preservation Plan - 1982

The Ashland County Board adopted a resolution in 1980 requesting state funds to prepare county-wide Farmland Preservation Plans under the Wisconsin Farmland Preservation Act. The intent of this plan is to protect the county's farmland from potential development and to help guide future development. Producers enrolled in this state program are eligible for tax relief in return for developing a soil and water conservation plan for their farm. Issues leading to the development of the County Farmland Preservation Plans Include:

Issues:

- loss of farmland
- unplanned urban growth
- loss of scenic and environmental resources
- protect cultural resources
- manure and nutrient management and storage

Goals:

- designate farmland preservation areas
- encourage land use planning
- identify and protect cultural, scenic and environmental resources
- encourage public improvements in areas that are extension of present public improvements.

Because the county has been operating under this plan for nearly 27 years, it obviously contains dated information. Evidenced by the fact that only a handful of active Farmland Preservation Agreements remain in effect, it is fair to say that the program has not adequately met the goals that it set forth.

In response to the Governor's 2009 Working Lands Initiative, it is anticipated that Ashland County will be revising its Farmland Preservation Plan to meet the intent of the initiative.

A copy of this plan is available for review at the Ashland County Land and Water Conservation Department Office

A4. Upper Chippewa River Basin Water Quality Management Plan – 1996 (WDNR PUBL-WR-345-96-REV)

Water quality management plans (WQMs) are required under Section 208 of the Federal Clean Water Act. The Upper Chippewa River Basin WQM was first published in 1980, and subsequently updated in 1996. This document was intended for revision every five years, but lack of DNR staffing has made this impossible. Nevertheless, the information provided in 1996 is the most comprehensive source of information about the water resources in Ashland County, and much of the report has been made available in various DNR web pages referenced in the body of this document. The 1996 WQM for the Upper Chippewa River Basin identifies the following issues and recommendations:

Issues:

- Polluted runoff
- Contaminated biota (plant and animal life)
- Sediment quality
- Loss of shoreline habitat due to development
- Aquatic habitat in streams, impoundments and wetlands
- Endangered resources

Recommendations

- Setbacks
- Shoreline erosion control
- Riparian habitat protection
- Identify foam in the Upper Chippewa Basin
- Purple loosestrife control
- Protect wetland habitat along Chippewa and Flambeau
- Develop shoreline management education materials to prevent impacts to water resources

A5. Lake Superior Basin Water Quality Management Plan – 1999 (WDNR PUBL-WT-278-99-REV)

Water quality management plans (WQMs) are required under Section 208 of the Federal Clean Water Act. It is unclear when the first Lake Superior Basin WQM was published, but evidently was updated in 1991 and again for the 1999 publication. The document was intended for revision every five years, but lack of DNR staffing and funding has made this impossible. Nevertheless, the information provided in 1999 is the most comprehensive source of information about the water resources in Ashland County, and much of the report has been made available in various DNR web pages referenced in the body of this document. The 1999 WQM for the Lake Superior Basin identifies the following issues and recommendations:

Issues:

- Point source pollution management
- Lake management
- Toxic pollution management
- Non-point source pollution management
- Surface water monitoring and assessment needs

Recommendations:

- Water quality monitoring
- Valuate and protect wetlands
- Assist county and municipal administrators in enforcement of shoreland and wetland zoning
- Protect existing water quality in Class I lakes
- Assist local authorities in development of standards for Lake Superior shoreline aesthetic and buffer zones
- Develop shoreline management education materials to prevent impacts to water resources

A6. Bad River Band of Lake Superior Tribe of Chippewa Indians Integrated Resource Management Plan - 2001(compiled by Joan Elias, Ecological Consultant)

Federal government regulations require tribes with forested reservation land to develop an Integrated Resource Management Plan (IRMP). The Bad River Band adopted a tribal resolution to develop an IRMP in 1990. This is a comprehensive long term plan that provides for the conservation, preservation, and sustainable use of all natural resources contained within the Bad River Reservation. The goal of Bad River's IRMP is to maintain and improve the health of Bad River Reservation ecosystems for at least the next seven generations. The IRMP is intended to be a 10-year document with a revision planned for 2011.

A copy of this plan is available for review at the Bad River Natural Resources Department

Water Quality Monitoring

The Bad River Band's Natural Resource Department suggests that very little water quality data exists due to lack of funding and monitoring activities. However, water quality monitoring has been initiated for 22-25 sites within and just outside the Reservation to establish a baseline of water quality data. Bad River Natural Resources Department, in a report of Nov 4, 2004, strongly suggests that a cooperative effort be established to continue monitoring, identify priority sites, and share information as it becomes available.

Sporadic water quality monitoring has taken place since 1997. The highest incidence of exceeding the monitored water quality parameters were found for the Marengo River and Beartrap Creek. As a result, Bad River's Water Quality Office established nonpoint source and storm event monitoring for several sites suspected to be experiencing impacts of nonpoint source pollution. Nonpoint source impacts were identified for fecal coliform, E.coli bacteria, phosphate, and less often for nitrate. In addition, damage to streambanks and the riparian zone was documented for at least one site on Beartrap Creek. Aerial analysis was also conducted which indicated a likelihood of impacts due to failing septic systems, outdated or improperly maintained wastewater treatment plants, nutrient loading and/or sedimentation due to farm feedlots, fields, road ditches, crossings, logging operations, or improperly sized or poorly maintained road culverts.

Clean Water Act Authority

On July 2, 2009, the EPA granted authority to the Bad River Band of Lake Superior Chippewa Indians to run its own water quality standards program on its reservation. This authority is for the standards programs only. The tribe will have to submit the actual water quality standards they develop to EPA for another round of review and approval. The band's application and the decision documents will be posted on EPA's Web site:
http://www.epa.gov/region5/water/wqs5/wqstribes.htm

A7. Chequamegon-Nicolet National Forest Land and Resource Management Plan - 2004

For additional information, contact William "BJ" Johnson, Forest Planner, Chequamegon-Nicolet National Forest, 68 S. Stevens St., Rhinelander, WI 54501, (715)-362-1335.
http://www.fs.fed.us/r9/cnnf/natres/final_forest_plan/index.html

A8. White River Watershed Management Plan – 2004 (Produced by the Wild Rivers Chapter of Trout Unlimited-Wisconsin and the Friends of the White River, 2004)

In 2003 the Friends of the White River took steps to preserve the river's quality for generations to come. Aided by the Bad River Watershed and the Wild Rivers Chapter of Trout Unlimited the Friends were able to secure funding to prepare the management plan. The plan focuses on investigation of conservation options and management actions along the middle stretch of the White River in Bayfield County. The objectives of the plan include:

Research and maintain or improve water quality

- Establishing water quality guidelines and testing schedules to improve or maintain water quality.

Research and maintain or improve fishery

- Seek funding to research the health of the fishery and to gather information from longtime residents and landowners.

Provide walk-in public access to the river

- To establish a walk-in public access trail to the White River through donation or purchase and to establish a primitive campsite accessible to river users.

Encourage ecological preservation/restoration in order to protect the scenic beauty and ecological health of the river corridor.

- Pursue opportunities to purchase easements along the White River and to work with conservation organizations to educate White River watershed land owners.

A9. Ashland County Forest Comprehensive Land Use Plan (Ashland County Forestry Department, 2006)

The Ashland County Board approved Ashland County Forest Comprehensive Land Use Plan on January 11, 2006. The mission of the Ashland County Forest is to manage, conserve and protect the natural resources on a sustainable basis for present and future generations. County Forest resources should be protected from natural catastrophes such as fire, insect and disease outbreaks, and from human threats such as encroachment, over-utilization, environmental degradation and excessive development. While managed for environmental needs including watershed protection, protection of rare plant and animal communities, and maintenance of plant and animal diversity, these same resources must also be managed to provide for sociological needs, including provisions for recreational opportunities and the production of raw materials for wood-using industries. Several components of the County Forest plan overlay with the goals outlined in the Ashland County Land & Water Resource Management Plan.

