



Regional and Property Analysis

Northwest Barrens Properties Burnett, Douglas, & Washburn Co, Wisconsin

Wildlife Areas

1. Namekagon Barrens
2. Douglas County

Wild River & Outstanding Resource Water

3. Totogatic Wild River

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Cover Photo – Douglas County Wildlife Area WDNR

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MAP F: CREX-NAMEKAGON BARRENS PARTNERSHIP CORRIDOR

SERIES* MAPS INCLUDE THE FOLLOWING:

1 = DNR & OTHER LANDS

1A = AERIAL VIEW

2= EXISTING RECREATION INFRASTRUCTURE

2A= EXISTING ROAD INFRASTRUCTURE

3= EXISTING LAND COVER

4= PRIMARY SITES

5= CULTURAL RESOURCES LOCATOR

1. INTRODUCTION, PROPERTY HISTORY AND OVERVIEW

PURPOSE OF REGIONAL AND PROPERTY ANALYSIS

A Regional and Property Analysis is required by Chapter NR 44, Wisconsin Administrative Code, when developing a property master plan, a plan revision or amendment. Property Master Plans are required to be revisited and updated at 15-year intervals. The Regional and Property Analysis is the first phase and foundation of the planning process. Functionally, it highlights those elements in a regional context that are most important to consider when planning the property and identifies the most suitable potential future roles or niches for a property.

REGIONAL ANALYSIS

The Regional Analysis component of this document describes the biological/ecological, cultural, economic, and recreational environment that affects the properties and their uses. It characterizes the existing property resources within the Ecological Landscape in which they exist and highlights the degree to which they are significant both regionally and within the project boundary. It identifies significant ecological and recreational needs of the region. It also defines existing and potential social demands or constraints that affect these properties and should be considered during the planning process.

PROPERTY MANAGEMENT

The Property Management component provides a brief property history, and describes existing uses, infrastructure, management, opportunities, and constraints on these properties. This section also describes surrounding and adjacent lands, indicating how the character of these lands may affect these properties or their uses.

FINDINGS AND CONCLUSIONS

Based on all the regional and property data in the body of the document, the Findings and Conclusions section outlines the best probable future role or niche for these properties. It helps focus the planning process and becomes the foundation for building the plan's vision and goals, and action strategies.

INTRODUCTION TO PROPERTIES BY DESIGNATION

The properties included in this planning group are two state Wildlife Areas with one embedded State Natural Area, and one Wild River Area. The scope of use and management of a state property is governed by its official designation.

WILDLIFE AREAS

Wildlife Areas are acquired and managed under the authority of Sec. 23.09 (2) (d) 3 Wis. Statutes, and ch. NR 1.51 Administrative Code. Wildlife Areas are designated to provide places where people can hunt, trap or fish. Wildlife Areas are also open for traditional outdoor uses of walking, skiing, snow shoeing, nature study, berry picking, and other low-impact recreational activities. As directed by chs. NR 1.51 and NR 1.61, other recreational uses may be allowed by the Master Plan if those uses do not detract from the primary purpose of these properties.

WILD RIVERS

Wild Rivers are designated by the state legislature, and managed under the authority of s. 30.26, Wis. Statutes, and [ch. NR 302](#) Administrative Code. They are established specifically to provide the people of the state an opportunity to enjoy natural streams, to preserve some rivers in a free-flowing condition, protect them from development, and to attract out-of-state visitors and assure the well-being of the tourist industry. Only five Wisconsin rivers, or portions of those rivers, are designated as Wild Rivers, including the Totogatic River. Within DNR-owned lands of a designated Wild River, state administrative code specifies: no vegetative control within 150 feet from the bank on either side of the river, and additional restrictions beyond 150 feet, walk-in access only, no motorized vehicles within one-quarter mile of the river, no stream alterations, no maintained trails within 400 feet of the river, and few developed parking lots or canoe put-ins. These rules are intended to preserve the wild and scenic qualities of the river.

OUTSTANDING RESOURCE WATERS

Outstanding Resource Waters (ORW) receive the state's highest protection standards. Wisconsin has 53,413 streams and rivers, but only 254, or less than 1%, are designated as ORW. Outstanding Resource Waters typically do not have any point sources discharging pollutants directly to the water (i.e., 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.

STATE NATURAL AREAS

Natural Areas are defined and authorized in sections 23.27-23.29 Wisconsin Statutes and ch. NR 1.32 Administrative Code as “an area of land or water which has educational or scientific value or is important as a reservoir of the state’s genetic or biological diversity and includes any buffer area necessary to protect the area’s natural value.” Section 23.27(1) defines natural areas as “reserves for native biotic communities...habitat[s] for endangered, threatened, or critical species...or areas with highly significant geological or archaeological features.” Section 23.28(1) provides authority to designate areas as State Natural Areas and Section 23.29 provides authority to legally dedicate and protect State Natural Areas in perpetuity.