- Watershed protection
- Prevention of environmental degradation
- Protection of rare plant and animal communities
- Protection and enhancement of wildlife and scenic values
- Preservation, protection, and management of wetlands and other water resources (protection of water resources will be consistent with the "Wisconsin Forestry Best Management Practices (BMP's) for Water Quality)
- Management of recreational activities to prevent erosion problems or other environmental degradation
- Identification and control of invasive species

A10. Northwoods Cooperative Weed Management Area Management Plan - 2007

The Northwoods Cooperative Weed Management Area (NCWMA) is a multi-agency and community relationship, created to effectively coordinate and implement management and eradication of invasive terrestrial and aquatic plants. Participation in the NCWMA is voluntary.
http://www.northwoodscwma.org/assets/pdf/Final_NCWMA_Aug%209%202007.pdf

A11. Bad River Watershed Association Strategic Plan, 2008-2025

The strategic plan includes a series of long term, overarching goals that the Bad River Watershed Association will seek to achieve by the year 2025. Each goal is tied to achieving their vision by adhering to their mission statement. The goals were created by our Board of Directors with input from our Technical Committee on the most pressing environmental concerns for our area. The home page for the organization contains links to a good deal of information:
http://www.badriverwatershed.org/

The entire strategic plan can be downloaded by from the organization's web site by linking to the following site:
http://learnscape.org/brwa/images/stories/brwa_strategic_plan_color_web.pdf

A12. Lake Superior Lakewide Management Plan - 2008

Since 1991, as called for in the *Canada-U.S. Great Lakes Water Quality Agreement*, the Lake Superior Lakewide Management Plan (LaMP) has provided an assessment of the state of the Lake Superior ecosystem, including its ecological impairments, emerging issues and their causes, and gaps in knowledge which require further research and monitoring. The LaMP has also identified additional actions required to achieve LaMP goals and targets. The Lake Superior Binational Program partners are continuing to develop and implement the LaMP. The many accomplishments of both the Zero Discharge Demonstration Program (ZDDP) and the Broader Program (the two components of the Binational Program) reinforce the concept of the Lake Superior LaMP as an exemplary model for binational cooperative ecosystem management of the Great Lakes.

LaMP 2008 builds on the previous LaMP documents although many of the original LaMP 2000 chapters have been revised, replaced, and updated. The LaMP 2008 chapters contain a 2006-2008 progress report which presents an accomplishment summary of the 1) actions completed or underway to restore/protect the lake, 2) challenges, and 3) next steps.

Highlights of LaMP 2008 include:

- Public Outreach and Education projects (Chapter 2)
- New draft Ecosystem Goals and Objectives, including climate change and aquatics goals (Chapter 3)
- A Chemical Milestones reduction report as well as a Management Strategy for Substances of Emerging Concern (Chapter 4)
- A draft Aquatic Invasive Species "Complete Prevention Plan" (Chapter 6)
- Community Sustainability projects (Chapter 7)
- A chapter on coordination with other Great Lakes programs (Chapter 8), including the Great Lakes Regional Collaboration
- A new chapter on Climate Change (Chapter 9)
- Highlights from the Making a Great Lake Superior 2007 conference (Chapter 2 Addendum C, Appendix E, and Appendix F)
- Updates on progress to restore Areas of Concern are contained in Appendix A.

LaMP 2008 is available on a CD-ROM, and is designed to be printed in a loose-leaf format that can be inserted into a three-ringed binder. LaMP 2008 is also available on the web, either in its entirety or by individual chapters at:
http://www.epa.gov/glnpo/lamp/ls_2008/index.html

A13. Apostle Island National Lakeshore General Management Plan – EIS for Final Draft 2009

http://www.nps.gov/apis/gmp.htm

Questions about the planning process and the draft General Management Plan/Wilderness Management Plan may be directed to Chief of Planning and Resource Management Jim Nepstad at 715- 779- 3398, extension 102, or at jim_nepstad@nps.gov

Appendix B: Sources of Additional Data

There have been many other plans, reports, and guidance documents published in the region that refer to land and water resources and issues within Ashland County. This appendix provides a list of some of these resources and how to locate them for more information.

B1. Northern Initiatives: A Strategic Guide for the DNR Management in Northern Wisconsin in the Next Decade, 1996-2006

The Northern Initiatives Project began in 1993 when Secretary George Meyer asked the three northern districts to study the DNR's impact on this region. An internal review of DNR regulations and policies revealed that the DNR plays a larger role in the economic well-being of northern Wisconsin than it does in other regions of the state. Staff concluded this was due to so much of the north's economy being based on tourism and recreation, forestry, and the area's national reputation for clean air, water and soil. As a result of these findings, DNR held 20 town meetings across northern Wisconsin, attended by more than a thousand people. They also surveyed youth in the region and a focus group in southern Wisconsin. The theme was "You talk, we'll listen". The major issues emerging from these open houses included:

Issues:

- The quickening pace of change in the north
- Impacts of shoreline development
- Concerns about mining
- Forest management practices
- The WDNR's role in the north
- Land use

Goals:

- Involve citizens in DNR decision-making.
- Foster greater understanding between the public and the DNR.
- Long-range resource planning.
- Recognize the important role of the DNR in the north.
- Reshape the WDNR's programs and decision-making for northern Wisconsin.

In September, 1995, the Natural Resources Board approved the report. At that time, DNR staff committed to return before the Natural Resources Board on an annual basis to report on the progress of implementing portions of the strategic guide. According to information located within the DNR's web site, this has been done as recently as 2007. The 2007 update included a summary of some of the projects associated with Northern Initiatives in 2007, and a discussion of possible directions that the project may take in 2008. Many of the stream segments identified through the Northern Rivers Initiative and listed below have been included on the DNR's list of Outstanding/Exceptional Resource Waters (ORW/ERW, Appendix B6)

Stream	Segment	County Rank
BAD RIVER	SEG3: ELM HOIST RD TO MOUTH	1
WHITE RIVER	SEG3: BAD RIVER INDIAN RES. BOUNDARY TO BAD R.	2
BAD RIVER	SEG2: COPPER FALLS TO ELM HOIST RD	3
E FK CHIPPEWA RIVER	SEG3: PELICAN LAKE TO CHIPPEWA FLOWAGE	4
FLAMBEAU RIVER FLOWAGE	SEG1: TURTLE-FLAMBEAU FLOWAGE TO UPPER PARK FALLS	5
KAKAGON RIVER	ALL	6
SPRING BROOK	ALL	7
WHITE RIVER FLOWAGE DAM	SEG2: BAD RIVER INDIAN RESERVATION TO WHITE RIVER	8
POTATO RIVER	ALL	9
BAD RIVER	SEG1: ORIGIN TO COPPER FALLS	10

Stream	Segment	County Rank
BRUNSWEILER RIVER	SEG2: BEAVER DAM L TO EADE RD	11
BALLOU CREEK	SEG2: T44N R2W S11-12	12
WOOD CR SLOUGH	ALL	13
DENOMIE CREEK	ALL	14
TYLER FKS	SEC4: BELOW S15	15
SPRING BROOK	ALL	16
BRUNSWEILER RIVER	SEG3: EADE RD TO MOUTH	17
IRON RIVER	ALL	18
VAUGHN CREEK	ALL	19
DINGDONG CREEK	ALL	20
E FK CHIPPEWA RIVER	SEG2: T42N R01E S17-18 LINE TO PELICAN LAKE	21
MARENGO RIVER	ALL	22
MOOSE RIVER	ALL	23
AUGUSTINE CREEK	SEG1: ABOVE AUGUSTINE L RD	24
MAGEE CREEK	ALL	25
FISHTRAP CREEK	ALL	26
TYLER FKS	SEC2: ABOVE S15 TO COUNTY BORDER	27
E TORCH RIVER	ALL	28
W FK CHIPPEWA RIVER	ALL	29
BEARTRAP CREEK	ALL	30
AUGUSTINE CREEK	SEG2: BELOW AUGUSTINE L RD	31
BRUNSWEILER RIVER	SEG1: ORIGIN TO BEAVER DAM L	32
TYLER FKS	SEC3: AROUND GEHRMAN CR IN S15	33
DEVILS CREEK	ALL	34
MINNOW CREEK	ALL	35
HILDEBRANDT CREEK	ALL	36
SILVER CREEK	ALL	37
KRAUSE CREEK	ALL	38
MEYERS CREEK	ALL	39
DRYDEN CREEK	ALL	40
SCHRAUM CREEK	ALL	41
BUTTERNUT CREEK	ALL	42
TROUT BROOK	ALL	43
PINE CREEK	ALL	44
BOSNER CREEK	SEG1: UPSTREAM FROM JUNCTION WITH FEEDER, S17	45
BOSNER CREEK	SEG2: DOWNSTREAM FROM JUNCTION WITH FEEDER, S17	46
TROUTMERE CREEK	ALL	47

More information about this cooperative project can be obtained by contacting the Northern Rivers Initiative, DNR, Box 220, Park Falls, WI 54552.