While the intent of the Natural Areas program is to preserve the best examples of the state’s diverse natural communities, other recreational uses may be allowed, if they do not threaten the site’s natural values.

HISTORICAL OVERVIEW OF NORTHWEST BARRENS PROPERTIES (MAPS A, B, F)

The Northwest Barrens (NWB) properties included in this planning group are: Namekagon Barrens and Douglas County state wildlife areas, and Totogatic Wild River, located in northwest Wisconsin (Burnett, Washburn, and Douglas counties; Map A). A state natural area lies embedded within Douglas County Wildlife Area. Regionally connected to other grasslands and oak/pine barrens, this area is a premiere open landscape in the state for birds.

The oak/pine barrens community extends from northern Polk County to southern Bayfield County and covers 1,900 square miles (Map B). This represents a rare, geographically restricted and globally imperiled habitat. In North America, Pine Barrens exist primarily in the upper Midwest, especially in Wisconsin, Michigan, and Minnesota. Pine Barrens with similar vegetation in the northeastern United States are also globally rare, but are composed of a different assemblage of species and completely lack the prairie flower and grass component present in Wisconsin barrens communities. Wisconsin has the most significant (and possibly the best) opportunity in North America to preserve, restore, and manage large scale barrens communities. This fire-adapted savanna system typically occurs on sandy, glacial outwash soil, dominated by grasses, low-growing shrubs and trees, and scattered large trees (Curtis 1959, WDNR 2015b). The importance of this landscape for preserving species biodiversity cannot be overstated.

The Northwest Barrens properties are within the ceded territory of the Ojibwe Tribes and are located near the St. Croix and Lac Courte Oreilles Bands of the Lake Superior Ojibwe, also known as the Chippewa. Prior to European settlement, Fox, Dakota, and Chippewa Tribes used the area extensively for hunting and gathering (Appendix E). Sedge marshes, jack pine-scrub oak, and prairie savanna were maintained by wildfires. During the middle 1800’s, European settlers began draining wetlands and logging, which led to large scale commercial drainage, fire control, and large scale disappearance of wildlife, including waterfowl and cranes. Many sites were over-logged, farming was attempted, abandoned and lands became tax delinquent. By the 1940’s the sandy soils were depleted of resources, and nearly two thirds of the land in the region was tax delinquent. The state (with help from federal financing) began purchasing tax delinquent lands to restore the original uplands and wetlands as public wildlife areas. Some tax delinquent lands were given to the respective counties in a cooperative state-county program that established the county forest system.

The Totogatic Wild River flows approximately 70 miles through portions of five counties and eventually empties into the Namekagon River in Burnett County. It is a major tributary to the Namekagon and the St. Croix National Wild and Scenic Riverway. The shoreline is relatively wild for much of the river’s length. The name “Totogatic” comes from the Ojibwe word “Totogan” meaning “place of floating bogs” or “boggy river” (Romance of Wisconsin Place Names, 1988). Plat books, maps and tour books show two spellings for the river and its flowages. “Totogatic” and “Totagatic” are used interchangeably in these reference materials. Pronunciation is varied between “Tuh-TO-ga-tec,” “To-TA-ga-tec,” “To-to-GAT-ic,” “To-BA-tec,” and just “TO-ga-tec” according to long-time local residents. Each spelling and pronunciation has a strongly defended local following, and devotees of one consider use of the others incorrect.

Abundant hunting and wildlife viewing opportunities exist. Collectively, these properties have similar attributes, are located entirely within the Northwest Sands Ecological Landscape, and comprise nearly 13,000 acres of state protected and managed land. Property locations are identified among regional landmarks on Maps A, B and F. Property infrastructure and vegetation details are represented on additional maps (Map Series C-E) and discussed later in this document.

NORTHWEST BARRENS PROPERTIES (12,816 acres) included in this planning group are:

1. **Namekagon Barrens Wildlife Area** – located at the junction of Burnett, Douglas, and Washburn counties. It consists of two units located a few miles apart; approximately 7 miles east of STH 35 and 11 miles west of the Village of Minong and STH 53. The north unit (5668 ac) is located along St. Croix Trail Rd; the south unit (753 ac) is bisected by Springbrook Trail Rd. The well-known Namekagon River, a tributary to the St. Croix National Wild and Scenic River flows between the north and south units. Both rivers are part of the federal National Wild and Scenic Rivers system.

Property	Acreage
1. Namekagon Barrens Wildlife Area	6,438
2. Douglas County Wildlife Area	4,005
3. Totogatic Wild River Area	2,373

2. **Douglas County Wildlife Area** – located in southeast Douglas County, between the villages of Solon Springs and Gordon; easily accessible from STH 53 (west on CTH M). It has been known as the *Bird Sanctuary* since 1935 (including highway signs), when it was established to preserve sharp-tailed grouse habitat. DNR manages the wildlife area (994 acres owned; 3,011 leased) through a 25-year lease agreement with Douglas County Forestry. Douglas County solely manages the 20-acre recreation area within the project boundary.

- Solon Springs Sharptail Barrens State Natural Area (240 acres) is embedded within the county property.

3. **Totogatic Wild River** - located in northwestern Washburn County, 2 ½ miles southeast of Namekagon Barrens Wildlife Area, 1 mile north of STH 77 and west of STH 53 and the Village of Minong. The property includes seven scattered parcels adjacent to the Totogatic River, south of the Minong Flowage, and near the river’s confluence with the Namekagon River.



Canoeing the Totogatic River. Photo by UW Extension.

2. REGIONAL ANALYSIS

This Regional Analysis is defined within an Ecological Landscape framework of Wisconsin, to describe current knowledge, use and potential of three elements: Biological Resources, Socio-economic Characteristics, and Recreational Resources.

ECOLOGICAL LANDSCAPES OF WISCONSIN

The “Ecological Landscapes of Wisconsin” handbook (WDNR, 2015b), delineates 16 Ecological Landscapes in Wisconsin that have similar ecology and management potential. For each Ecological Landscape there are: 1) descriptions of ecological resources and socioeconomic conditions; 2) descriptions of Wisconsin’s role in sustaining these resources within regional and global perspectives, and 3) highlights of ecological management opportunities best suited for each Ecological Landscape.

This handbook was designed to provide the scientific information needed to make strategic and effective decisions in department master planning. Its use creates efficiency by integrating and focusing the work of multiple department and partner programs (Water, Forestry, Fish, Wildlife and Endangered Resources), plans, and funding sources within the framework of an Ecological Landscape. The handbook provides tools to develop management strategies that are ecologically appropriate for a region. Applying ecosystem management concepts and opportunities described in the handbook may prevent conflicting or incompatible management among different department programs on adjoining lands.

NORTHWEST SANDS

The **Northwest Sands** is the Ecological Landscape in which the Northwest Barrens properties reside. The Northwest Sands regional descriptions of biological resources, socio-economic characteristics and recreational resources are provided in Chapter 17 of the *Ecological Landscapes Handbook*. This Chapter is incorporated by reference in its entirety within this planning document. Information on Chapter 17 and the remainder of the handbook are accessible on the Wisconsin DNR website (dnr.wi.gov) searching keyword “landscapes.”

The chapter’s introductory summary, “**Northwest Sands Ecological Landscape at a Glance**” (included below) provides a quick overview of the types of information useful in this planning effort. This “landscape at a glance” was copied verbatim (below) from the *Ecological Landscape Handbook*. Figure 1 depicts a map showing the Northwest Barrens properties overlaid on the Ecological Landscapes of Wisconsin.

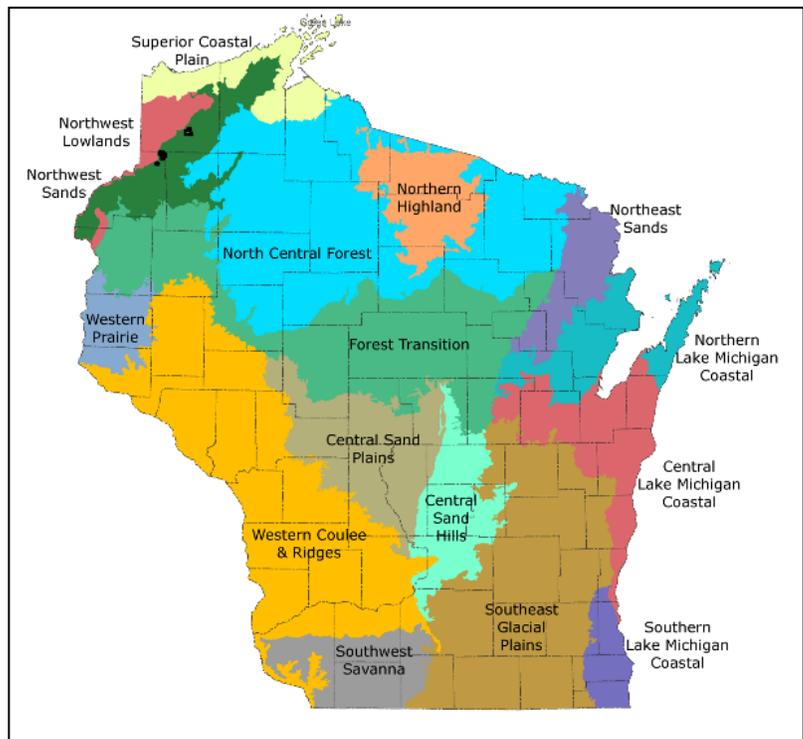


Figure 1: Northwest Barrens Properties (in black) and the 16 Ecological Landscapes of Wisconsin.