B2. Ashland County Trout Streams (WDNR PUB-FH-806 2002)

The DNR uses three categories to classify the different types of trout streams throughout the state. These are evident in *Wisconsin Trout Streams*, which provides a comprehensive list of trout streams throughout the state, and in *Wisconsin Trout Stream Maps*, a set of trout stream maps covering the majority of Wisconsin.
http://dnr.wi.gov/fish/species/trout/wisconsintroutstreams.pdf

Detailed maps of trout streams found throughout Wisconsin can be found on the DNR's web site below. The maps are sorted by county, and each map has a separate key to indicate the name and Water Body Identification Code (WBIC) of each stream.
http://dnr.wi.gov/fish/species/trout/streammaps.html

A list of Ashland County trout streams and their WBIC number can be found at the following DNR web site and I the table below:
http://dnr.wi.gov/fish/species/trout/streammaps/troutmap_ashland_key.pdf

STREAM	WBIC	STREAM	WBIC	STREAM	WBIC
1 Pine Creek	2278700	22 Augustine Creek	2410600	43 Tyler Forks	2923100
2 Butternut Creek	2282300	23 Silver Creek (Agenda Creek)	2411700	44 Scott-Taylor Creek	2923300
3 Spiller Creek	2284100	24 East Torch River	2427500	45 Gehrman Creek	2923500
4 Bosner Creek (Rapid Creek)	2291000	25 Ding Dong Creek	2427800	46 Camp Four Creek	2923600
5 Deer Creek	2291958	26 Bad River	2891900	47 Feldcher Creek	2923800
6 East Fork Chippewa River	2399800	27 White River	2892500	48 Krause Creek	2929000
7 Camp Fifteen Creek	2404400	28 Potato River	2906100	49 Devils Creek	2929300
8 Reins Creek	2404500	29 Vaughn Creek	2906300	50 Montreal Creek	2929400
9 Rocky Run Creek	2404900	30 Winks Creek	2906800	51 Gully Creek	2929700
10 Bay Spring Creek	2405025	31 Marengo River	2911900	52 City Creek	2930100
11 Kenyon Spring	2405567	32 Billy Creek	2912200	53 Ballou Creek	2930700
12 Muskellunge Lake Feeder	2405800	33 Silver Creek (Ashland Creek)	2912300	54 Tafelski Creek	2931400
13 Dryden Creek	2406200	34 Brunsweiler River	2913800	55 Hardscrabble Creek	2931900
14 Kempf Springs Creek	2407350	35 Trout Brook	2913900	56 Happy Creek	2932100
15 Sheridan Creek	2407500	36 Spring Brook	2915200	57 Iron River	2932800
16 Dorns Creek	2407600	37 Frames Creek	2915300	58 Squaw Creek	2932900
17 Meyers Creek	2408500	38 Waboo Creek	2915500	59 Brush Creek	2933600
18 Magee Creek	2408700	39 McCarthy Creek	2917400	60 Minnow Creek	2934600
19 Bear Creek	2409600	40 Troutmere Creek	2919300	61 Knab Creek	2936300
20 Willerth Creek	2410100	41 Morgan Creek	2920200	62 Minnie Creek	2937100
21 Hildebrandt Creek	2410500	42 Whisky Creek	2922100		

The map for the trout streams of Ashland County and be found at the following link:
http://dnr.wi.gov/fish/species/trout/streammaps/troutmap_ashland.pdf

B3. Coastal Wetlands of Wisconsin's Great Lakes – 2002 (Phase 3: A Data Compilation and Assessment of Coastal Wetlands of Wisconsin's Great Lakes, 2002 PUBL ER-803 2002)

Numerous inventories and reports have been completed pertaining to coastal wetlands throughout Wisconsin. For example, the Bureau of Endangered Resources (BER) has completed a number of important inventory and data assessment projects over the last decade aimed at improving our understanding of coastal ecosystems and coastal wetland sites, in particular. However, when this project was initiated in 1999, a comprehensive synthesis of coastal wetland information for the Great Lakes had not been completed. Moreover, significant inventory gaps existed throughout the coastal zone in Wisconsin. Phase 3 of the project was initiated in 2001 with the primary goals of:

1) Continuing to gather and incorporate coastal wetlands data into BER's Biological Conservation Database (BCD)
2) Filling in data gaps as resources allowed through limited field inventory for high ranking sites identified during phase 2
3) Developing the products that began in Phase 2 (coastal wetlands website, CD-ROM, and technical report including site descriptions).

The ultimate intended outcome of the project will be a publicly distributed product in an easy-to-read format, filled with pictures, maps and graphics that would help increase public awareness to the importance of coastal wetlands in Wisconsin. The basis for these products would be the ecologically significant sites, their site descriptions, and the regional and local ecological importance of each site.

Primary coastal wetland sites in "eastern Lake Superior" were identified during Phase 1 of the project. The sites identified in or very near to Ashland County include:

- Fish Creek Slough
- Long Island-Chequamegon Point
- Big Bay
- Stockton Island Tombolo
- Outer Island Sandspit and Lagoon
- Bad River – Kakagon Slough

More information about the primary wetland sites in eastern Lake Superior can be found at:
http://dnr.wi.gov/wetlands/cw/ELSup/

General information about coastal wetlands of the Great Lakes can be found on the DNR website at:
http://dnr.wi.gov/wetlands/cw/

The final (Phase 3) report contains all of the materials from the website as of July 2002. However, the report will not be updated, so the website contains the most current information. The Phase 3 report may be downloaded in 3 sections from the following website:
http://dnr.wi.gov/wetlands/cw/phase_3_report.asp

B4. Wisconsin Land Legacy Report: An inventory of places to meet Wisconsin's future conservation and recreation needs – 2006

Superior Coastal Plain Legacy Places

The Superior Coastal Plain is located on the low plains of Lake Superior's south shore. The landscape is marked by many small rivers and streams which cover the lake plain and peninsula. A great portion of this landscape remains forested, with only a small percentage being used for agriculture. Urban development threatens some of these areas but a large number of public lands are included in this area. The quality of these coastal areas provides critical habitat for migratory songbirds, waterfowl, shorebirds and rare plants. These areas also provide exceptional opportunity for recreation, and draws visitors from throughout North America. The rivers and streams offer excellent opportunity for fishing, especially for trout and salmon. Sites such as the Apostle Island National Lakeshore and many other state and local parks offer camping, hiking, boating, bird watching and a variety of other recreational opportunities for visitors. The legacy places of the Lake Superior coastal plain are listed below.

Apostle Islands: These 22 islands (17 of which are within Ashland County) feature sandstone cliffs, sea caves, and sand beaches, not to mention a multitude of scenic features. The islands have been substantially protected and limited amounts of old growth forest and a diverse array of mammals and birds inhabit the island. Providing a unique and remote experience for all who visit the Apostle Islands attract visitors from throughout the sandstone cliffs, sea caves, and sand beaches, not to mention a multitude of scenic features. The islands have been substantially protected and limited amounts of old growth forest and a diverse array of mammals and birds inhabit the island. Providing a unique and remote experience for all who visit the Apostle Islands attract visitors from throughout the country.

Bad River: The Bad River flows through a wide variety of wetland habitats in a very short distance. The river is fed by many high quality tributaries, including the White, Marengo, Potato and the Tyler Forks Rivers. The lower portions of the river flow primarily through the Bad River Indian Reservation, but Copper Falls State Park contains many canyons, streams and waterfalls that are extremely popular with photographers, hikers and campers. For more information on Legacy Places and the Superior Coastal Plain, please see the Wisconsin Land Legacy Report in Part II, Chapter 4 Legacy Places by Ecological Landscape.

Big Bay: A large bay on the eastern side of Madeline Island, consisting of a coastal barrier spit, beach and dunes, xeric pine forest, lagoon and a wide array of peatlands. These natural communities are some of the most unusual and pristine within all the Great Lakes. This entire area has been protected within Big Bay State Park.