NORTHWEST SANDS ECOLOGICAL LANDSCAPE AT A GLANCE (WDNR, 2015)

Physical and Biotic Environment	
Size	1,956 square miles (1,251,723 acres) of land surface are within the Northwest Sands Ecological Landscape. This is 3.5% of the land area of the State of Wisconsin.
Climate	Mean annual temperature (41.30 F) is similar to other northern ecological landscapes. Annual precipitation averages 31.4 inches and annual snowfall about 61 inches, also similar to other northern ecological landscapes. The growing season is short and averages 121 days. Although there is adequate rainfall to support agricultural row crops such as corn, the sandy soil and short growing season limit row crop agriculture, especially in the northern part of the ecological landscape.
Bedrock	Underlying bedrock at the southern edge of the Northwest Sands is Cambrian quartzose and glauconitic sandstone and siltstone. In the northern portion, the bedrock is Precambrian basalt, lithic conglomerate, shale, and feldspathic to quartzose sandstone. Bedrock is covered with 100 to 600 feet of glacial drift (sand, gravel, and silt), with the thickest deposits in the northern half. No terrestrial bedrock exposures are known from this ecological landscape.
Geology and Landforms	This ecological landscape is the most extensive and continuous xeric glacial outwash system in northern Wisconsin. It has two major geomorphic components. One is a large outwash plain pitted with depressions, or "kettle lakes." The other component is a former spillway of Glacial Lake Duluth (which preceded Lake Superior) and its associated terraces. The spillway is now a river valley occupied by the St. Croix and Bois Brule Rivers. The hills in the northeast are formed primarily of sand, deposited as ice-contact fans at the outlet of subglacial tunnels. Lacustrine deposits (especially fine materials of low permeability such as clays) from Glacial Lake Grantsburg underlie Crex Meadows and Fish Lake Wildlife Areas, and are responsible for impeding drainage, leading to the formation of the large wetlands there.
Soils	Upland soils are typically sands or loamy sands over deeper-lying strata of sand, or sand mixed with gravel. These soils drain rapidly, leading to xeric, droughty conditions within the ecological landscape. Wetlands in low-lying depressions have organic soils of peat or muck.
Hydrology	This ecological landscape has significant concentrations of glacial kettle lakes, most of them seepage lakes, a well-developed pattern of drainage lakes, and several large wetland complexes. The lakes cover roughly 4.8% of the area of the Northwest Sands, the third highest percentage among ecological landscapes in Wisconsin. The headwaters of the St. Croix and Bois Brule rivers are here. Major rivers include the St. Croix, Namekagon, Yellow, and Totogatic. Springs and seepages are common along the Upper Bois Brule but local elsewhere.
Current Landcover	Landcover is a mix of dry forest, barrens, grassland, and agriculture, with wetlands occupying significant parts of the bed of extinct Glacial Lake Grantsburg, kettle depressions, and some river valleys. Within the forested portion, pine, aspen-birch, and oak are roughly equally dominant. The maple-basswood, spruce-fir, and bottomland hardwood forest types occupy small percentages of the ecological landscape's forests. The open lands include a large proportion of grassland and shrubland. Emergent/wet meadow and open water are significant in the southern part of the Northwest Sands. There is very little row-crop agriculture.
Socioeconomic Conditions - The counties included in this socioeconomic region are: Bayfield, Burnett, Douglas and Washburn.	
Population Density	21 persons/ mi ²
Per Capita Income	\$26,208
Economic Sectors	The largest employment sectors in 2007 were: Government (18.7%); Tourism-related (15.8%), Retail trade (10.7%); Health care and social services (9.7%). Although forestry does not have a large impact on the number of jobs, it is the sector that has the largest impact on the natural resources in the ecological landscape.
Public Ownership	Forty-eight percent of the land and water in the NWS EL is in public ownership. Federal lands include parts of the Chequamegon-Nicolet National Forest and the St. Croix National Scenic Riverway. Important state-owned lands include Crex Meadows, Fish Lake, Amsterdam Sloughs, Namekagon Barrens, Douglas County Wildlife Areas, and parts of the Brule River and Governor Knowles State Forests. Extensive county forests are owned by all four counties.