Chequamegon Point/Kakagon Slough: The sloughs at the mouth of the Bad River are some of the largest and highest quality within the Great Lakes. A narrow sandspit along these wetlands provides habit for migratory waterfowl, shorebirds, and songbirds. This wetland also provides an important spawning and nursery area for a multitude of fish species.

White River: Originating from a series of spring fed lakes that feed many tributaries in Bayfield County, the White River flows from the Chequamegon National Forest through the Bibon Swamp before entering Ashland County and joining with the Bad River. In Ashland County, the White River flows through high quality forests and wetlands. Anadromous runs of trout and salmon occur below the White River flowage, and Lake Sturgeon are known to give the anglers an exciting surprise.

Copies of this report may be obtained through the DNR

B5. Rare, Threatened, Endangered and Special Concern Species and Natural Communities

Extensive information about these species and natural communities exists in a variety of formats and locations. A good place to start learning more about the species and programs is at:
http://www.dnr.state.wi.us/org/land/er/

The Wisconsin endangered and threatened species laws and a list of those species (PUBL-ER-001 2004, revised February 2004) can be found on the DNR website at:
http://www.dnr.state.wi.us/org/land/er/wlist/WI_ET_Laws_List.pdf

The Wisconsin Natural Heritage Inventory (NHI) program is part of an international network of NHI programs. This network was established by The Nature Conservancy and is currently coordinated by NatureServe (http://www.natureserve.org/). All NHI programs use a standard methodology for collecting, characterizing, and managing data, making it possible to combine data at various scales to address local, state, regional, and national issues. NHI programs focus on locating and documenting occurrences of rare species and natural communities, including state and federal endangered and threatened species.
http://www.dnr.state.wi.us/org/land/er/nhi/

The Wisconsin Natural Heritage Working List contains species known or suspected to be rare in the state and natural communities native to Wisconsin. It includes species legally designated as "Endangered" or "Threatened" as well as species in the advisory "Special Concern" category. Most of the species and natural communities on the list are actively tracked and data submissions on these species are encouraged. General information about the international program, including keys and interpretations can be found on the DNR website at:
http://www.dnr.state.wi.us/org/land/er/wlist/
The current “working list” for the program in Wisconsin can be found at:
http://www.dnr.state.wi.us/org/land/er/wlist/WorkingList_07_09.pdf

A generalized version of the NHI database is provided for Ashland County. This information is for general reference and should not be used as a substitute for having the WDNR conduct a review of a specific project area. The NHI database is dynamic; records are continually being added and/or updated. The following data are current as of 07/22/2008:
http://www.dnr.state.wi.us/org/land/er/nhi/CountyData/pdfs/Ashland_County.pdf

Another way to learn more about rare species and habitats in Ashland County is by examining Wisconsin’s Wildlife Action Plan. This program identifies Wisconsin's wildlife species of greatest conservation need. Species of greatest conservation need have low and/or declining populations that are in need of conservation action. They include various birds, fish, mammals, reptiles, amphibians, and invertebrates that are already listed as threatened or endangered; at risk because of threats to their life history needs or their habitats; stable in number in Wisconsin, but declining in adjacent states or nationally; or of unknown status in Wisconsin and suspected to be vulnerable. An interactive tool to find out more about the species of greatest conservation need in any county of Wisconsin can be found at:
http://www.dnr.state.wi.us/org/land/er/wwap/explore/county.asp

B6. Outstanding & Exceptional Resource Waters (DNR)

Waterbody Name	Portion Within ORW/ERW Classification	Status
Augustine Creek	Above Augustine Lake Road @ T43N R1W S36	ERW
Bad River Slough	All	ORW
Bad River	From origin to outfall in Mellen NW ¼ SW ¼ S6T44N R2W	ORW
Bad River	From the outfall in Mellen @ NW ¼ SW ¼ S6T44N R2W to the Bad River Indian Reservation boundary	ERW
Ballou Creek	T44N R2W S11-S12	ERW
Beartrap Creek	From origin to Bad River Indian Reservation boundary	ORW
Bosner Creek	Upstream from junction with feeder @ T41N R1E S17	ERW
Brunsweiler River	From origin to inlet of Spider Lake; from outlet of Moquah lake to inlet of Mineral Lake; from outlet of Mineral lake to inlet of Beaverdam Lake; from outlet of Beaverdam Lake (at dam) to Bad River Indian Reservation boundary	ORW
Chippewa River – E. Fork	From T42N R1E S17/18 line to Ashland County Hwy. N in Glidden; from outlet of Pelican Lake to inlet of Blaisdell Lake in Sawyer County	ORW
Chippewa River – E. Fork	From Ashland County Hwy. N in Glidden to confluence of Rocky Run Creek	ERW
Chippewa River – W. Fork	From outlet of Chippewa Lake (Bayfield County) to inlet of Day Lake (Ashland County); from outlet of Day Lake to inlet of Upper Clam Lake; from outlet of Upper Clam Lake to inlet of Lower Clam Lake (Sawyer County)	ORW
Devils Creek	All	ERW
Flambeau River	From outlet of Turtle-Flambeau Flowage (Iron County), through Ashland County to the inlet of Upper Park Falls Flowage (Price County)	ORW
Flambeau River – N.Fork	All	ORW
Hildebrandt Creek (tributary to Butternut Ck.)	All	ERW
Kakagon Slough	All	ORW
Krause Creek	All	ERW
Marengo River	From outlet of Marengo Lake (Bayfield County) to the Bad River Indian Reservation boundary	ORW
Pine Creek	All	ERW
Potato River	From origin (Iron County) to the Bad River Indian Reservation boundary (Ashland County)	ORW
Spring Brook	All	ERW
Troutmere Creek	All	ERW
Tyler Forks	From origin (Iron County) to eastern boundary of the Bad River Indian Reservation; from the Bad River Indian Reservation southern boundary to the confluence with the Bad River	ORW
Vaughn Creek	From origin (Iron County) to the Bad River Indian Reservation boundary (Ashland County)	ERW
White River	Above the Bad River Indian Reservation	ERW

B7. Best Management Practice Guidelines for the Wisconsin Portion of the Lake Superior Basin - 2003

Reducing non-point pollution in the complex Lake Superior Basin has been the focus for resource management organizations, agencies, and educational institutions and groups for many years. Ashland and Bayfield County first developed combined water and land use resource plans in 1998, with Douglas and Iron Counties following suit in 2002 and 2001 respectively. During the development of these plans it became apparent that a common set of strategies and best management practices for the basin were needed. The "BMP Guidelines" project is intended to build and improve upon conservation projects of the past using newer ideas and improved technology. The guidelines are intended to be a working document, relying on field conservationists and resource managers to interpret the information, improve techniques, and revise the document as knowledge and experience is gained.

A copy of this document is available from the Ashland County Land and Water Conservation Department.

B8. Lake Superior Basin Partner Team Publications

Several useful publications of interest to local resource managers can be obtained at the Ashland County LWCD office or downloaded from the internet at the Lake Superior Basin Partner Team website:
http://basineducation.uwex.edu/lakesuperior/index.htm

The Lake Superior Basin Partner Team developed a watershed health strategy aimed at slowing the flow in the Lake Superior Basin. The focus of the strategy was to develop a model watershed management guidance that would be promoted across the entire basin. To aid in developing the guidance, the group selected a pilot area from the Wisconsin portion of the basin to try out the approach, determine the best information sources, and identify important features that may be common throughout the basin while assessing the hydrologic condition of the pilot area.