Other Notable Ownerships	The Wisconsin Chapter of The Nature Conservancy has conservation agreements with a number of persons owning land along and near the Brule River in Douglas County. Wisconsin DNR has a working forest conservation easement on approximately 65,000 acres of forest owned and managed by Lyme St. Croix Forest Company in Bayfield, Burnett, Douglas and Washburn counties.
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Considerations for Planning and Management

Lakeshore development has been occurring at a rapid rate, partly because of this ecological landscape's close proximity to the Minneapolis-St. Paul metropolitan area. The sandy soils are low in productivity and highly erodible, and great care must be taken when planning and conducting timber harvests, and in using motorized recreational vehicles such as ATVs, to avoid causing damage to slopes and fragile vegetation. Many rare plants and animals occur here, especially in the barrens and sedge meadow habitats, and these need consideration when planning and conducting management activities here. Increasing connectivity between patches of open or semi-open lands such as pine or oak barrens remnants, and reducing habitat fragmentation and isolation, are major management considerations for the Northwest Sands. Achieving greater connectivity between open habitats may be accomplished by the use of firebreaks, timber sales, rights-of-way, pastureland, CRP, or other types of non-forested cover. There is typically sharp contrast ("hard edge") between the open, non-forested habitats and the surrounding dry forests. Identifying areas where some of this high contrast hard edge may be reduced is needed to plan for and provide greater structural variability in the dynamic barrens ecosystems and to better meet the needs of species not well adapted to either very open or densely canopied habitats. Much of the vegetation here is dependent on periodic disturbance, especially via the use of prescribed fire. Some types of land disturbance can facilitate the colonization and spread of invasive plants. Leafy spurge and spotted knapweed are among the invasive plants currently posing problems in sandy uplands. Common reed and purple loosestrife is present in some open wetlands and may be increasing. Glossy buckthorn has been reported from the extensive cedar swamps along the upper Brule River.

Management Opportunities

The Northwest Sands is the best place in Wisconsin to manage for the globally rare Pine Barrens community. Large-scale barrens management is possible here because of the ecological suitability of the land, the presence of numerous remnants, and substantial public ownership. There are opportunities to connect existing barrens remnants and restoration projects with corridors and manage them with a mosaic of compatible vegetation types. Prescribed fire and other management tools can be used to develop more diverse structural characteristics, and to enhance or restore species composition in many pine-oak barrens communities. Some of the state's best places to manage for dry forests of jack pine, northern pin oak, and red pine are found here. There are also opportunities to manage for older dry-mesic white pine/red pine/red oak forests, in the rugged northern part of the ecological landscape, on the slopes above the Bois Brule River in Douglas County, along the St. Croix River in Burnett and Polk counties, and at scattered locations elsewhere.

Wetlands are extensive, provide habitat for many sensitive species and represent major management opportunities. The open meadows and marshes in the southwestern part of the Northwest Sands are particularly important because of their size, condition, intact hydrology, and the presence of numerous habitat specialists. Some of the larger marshes are within the managed flowages at Crex Meadows and Fish Lake Wildlife Areas, and at Gordon on the St. Croix River. Acid peatlands of black spruce-tamarack swamp, muskeg, open bog, and poor fen are widespread and common, especially in areas of pitted outwash, where lakes and poorly drained kettle depressions are important landscape features.

The Northwest Sands harbors significant concentrations of glacial kettle lakes. Development pressures are high. The lakes provide high quality habitats for aquatic organisms, resident and migratory birds, and many other species. Inland Beaches are rare, localized, or absent in most of Wisconsin. Here, beach communities occupy the sand and gravel littoral zones of softwater seepage lakes with upland shorelines and which experience naturally fluctuating water levels. There is a need to conduct an inventory of lacustrine and beach habitats to identify the best occurrences and associated rare species populations. The protection of undeveloped lakes and associated high-quality habitats is a significant opportunity in the Northwest Sands.

The St. Croix, Namekagon, Totogatic, Bois Brule, and Eau Claire rivers warrant special attention because of their excellent water quality, exceptional aquatic biota, recreational opportunities, and aesthetic features. The north-south orientation of the St. Croix and Bois Brule rivers, along with the generally unfragmented condition of the forests bordering these rivers, makes them highly significant to migratory birds and probably, to other species. The extensive white cedar swamp along the upper Bois Brule River is among Wisconsin's best examples of that community type and merits strong protection. Excellent occurrences of alder thicket, springs and spring seeps, and spring ponds also occur along the upper Brule and present additional management and protection opportunities.