A Guide to Understanding the Hydrologic Condition of Wisconsin's Lake Superior Watersheds can be found at the following web site:
http://basineducation.uwex.edu/lakesuperior/Marengo%20Project%20Final%2007/Main Document-SuperiorWatershed-Hydrology.pdf

The Marengo River Watershed Test Case: A Report of the Hydrologic Condition of the Marengo River Watershed, Assessing the Hydrologic Condition of the Marengo River Watershed, Wisconsin can also be found on the internet:
http://basineducation.uwex.edu/lakesuperior/Marengo%20Project%20Final%2007/Appendix2-MarengoTestCase.pdf

Another document, sponsored through a partnership among the LWCD, UWEX, and the Great Lakes Commission focuses on the unique issues and solutions in dealing with stormwater in the Lake Superior clay plain. This document, titled ***Stormwater Management on Lake Superior Clays: A Best Management Practice Guidance & Information Source*** can also be found on the Lake Superior Basin Partner Team's website at:
http://basineducation.uwex.edu/lakesuperior/final%20brochure.pdf

B9. Forestry Best Management Practices – Wisconsin Department of Natural Resources

Several excellent guides to forestry BMPs can be downloaded as PDFs from the DNR websites listed below the publication or ordered hardcopy from the Wisconsin DNR Division of Forestry P.O. Box 7921 Madison, WI 53707-7921 (608) 267-7494

Wisconsin's Forestry Best Management Practices for Water Quality – a Field Manual for Loggers, Landowners & Land Mangers – 1993
(PUB FR-093)
http://dnr.wi.gov/forestry/publications/pdf/FR-093.pdf

Managing Woodlands on Lake Superior's Red Clay Plain - Slowing the Flow of Runoff
(PUB FR-385)
http://dnr.wi.gov/forestry/publications/pdf/FR-385.pdf

Managing Woodlands for Wisconsin's Coastal Trout Streams - Protecting Water Quality and Trout Stream Habitat – 2007
(PUB-FR 386)
http://dnr.wi.gov/forestry/publications/pdf/FR-386.pdf

Management Recommendations for Forestry Practices along Wisconsin's Coastal Trout Streams – 2007
(PUB FR-388)
http://dnr.wi.gov/forestry/publications/pdf/FR-388.pdf

Maintaining Soil Quality in Woodlands - A Lake States Field Guide – 2008
(PUB FR-409)
http://dnr.wi.gov/forestry/publications/pdf/FR-409.pdf

B10. Agricultural and Non-Agricultural Standards & Prohibitions Workshop

The Ashland County Land Conservation Department and Committee met on October 1, 2004 to discuss and determine the standards and prohibitions that are applicable in the county. The committee received information on the standards and prohibitions outlined in NR151, NR154, and ATCP50. They had opportunity to discuss the standards, ask questions, and as a committee, organize a plan to implement the standards that would be successful and needed in Ashland County. The strategy to implement the standards in Ashland County has been carried forth in this land and water resource management plan.

B11. Land, Water, & Habitat Issue Identification Workshop Proceedings

UWEX sponsored an Ashland County Land, Water, and Habitat Issue Identification Workshop on April 1, 2004. Sixty participants came together to participate in prioritizing natural resource issues for Ashland County. The information was used to assist in developing the county's Comprehensive Land Use Plan and this land and water resource management plan. A full report of the proceedings can be obtained from the Center for Land Use Education (CLUE) on their website.

APPENDIX C: Partial Listing of Potential Funding Sources

This list is by no means exhaustive. Grant opportunities for implementing programs and projects of the LWCD are virtually limitless - but most grants are identified for specific purposes, consume large amounts of staff time to apply for and administer, and provide funds for a limited time. It is difficult, if not impossible, for the LWCD to make the most of these opportunities without first building the internal capacity to manage them.

Ashland County
Conservation on the Land Internship Program (COLIP)
Department of Administration (DOA – Wisconsin Coastal Management Program -WCMP)
Department of Agriculture, Trade & Consumer Protection (DATCP)
Ducks Unlimited (DU)
Environmental Protection Agency (EPA)
Forestry Education Grant Program
Forest Productivity Council (FPC)
Great Lakes Basin Program (GLBP)
Individual Contributions
Lake Organizations
Local Sports Clubs
National Farmers Organization (NFO)
National Fish and Wildlife Foundation (NFWF)
North American Wetland Conservation Act (NAWCA)
Pri-Ru-Ta Resource Conservation & Development (RC & D)
Private Foundations
River Organizations
Trout Unlimited (TU)
University of Wisconsin Extension (UWEX)
US Fish & Wildlife Service (FWS)
US Geological Survey (USGS)
USDA Natural Resources Conservation Service (NRCS)
Wisconsin Department of Natural Resources (WDNR)
Wisconsin Environmental Education Board (WEEB)
Wisconsin Geologic & Natural History (WGNHS)
Wisconsin Greens
Wisconsin Tree Farm Commission
Wisconsin Waterfowl Association (WWA)
Wisconsin Woodland Owners Association (WWOA)

APPENDIX D: Generalized Soil Types

	BEDROCK DOMINATED SOILS
603B	Redrim very cobbly sand, 0 to 6 percent slopes, very stony
610B	Zeba sandy loam, 0 to 6 percent slopes, very stony
611B	Abbaye-Lapoin complex, 0 to 6 percent slopes
614B	Abbaye-Zeba complex, 0 to 6 percent slopes, very stony
809C	Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony
809D	Gogebic-Metonga-Rock outcrop complex, 10 to 35 percent slopes, very stony
925C	Rock outcrop-Ishpeming complex, 0 to 15 percent slopes
3608B	Deerton-Brownstone complex, 0 to 6 percent slopes, very stony
3608C	Deerton-Brownstone complex, 6 to 15 percent slopes, very stony
3609C	Abbaye loamy sand, 6 to 15 percent slopes
5369D	Dishno-Gogebic-Peshekee-Rock outcrop complex, 18 to 35 percent slopes, very stony
5369E	Michigamme-Schweitzer-Peshekee-Rock outcrop complex, 35 to 55 percent slopes, very stony
5369F	Michigamme-Schweitzer-Peshekee-Rock outcrop complex, 55 to 75 percent slopes, very stony

	CLAYEY SOILS
280C	Odanah silt loam, 6 to 15 percent slopes
280D	Odanah silt loam, 15 to 25 percent slopes
3454B	Odanah-Cornucopia complex, 2 to 6 percent slopes
479A	Lerch-Herbster complex, 0 to 3 percent slopes
480B	Portwing-Herbster complex, 0 to 6 percent slopes
481C	Cornucopia silt loam, 6 to 15 percent slopes
549A	Pickford-Oronto complex, 0 to 3 percent slopes
580B	Sanborg-Badriver complex, 0 to 6 percent slopes
753B	Sedgwick-Munuscong complex, 0 to 6 percent slopes
756B	Superior-Sedgwick complex, 0 to 6 percent slopes
756C	Superior-Sedgwick complex, 6 to 15 percent slopes
1280B	Sanborg-Odanah complex, 2 to 6 percent slopes

	FILL AND EXCAVATED AREAS
2015	Pits
2030	Udorthents and Udipsamments, cut or fill
2050	Landfill

	RAVINE/FLOODPLAIN SOILS
5A	Arnheim mucky silt loam, 0 to 1 percent slopes, frequently flooded
6A	Moquah fine sandy loam, 0 to 3 percent slopes, frequently flooded
92F	Udorthents, ravines and escarpments, 25 to 60 percent slopes
280F	Odanah silt loam, 25 to 60 percent slopes
388B	Pelkie, occasionally flooded-Dechamps, frequently flooded complex, 0 to 4 percent slopes
461A	Bowstring muck, 0 to 1 percent slopes, frequently flooded
481E	Cornucopia silt loam, 15 to 45 percent slopes
555A	Fordum silt loam, 0 to 2 percent slopes, frequently flooded
755A	Moppet, occasionally flooded-Fordum, frequently flooded complex, 0 to 3 percent slopes
5374A	Bowstring-Arnheim complex, 0 to 1 percent slopes, frequently flooded
5504A	Moquah-Arnheim complex, 0 to 3 percent slopes, frequently flooded
9050A	Fordum, Totagatic, and Bowstring soils, 0 to 1 percent slopes, frequently flooded

APPENDIX D: Generalized Soil Types (continued)

	SANDY SOILS
7C	Beaches, 2 to 12 percent slopes
74B	Vilas loamy sand, 0 to 6 percent slopes
74C	Vilas loamy sand, 6 to 15 percent slopes
215B	Pence sandy loam, 0 to 6 percent slopes
215C	Pence sandy loam, 6 to 15 percent slopes
215D	Pence sandy loam, 15 to 30 percent slopes
217B	Karlin loamy fine sand, 0 to 6 percent slopes
217C	Karlin loamy fine sand, 6 to 15 percent slopes
339B	Rousseau loamy fine sand, 0 to 6 percent slopes
339C	Rousseau loamy fine sand, 6 to 15 percent slopes
339D	Rousseau loamy fine sand, 15 to 30 percent slopes
475C	Rubicon-Sayner complex, 6 to 15 percent slopes
500B	Croswell sand, 0 to 6 percent slopes
515A	Manitowish sandy loam, 0 to 3 percent slopes
571C	Pelissier gravelly sandy loam, 6 to 15 percent slopes
571E	Pelissier gravelly sandy loam, 15 to 45 percent slopes
591A	Croswell-Chinwhisker complex, 0 to 3 percent slopes
594B	Vilas-Lindquist complex, 0 to 6 percent slopes
594C	Vilas-Lindquist complex, 6 to 15 percent slopes
594D	Vilas-Lindquist complex, 15 to 30 percent slopes
597A	Meehan sand, beaches, 0 to 2 percent slopes
598A	Wurtsmith sand, beaches, 0 to 3 percent slopes
599C	Grayling sand, beaches, 2 to 12 percent slopes
639A	Neconish loamy fine sand, 0 to 3 percent slopes
674B	Sultz sand, 0 to 6 percent slopes
674C	Sultz sand, 6 to 15 percent slopes
674E	Sultz sand, 15 to 45 percent slopes
917B	Annalake fine sandy loam, 2 to 6 percent slopes
917C	Annalake fine sandy loam, 6 to 15 percent slopes
974B	Sayner-Pence-Vilas complex, 0 to 6 percent slopes
974C	Sayner-Pence-Vilas complex, 6 to 15 percent slopes
974D	Sayner-Pence-Vilas complex, 15 to 30 percent slopes
3276A	Au Gres loamy sand, 0 to 3 percent slopes
9012B	Sayner-Lindquist complex, 0 to 6 percent slopes
9012C	Sayner-Lindquist complex, 6 to 15 percent slopes
9012D	Sayner-Lindquist complex, 15 to 30 percent slopes

	TILL SOILS
69B	Keweenaw-Sayner-Vilas complex, 2 to 6 percent slopes, stony
69C	Keweenaw-Sayner-Vilas complex, 6 to 15 percent slopes, stony
69E	Keweenaw-Sayner-Vilas complex, 15 to 45 percent slopes, stony
182B	Padus sandy loam, 0 to 6 percent slopes
182C	Padus sandy loam, 6 to 15 percent slopes
182D	Padus sandy loam, 15 to 30 percent slopes
192A	Worcester sandy loam, 0 to 3 percent slopes
203B	Wakefield fine sandy loam, 1 to 6 percent slopes, stony
203C	Wakefield fine sandy loam, 6 to 18 percent slopes, stony

APPENDIX D: Generalized Soil Types (continued)

	TILL SOILS (continued)
204C	Denomie silt loam, 6 to 15 percent slopes
204D	Denomie silt loam, 15 to 30 percent slopes
204F	Denomie silt loam, 30 to 60 percent slopes
242B	Fence silt loam, lake terrace, 0 to 6 percent slopes
242C	Fence silt loam, lake terrace, 6 to 15 percent slopes
3243A	Spear silt loam, lake terrace, 0 to 3 percent slopes
375A	Robago fine sandy loam, lake terrace, 0 to 3 percent slopes
376B	Tula fine sandy loam, 1 to 6 percent slopes, stony
384B	Springstead sandy loam, 1 to 6 percent slopes, stony
444B	Gichigami-Oronto complex, 0 to 6 percent slopes
509B	Gogebic fine sandy loam, 1 to 6 percent slopes, very stony
520A	Annriver silt loam, 0 to 2 percent slopes
527B	Padwood sandy loam, 0 to 6 percent slopes
538B	Butternut silt loam, 1 to 6 percent slopes, very stony
538C	Butternut silt loam, 6 to 15 percent slopes, very stony
538D	Butternut silt loam, 15 to 30 percent slopes, very stony
560A	Worwood sandy loam, 0 to 3 percent slopes
582D	Padus-Pence-Keweenaw complex, 15 to 30 percent slopes, stony
638B	Torch silt loam, 0 to 4 percent slopes, very stony
644B	Shanagolden fine sandy loam, 2 to 6 percent slopes, very stony
644C	Shanagolden fine sandy loam, 6 to 15 percent slopes, very stony
644D	Shanagolden fine sandy loam, 15 to 30 percent slopes, very stony
670B	Keweenaw-Pence complex, 0 to 6 percent slopes, stony
670C	Keweenaw-Pence complex, 6 to 15 percent slopes, stony
670E	Keweenaw-Pence complex, 15 to 45 percent slopes, stony
675A	Robago fine sandy loam, 0 to 3 percent slopes
683A	Tipler sandy loam, 0 to 3 percent slopes
701A	Whisklake silt loam, 0 to 3 percent slopes
712B	Morganlake loamy sand, 0 to 6 percent slopes
712C	Morganlake loamy sand, 6 to 15 percent slopes
730B	Glidden silt loam, 0 to 6 percent slopes, stony
730C	Glidden silt loam, 6 to 15 percent slopes, stony
730D	Glidden silt loam, 15 to 30 percent slopes, stony
744B	Peeksville fine sandy loam, 0 to 4 percent slopes, very stony
770B	Shanagolden-Pence complex, 2 to 6 percent slopes, stony
770C	Shanagolden-Pence complex, 6 to 15 percent slopes, stony
770D	Shanagolden-Pence complex, 15 to 30 percent slopes, stony
830A	Spiderlake silt loam, 0 to 3 percent slopes, stony
834B	Butternut-Spiderlake complex, 1 to 6 percent slopes, stony
835C	Butternut-Glidden complex, 6 to 15 percent slopes, stony
835D	Butternut-Glidden complex, 15 to 30 percent slopes, stony
852C	Pence-Padus complex, 6 to 15 percent slopes, stony
852D	Pence-Padus complex, 15 to 30 percent slopes, stony
874B	Keweenaw, stony-Rubicon complex, 0 to 6 percent slopes
874C	Keweenaw, stony-Rubicon complex, 6 to 15 percent slopes
1204B	Denomie-Gichigami complex, 2 to 6 percent slopes
1385B	Cublake-Keweenaw, stony complex, 0 to 6 percent slopes

APPENDIX D: Generalized Soil Types (continued)

TILL SOILS (continued)	
1451B	Gogebic, very stony-Annalake complex, 0 to 6 percent slopes
1451C	Gogebic, very stony-Annalake complex, 6 to 15 percent slopes
1633B	Shanagolden-Peeksville-Cable complex, 0 to 6 percent slopes, very stony
1633C	Shanagolden-Peeksville-Cable complex, 0 to 15 percent slopes, very stony
5146C	Amasa-Karlin complex, esker, 2 to 18 percent slopes
5171B	Tula-Wormet-Gogebic complex, 0 to 6 percent slopes, very stony
5172B	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes
5172C	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 18 percent slopes
5172D	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 35 percent slopes
5173D	Gogebic-Pence complex, 18 to 35 percent slopes, very stony
5351B	Gogebic silt loam, 2 to 6 percent slopes, very stony, rocky
5351C	Gogebic silt loam, 6 to 18 percent slopes, very stony, rocky
5351D	Gogebic silt loam, 18 to 35 percent slopes, very stony, rocky
5353B	Tula-Gogebic complex, 0 to 6 percent slopes, stony
5354B	Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky
5519B	Pence-Gogebic complex, 2 to 6 percent slopes, stony
5519C	Pence-Gogebic complex, 6 to 18 percent slopes, stony
5519D	Pence-Gogebic complex, 18 to 35 percent slopes, stony
5543B	Chabeneau-Annalake complex, 0 to 6 percent slopes
5684C	Amasa cobbly fine sandy loam, 6 to 18 percent slopes
5689B	Chabeneau-Channing-Gogebic complex, 0 to 6 percent slopes, stony
9013A	Tipler-Manitowish complex, 0 to 3 percent slopes
9113B	Padus-Karlin complex, 0 to 6 percent slopes
9113C	Padus-Karlin complex, 6 to 15 percent slopes
9113D	Padus-Karlin complex, 15 to 30 percent slopes

	TRANSITION SOILS (SAND & CLAY)
226A	Allendale loamy fine sand, 0 to 3 percent slopes
317D	Alcona fine sandy loam, lake terrace, 15 to 30 percent slopes
3512D	Menominee loamy sand, 15 to 30 percent slopes
514B	Iosco loamy sand, 0 to 4 percent slopes
517B	Annalake fine sandy loam, lake terrace, 2 to 6 percent slopes
517C	Annalake fine sandy loam, lake terrace, 6 to 15 percent slopes
526A	Flink sand, 0 to 3 percent slopes
705B	Cublake-Croswell-Ashwabay complex, 0 to 6 percent slopes
705C	Cublake-Croswell-Ashwabay complex, 6 to 15 percent slopes
713B	Kellogg-Allendale-Ashwabay complex, 2 to 6 percent slopes
713C	Kellogg-Allendale-Ashwabay complex, 0 to 15 percent slopes
805E	Sultz-Ashwabay-Rubicon complex, 15 to 45 percent slopes
813E	Manistee-Kellogg-Ashwabay complex, 15 to 45 percent slopes
905A	Cublake loamy sand, 0 to 3 percent slopes