COMMUNITY INVOLVEMENT AND PARTNERSHIPS

Friends of Namekagon Barrens Wildlife Area, Inc. established in 2007, is a dedicated volunteer group organized for the sole, charitable purpose of supporting the management of the Namekagon Barrens Wildlife Area (NBWA). It is a non-profit corporation that provides volunteer and financial assistance needed to support the management of early successional barrens habitat and educational activities directed towards promotion of barrens habitat and the NBWA (Appendices B & C). For more information, visit [Friends of Namekagon Barrens Wildlife Area \(http://www.fnbwa.org/\)](http://www.fnbwa.org/).

Friends of the Bird Sanctuary (Douglas County Wildlife Area) was established in 2005 for the charitable and educational purpose of supporting, assisting, and promoting the Wisconsin Department of Natural Resources with interpretive, scientific, historical, educational, management, and related visitor services at Douglas County Wildlife Area. For more information, visit [Friends of the Bird Sanctuary \(http://fotbs.org/\)](http://fotbs.org/).

Wisconsin Sharp-tailed Grouse Society, Inc. was established in 1990 by sportsmen, conservationists, and citizens interested in the charitable preservation of sharp-tailed grouse and their habitat in Wisconsin. Objectives include: to publicize the sharptails plight in Wisconsin; educate the public and resource professionals about sharptails; encourage the management of sharptail habitat; promote both hunting and non-hunting recreational use of sharptails; and influence both state and local decisions that will benefit sharp-tailed grouse and other barrens species. (<http://www.wisharptails.org/>)

Dog Trialers (Amateur Field Trial Clubs of America, Northwest Field Trial Association, Chippewa Valley Grouse Dog and AKC Breed Clubs) have maintained field trials and supported both Douglas County Wildlife Area and Namekagon Barrens Wildlife Area respectively since 1925 and 1991. The trials at the Douglas County Wildlife Area were one of the first and are one of the longest running field trials in the country. Their members contribute financially and volunteer labor and supplies towards property and habitat management.

Washburn County Lakes and Rivers Association, Inc. was established in 1999 as a non-profit for protection of the water resources of Washburn County. The Association played a lead role in the 2009 designation of the Totogatic River as Wisconsin's fifth Wild River.

WCLRA was instrumental in preserving 262 acres with 2.5 miles of pristine forested shoreland along the Totogatic River in cooperation with the landowners, The Conservation Fund and Wisconsin DNR Stewardship Grant. The WCLRA purchased land in 2012 and donated it in 2013 to Wisconsin DNR for continued protection of the watershed.

This association represents 25 lake and river organizations and roughly 350 individual members who value the 964 lakes and roughly 700 miles of rivers and streams in Washburn County. For more information, visit <http://www.wclra.org/>

The Conservation Fund, Inc. is a national non-profit land trust. The Fund has worked in all 50 states to protect more than 7.5 million acres of land since 1985. It has been instrumental in protecting critical barrens habitat areas in Wisconsin, such as assisting DNR in acquisition of the 3800 acre Totogatic Wild River area and the Brule St. Croix Legacy Forest conservation easement (67,000 acres and the state's largest conservation project in history). Recently, The Conservation Fund donated a 1,400-acre addition to DNR for the Namekagon Barrens Wildlife Area. For more information, visit: www.conservationfund.org.

St Croix River Association, Inc. (SCRA) established in 1911, advocates for stewardship of all waters in the St. Croix Basin in Wisconsin and Minnesota. SCRA supports land conservation measures and sound watershed practices. Their mission is to "protect, restore and celebrate the St. Croix River and its watershed." For more information, visit <http://stcroixriverassociation.org/>

St. Croix Conservation Collaborative established in 2006, is a coalition of 19 partner groups in Wisconsin and Minnesota who identify basin-wide conservation priorities and collaborate to pursue them. The coalition identified the Totogatic River as a Conservation Priority Area in 2006 and helped secure its Wild River designation. For more information, visit <http://blogs.ces.uwex.edu/haack/welcome-to-the-st-croix-basin/st-croix-river-association-3/st-croix-conservation-collaborative/>

St. Croix National Scenic Riverway (U.S. National Park Service) is an active partner in the area in recreation, river protection, and land management. The National Park Service manages the land and access to the Namekagon and St. Croix National Wild and Scenic Rivers, along with river and waterway protection, and research of these federally designated waters. For more information, visit <http://www.nps.gov/sacn/index.htm>