	WATER
M-W	Miscellaneous water
W	Water

APPENDIX D: Generalized Soil Types (continued)

	WETLAND SOILS
193A	Minocqua muck, 0 to 2 percent slopes
319A	Tonkey sandy loam, 0 to 2 percent slopes
405A	Lupton, Cathro, and Tawas soils, 0 to 1 percent slopes
408A	Lupton and Cathro soils, 0 to 1 percent slopes
414A	Loxley and Beseman soils, 0 to 1 percent slopes
445A	Kinross muck, 0 to 2 percent slopes
548A	Pickford-Badriver complex, 0 to 3 percent slopes
738A	Cable silt loam, 0 to 2 percent slopes, very stony
815A	Wormet sandy loam, 0 to 3 percent slopes
3114A	Saprists, Aquents, and Aquepts, 0 to 1 percent slopes, ponded and flooded
3403A	Loxley, Beseman, and Dawson soils, 0 to 1 percent slopes
3423A	Rifle peat, 0 to 1 percent slopes
3826B	Allendale-Wakeley-Kinross complex, 0 to 6 percent slopes
5140A	Dawson, Greenwood, and Loxley soils, 0 to 1 percent slopes
5141A	Lupton-Pleine-Cathro complex, 0 to 1 percent slopes
5170A	Minocqua-Pleine-Cathro complex, 0 to 2 percent slopes
5373A	Cathro muck, drainageway, 0 to 1 percent slopes
5425A	Foxpaw-Gay, stony complex, 0 to 2 percent slopes
9051A	Minocqua, Cable, and Pleine soils, 0 to 2 percent slopes, very stony
9155A	Haplosaprists, Peats and Mucks, 0 to 1 percent slopes

APPENDIX E: Glossary of Terms

Algae: A group of microscopic, photosynthetic water plants. Algae give off oxygen during the day as a product of photosynthesis and consume oxygen during the night as a result of respiration. Therefore, algae affect the oxygen content of water. Nutrient-enriched water increased algae growth.

Alluvium: Clay, silt, sand, gravel, or similar detrital material deposited by running water.

Animal Waste Management: A group of practices including barnyard runoff management, nutrient management and manure storage facilities designed to minimize the effect s of animal manure on surface and groundwater resources.

Aquifer: A water-bearing stratus of permeable rock, sand, or gravel.

Area-wide Water Quality Management Plans: A plan to document water quality conditions in a drainage basin and make recommendations to protect and improve basin water quality. Each basin in Wisconsin my have a plan prepared for it, according to Section 208 of the Clean Water Act.

Basin Plan: See area-wide water quality management plan.

Best Management Practices (BMPs): The most effective, practical measures to control nonpoint sources of pollutants that run off from land surfaces.

Buffer Strips: Strips of grass, shrubs, trees, and other vegetation between disturbed areas and a stream, lake, or wetland.

Cluster Development: Grouping homes on part of a property while maintaining a large amount of open space on the remaining land.

Conservation Easement: A legal document that restricts the use of land to farming, open space, or wildlife habitat. A landowner may sell or donate an easement to a government agency or a private land trust.

Cost-Effective: A level of treatment or management with the greatest incremental benefit for the money spent.

Ecosystem: The interacting system of a biological community and its non-living surroundings.

Environmental Protection Agency (EPA): The federal agency responsible for enforcing federal environmental regulations. The EPA delegates some of its responsibilities for water, air, and solid waste pollution control to state agencies.

Erosion: The wearing away of land surface by wind or water.

Eutrophic: Refers to a nutrient-rich lake. Large amounts of algae and aquatic vegetation characterize a eutrophic lake.

Eutrophication: The process of nutrient enrichment of a lake leading to increased production of aquatic organisms. Eutrophication can be accelerated by human activity such as agriculture and improper waste disposal.

Fecal Coliform: A group of bacteria used to indicate the presence of other bacteria that cause disease. The number of coliform is particularly important when water is used for drinking and swimming.

Fishable and Swimmable: Refers to water quality goals set for the nation's surface waters by congress in the Clean Water Act. All waters were to meet this goal by 1984.

Floodplain: That land which has been or may be hereafter covered by flood water during the regional flood. The floodplain includes the floodway and the flood fringe, and may include other designated floodplain areas for regulatory purposes.

Food Chain: The sequence of organisms where each uses the next as a food source.

APPENDIX E: Glossary of Terms (continued)

Groundwater: Underground water-bearing areas generally within the boundaries of a watershed, which fill internal passageways of porous geologic formations (aquifers) with water that flows in response to gravity and pressure. Often used as the source of water for communities and industries.

Habitat: The place or type of site where a plant or animal naturally lives and grows.

Herbicide: A type of pesticide that is specifically designed to kill plants and can also be toxic to other organisms.

Macrophyte: A rooted aquatic plant.

Milligrams per Liter (mg/l): A measure of concentration of a substance in water. For most pollution measurements, this is the equivalent of parts per million (ppm).

Mitigation: The effort to lessen the damages from a particular project through modifying a project, providing alternatives, compensating for losses, or replacing lost values.

Nonmetallic Mining: Operations or activities at a nonmetallic mining site that extract mineral aggregates or nonmetallic minerals from the earth for sale or use by the operator.

Nonmetallic Mining Reclamation: Means the rehabilitation of a nonmetallic mining site to achieve a land use specified in a nonmetallic mining reclamation plan approved under the reclamation ordinance, including removal or reuse of nonmetallic mining refuse, grading of the nonmetallic mining site, removal, storage and replacement of topsoil, stabilization of soil conditions, reestablishment of vegetable cover, control of surface water and groundwater, prevention of environmental pollution and if practicable the restoration of plant, fish and wildlife habitat.

Nonpoint Source Pollution: Pollutants whose sources cannot be traced to a single point such as a municipal or industrial wastewater treatment plant discharge pipe. Nonpoint sources include eroding farmland and construction sites, urban streets, and barnyards. Pollutants from these sources reach water bodies in runoff, which can best be controlled by proper land management.

Nutrient Management Plan: A guidance document that provides fertilizer and manure spreading recommendations for crop fields based upon soil test results and crop needs.

Oligotrophic: Refers to an unproductive and nutrient-poor lake. Such lakes typically have very clear water.

Ordinary High Water Mark: The point on the bank or shore up to which the presence and action of surface water is so continuous as to leave a distinctive mark such as by erosion, destruction or prevention or terrestrial vegetation, predominance of aquatic vegetation, or other easily recognized characteristic.

Pesticide: Any chemical agent used to control specific organisms, such as insecticides, herbicides, fungicides, etc.

Phosphorus: A nutrient that, when reaching lakes in excess amounts, can lead to over-fertile conditions and algae blooms.

Point Source Pollution: Sources of pollution that have discrete discharges, usually from a pipe or outfall.

Pollution: The presence of materials or energy whose nature, location, or quantity produces undesired environmental effects.

Priority Watershed: A drainage area selected to receive stat funding to help pay the cost of controlling nonpoint source pollution.

APPENDIX E: Glossary of Terms (continued)

Private Sewage System: Means a sewage treatment and disposal system serving a single structure with a septic tank and soil absorption field located on the same parcel as the structure. This term also means an alternative sewage system approved by the department of industry, labor and human relations including a substitute for the septic tank or soil absorption field, a holding tank, a system serving more than one structure or system located on a different parcel than the structure.

Productivity: A measure of the amount of living matter which is supported by an environment over a specific period of time. Often described in terms of algae production for a lake.

Public Participation: The active involvement of interested and affected citizens in governmental decision-making.

Purchase of Development Rights (PDR): The voluntary sale of the rights to develop a piece of property by the landowner to a government agency or land trust. The sale price is determined by an appraisal. The land is restricted to farming or open space.

Reduced Tillage: Planting row crops while only slightly disturbing the soil. Plant residue stays on the surface and erosion rates decrease.