Burnett County Forestry has partnered with DNR wildlife management since 1956 by entering into an agreement to lease over 5,600 acres for pine/oak barrens habitat. This partnership has been a key to the protection and management of Namekagon Barrens Wildlife Area. With the land trade that closed in 2015, Burnett County transferred ownership of 5,000 acres to DNR wildlife management, ensuring future protection for this important wildlife area. The partnership continues as Burnett County works with the **Crex-Namekagon Barrens Partners** to incorporate priorities of the Burnett County Forest Fifteen Year Plan, the Northwest Sands Landscape Level Management Plan, DNR Wildlife Action Plan, Sharp-tailed Grouse Management Plan, NW Sands Habitat Corridor Plan, and DNR Land Legacy Report. Collaboration is intended to offset dwindling wildlife populations, benefit outdoor recreationists, better address established conservation goals, enhance local partnerships, and support the local timber industry. (Appendix F, Map F)

Douglas County Forestry Department has a mission to enhance the quality of life in the county by ensuring long-term health, viability and productivity of County Forest lands, and provide diverse recreational opportunities to residents and visitors that meet the needs of current and future generations. Since 1948 Wisconsin DNR has partnered with [Douglas County Forestry](#) to manage the Douglas County Wildlife Area via a lease agreement. Douglas County manages their 20-acre developed recreation area located within the project boundary. The origin of the wildlife area can be traced back to 1925 when the Northern States Amateur Field Trial Association conducted its first sport dog trial on the property. [An informational brochure](#) about the wildlife area, produced by Douglas County Forestry is available on-line.

Washburn County Forestry Department manages a wide variety of forest types: from rolling oak hills and pothole lakes in the southeast; Pine Barrens in the northwest; and aspen, hardwoods and swamps. The County Forest Comprehensive Land Use Plan, developed with input of county, state, local townships, area groups, and individuals, originally designated the Totogatic River as a “County Wild River”, prior to it being designated as a State Wild River. The Washburn County Board and Forestry Dept. staff provided the original request to the DNR to seek Wild River designation, and partnered in working with the public and legislators to secure this protection for the river. The river flows through significant tracts of County Forest, particularly in the eastern portion of Washburn County.

Friends of Crex, Inc. established in 1984, is a dedicated volunteer group who serve as an informational resource for visitors and area landowners, with a vision of preserving the ecological integrity of the Glacial Lake Grantsburg properties. It is a non-profit corporation that provides volunteer and financial assistance needed to support the wildlife education program and management goals of the properties, which due to their size, influence the entire region’s ecosystem. For more information, visit [Friends of Crex, Inc.](#) (www.crexmeadows.org).

Lyme St. Croix Forest Company, LLC is a private organization with a history of combining sustainable forest management with land conservation. The company has negotiated sales of working forest conservation easements on properties in its ownership, preserving long-term sustainable forest practices and continuing public recreation and access in perpetuity. In 2012, DNR purchased a working forest conservation easement on approximately 65,000 acres of company land in Bayfield, Douglas, Burnett and Washburn counties that Lyme, in partnership with The Conservation Fund, won at auction from Wausau Paper Company. The easement includes language that promotes a portion of the forest component to be managed in a rolling barrens application.

BIOLOGICAL RESOURCES

The biological resources of the Northwest Barrens Properties are described in detail in the Northwest Sands Ecological Landscape chapter noted above, along with details on socio-economic conditions and recreation resources. DNR tailored a summary of that chapter below, plus additional information (Rapid Ecological Assessments) and interpretation specific to the properties of interest for planning purposes. Biological resources descriptions are derived from both documents.

RAPID ECOLOGICAL ASSESSMENT

*Text in the following section is from 1) the **Rapid Ecological Assessment for the Northwest Barrens Planning Group: A Summary of Biodiversity Values Focusing on Rare Plants, Selected Rare Animals, and High-Quality Natural Communities in Preparation for the Development of a New Property Master Plan** (WDNR, 2009); and the **Rapid Ecological Assessment for Totogatic Wild River (Washburn and Douglas Counties): A Rapid Ecological Assessment focusing on Rare Plants, Selected Rare Animals, and High-Quality Natural Communities**” (WDNR, 2013). The objectives of these projects were to collect biological inventory information relevant to the development of a master plan and to analyze, synthesize and interpret this information for use by the master planning team. The efforts focused on assessing areas of documented or potential habitat for rare species and identifying natural community management opportunities.*

Existing NHI data are often the starting point for conducting a biotic inventory to support master planning. Prior to this

project, NHI data for these properties were limited to: 1) the Statewide Natural Area Inventory, a county-by-county effort conducted by WDNR's Bureaus of Research and Endangered Resources between 1969 and 1984 that focused on natural communities but include some surveys for rare plants and animals, 2) breeding bird surveys on State Natural Areas, 3) surveys conducted for the Biodiversity in Selected Natural Communities Related to Global Climate Change (Peatlands Project; Anderson et al. 2008), and 4) taxa specific surveys.