Riparian: Belonging or relating to the bank of a lake, river, or stream.

Rip Rap: Broken rock, cobbles, or boulders placed on the bank of a stream to protect it against erosion.

Runoff: Water from rain, snowmelt, or irrigation that flows over the ground surface and returns to streams and lakes. Runoff can collect pollutants from air or land and carry them to receiving waters.

Sediment: Soil particles suspended in and carried by water as a result of erosion.

Shoreland District: Refers to lands within the following distances from the ordinary high water mark of navigable waters: 1,000 feet from a lake, pond or flowage; and 300 feet from a river or stream or to the landward side of the floodplain, whichever distance is greater.

Shoreland-Wetland District: Refers to areas within the Shoreland District that are designated as wetlands by the Wisconsin Wetland Inventory maps.

Storm Sewers: A system of sewers that collect and transport rain and snow runoff. In areas that have separated sewers, such stormwater is not mixed with sanitary sewage.

Tolerable Soil Loss: The tolerable soil loss rate, commonly referred to as "T", is the maximum average annual rate of soil erosion for each soil type that will permit a high level of crop productivity to be sustained indefinitely.

Total Maximum Daily Loads (TMDL): The maximum amount of a pollutant that can be discharged into a stream without causing a violation of water quality standards.

Trophic Status: The level of growth or productivity of a lake as measured by phosphorus content, algae abundance, and depth of light penetration.

Turbidity: Lack of water clarity. Turbidity is usually closely related to the amount of suspended solids in water.

Uniform Dwelling Code: A statewide building code enforced in communities larger than 2500 residents, specifying requirements for electrical, heating, ventilation, fire, structural, plumbing, construction site erosion c, and other construction related practices.

Variance: Government permission for a delay or exception in the application of a given law, ordinance, or regulation. Also, see water quality standards variance.

APPENDIX E: Glossary of Terms (continued)

Waste: Unwanted materials left over from manufacturing processes; refuse from places of human or animal habitation.

Water Quality Criteria: A measure of the physical, chemical, or biological characteristics of a water body necessary to protect and maintain different water uses (fish and aquatic life, swimming, etc).

Water Quality Standards: The legal basis and determination of the use of a water body and the water quality criteria; physical, chemical, or biological characteristics of a water body, that must be met to make it suitable for the specified use.

Water Quality Standard Variance: When natural conditions of a water body preclude meeting all conditions necessary to maintain full fish and aquatic life and swimming, a variance may be granted.

Watershed: The land area that drains into a lake or stream.

Wetlands: Means those areas where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which have soils indicative of wet conditions.

Wisconsin Administration Code: The set of rules written and used by state agencies to implement state statutes. Administrative codes are subject to public hearing and have the force of law.

Wisconsin Wetland Inventory Maps: The Wisconsin Wetland Inventory was established in 1978 to help protect wetlands. The DNR was directed to map the state's wetlands. The initial inventory was completed in 1984. Maps are available for the entire state.

Wisconsin Nonpoint Source Water Pollution Abatement Grant Program: A state cost-share program established by the state legislature in 1978 to help pay the costs of controlling nonpoint source pollutions. This program is also known as the nonpoint source element of the Wisconsin Fund or the Priority Watershed Program.

APPENDIX F: Commonly Used Acronyms

BIA	Bureau of Indian Affairs
BMP	Best Management Practice
CNNF	Chequamegon-Nicolet National Forest
COMM	Wisconsin Department of Commerce
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
DATCP	Wisconsin Department of Agriculture, Trade & Consumer Protection
DNR	(Wisconsin) Department of Natural Resources
EQIP	Environmental Quality Incentives Program (USDA-NRCS)
EPA	U.S. Environmental Protection Agency
FPP	Wisconsin Farmland Preservation Program
FSA	Farm Service Agency (USDA)
GIS	Geographic Information System
GLIFWC	Great Lakes Indian Fish & Wildlife Commission
GLNAC	Great Lakes Nonpoint Abatement Coalition
GMU	Geographic Management Unit
HEL	Highly Erodible Land
I&E	Information and Education
IRMP	Integrated Resource Management Plan
LAC	Local Advisory Committee
LCC	Land and Water Conservation Committee
LCD	Land (and Water) Conservation Department
LUG	Local Unit of Government
LWCB	Land and Water Conservation Board
LWCD	Land and Water Conservation Department
LWRMP	Land & Water Resource Management Plan
NACD	National Association of Conservation Districts
NAWCA	North American Waterfowl Conservation Act
NERR	National Estuarine Research Reserve
NMP	Nutrient Management Plan
NRCS	Natural Resources Conservation Service
NWLCA	Northwest Land Conservation Association
ORW/ERW	Outstanding/Exceptional Resource Waters
RC&D	Resource Conservation & Development
SIP	Stewardship Incentive Program
SOC	Standard Oversights Council
SWRM	Soil & Water Resource Management (DATCP)
USFWS	United States Fish and Wildlife Service
USEPA	United States Environmental Protection Agency
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UWEX	University of Wisconsin-Extension
WAL	Wisconsin Association of Lakes
WALCE	Wisconsin Association of Land Conservation Employees
WDNR	Wisconsin Department of Natural Resources
WEEB	Wisconsin Environmental Education Board
WGNHS	Wisconsin Geological and Natural History Survey
WHIP	Wildlife Habitat Incentives Program (NRCS)
WLWCA	Wisconsin Land and Water Conservation Association
WPDES	Wisconsin Pollutant Discharge Elimination System
WRP	Wetland Reserve Program

Appendix G: Approved Conservation Practices

The following table lists all conservation practices currently listed in Chapter ATCP 50 and the funding source for the installation of the practice or activity. Counties may request that the department seek bond counsel permission to use bond funds for practices not listed below.

Practice	ATCP 50 Code	Funding Source	Units
Land taken out of agricultural production	50.08(3)	Bonding	Acres
Riparian land taken out of agricultural production	50.08(4) 50.42(1)	Bonding	Acres
Manure storage systems	50.62	Bonding	#
Manure storage closure	50.63	Bonding	#
Barnyard runoff control systems	50.64	Bonding	#
Access road or cattle crossing	50.65	Bonding	Linear Ft.
Animal trails and walkways	50.66	Bonding	Linear Ft.
Contour farming	50.67	GPR	Acres
Cover and green manure crop	50.68	GPR	Acres
Critical area stabilization	50.69	Bonding	#
Diversions	50.70	Bonding	Linear Ft.
Field windbreaks	50.71	Bonding	Linear Ft.
Filter strips	50.72	Bonding	Acres
Grade stabilization structures	50.73	Bonding	#
Heavy use area protection	50.74	Bonding	Acres
Livestock fencing	50.75	Bonding	Linear Ft.
Livestock watering facilities	50.76	Bonding	#
Milking center waste control systems	50.77	Bonding	#
Nutrient management	50.78	GPR	Acres
Pesticide management	50.79	GPR	#
Prescribed grazing	50.80		
a. management plan		GPR	#
b. fencing (not permanent)		GPR	Linear Ft.
c. fencing (permanent)		Bonding	Linear Ft.
d. establish permanent pasture (seeding)		Bonding	Acres
Relocating or abandoning animal feeding operations	50.81	Bonding	#
Residue management	50.82	GPR	Acres
Riparian buffers	50.83		
a. installation (including land out of production)		Bonding	Acres
b. maintenance		GPR	Acres
Roofs	50.84	Bonding	#
Roof runoff systems	50.85	Bonding	#
Sediment basins	50.86	Bonding	#
Sinkhole treatment	50.87	Bonding	#
Streambank and shoreline protection	50.88	Bonding	Linear Ft.
Strip-cropping	50.89	GPR	Acres
Subsurface drains	50.90	Bonding	#
Terrace systems	50.91	Bonding	Linear Ft.
Underground outlet	50.92	Bonding	#
Waste transfer systems	50.93	Bonding	#
Wastewater treatment strips	50.94	Bonding	Linear Ft.
Water and sediment control basins	50.95	Bonding	#
Waterway systems	50.96	Bonding	Acres
Well decommissioning	50.97	Bonding	#
Wetland restoration	50.98	Bonding	Acres
Engineering services (also refer to 50.40(7)	50.34(4)	Bonding	
Other cost-effective practices with DATCP's written approval	50.40(3)(a)	GPR	