The most recent taxa-specific field surveys for the study area were conducted during 2009. Surveys were limited in scope and focused on documenting high quality natural communities, rare plants, breeding birds, herptiles, and, for some properties, aquatic and terrestrial invertebrates. The collective results from all of these surveys were used, along with other information, to identify ecologically important areas (Primary Sites) on the NWBP.

Survey locations were identified or guided by using recent aerial photos, USGS 7.5' topographic maps, various Geographic Information System (GIS) sources, information from past survey efforts, discussions with property managers, and the expertise of several biologists familiar with the properties or with similar habitats in the region. Based on the location and ecological setting of properties within the NWBP, key inventory considerations included the identification of high quality barrens, forests, and wetland communities and the location of habitats that had the potential to support rare species. Private lands surrounding the NWBP were not surveyed.

PAST EFFORTS

Various large-scale research and planning efforts have identified a number of locations within the Northwest Barrens Properties as being ecologically significant. The following are examples of such projects and the significant features identified.

Land Legacy Report

The Land Legacy Report (WDNR 2006b) was designed to identify Wisconsin's most important conservation and recreation needs for the next 50 years. The report identifies the Northwest Sands Ecological Landscape as one of the two best opportunities in North America to restore the globally rare Pine and Oak Barrens natural communities. One such opportunity area is the Namekagon – Brule Barrens legacy site which encompasses both the Namekagon Barrens Wildlife Area and Douglas County Wildlife Area, along with Crex Meadows Wildlife Area and Brule River State Forest. The report also identifies the lower Totogatic River as a diverse, high-quality warmwater river Legacy Site (WDNR 2006b). The river corridor is noted as primarily undeveloped with large, high-quality forest blocks in the valley and significant portions of marshes, bog habitat, and oxbow ponds along its shores.

Important Bird Area

Important Bird Areas (IBA; WDNR 2007) are critical sites for the conservation and management of Wisconsin's birds.

- The Namekagon/Solon Springs Barrens were recognized as an Important Bird Area (IBA; WDNR 2007) due to its importance for Pine Barrens habitat that supports uncommon breeding birds such as Sharp-tailed Grouse, Northern Harrier, Brown Thrasher, Connecticut Warbler, and Upland Sandpiper.
- A portion of the Totogatic Wild River was identified as part of the larger Namekagon – Solon Springs IBA. This site is considered a Pine Barrens core habitat, with up to 40,000 acres of habitat available for barrens species. Sharp-tailed grouse (*Tympanuchus phasianellus*), upland sandpiper (*Bartramia longicauda*), brown thrasher (*Toxostoma rufum*), and Connecticut warbler (*Oporornis agilis*) all breed here (WDNR 2007).

Wisconsin Wildlife Action Plan: Conservation Opportunity Areas

The Wisconsin Wildlife Action Plan (WDNR 2006b) identifies Namekagon Barrens and Douglas County wildlife areas as a significant portion of the Pine – Oak Barrens Conservation Opportunity Area (COA; Appendix A). A portion of the Totogatic Wild River Area is also included. Conservation Opportunity Areas are places in Wisconsin that contain ecological features, natural communities, and/or Species of Greatest Conservation Need (SGCN) habitat for which Wisconsin has a unique responsibility for protection when viewed from the global, continental, upper Midwest, or state perspective.

- Pine – Oak Barrens COA is of **global significance** because few examples of barrens ecosystems remain worldwide. Large-scale barrens management opportunities exist in this landscape due to the relatively large amount of public lands owned by state and county government (WDNR 2005).

Totogatic Wild River Lands Area Draft Feasibility Study and Environmental Analysis

In 2010, a combined feasibility study and environmental analysis was initiated to provide the public and decision-makers with a factual, unbiased analysis to use in establishing, developing, and managing the new Totogatic Wild River property (WDNR 2011a). The study analyzed the physical and biological environment and its capabilities, the views of the public and of landowners adjoining the property, and the availability of funding and staffing to adequately accomplish the project's purpose.

St. Croix Watershed Conservation Priority Area

The St. Croix Conservation Collaborative, a coalition of 19 partner groups in Wisconsin and Minnesota, identified the Totogatic River as a Conservation Priority Area in 2006 and helped secure its Wild River designation.

The Nature Conservancy's Superior Mixed Forest Ecoregion Conservation Plan

The Nature Conservancy's (TNC) Superior Mixed Forest Ecoregion Conservation Plan (TNC 2002) covers an area that encompasses much of northern Wisconsin, northern Minnesota, a small portion of Michigan's Upper Peninsula, and parts of southern Manitoba and southern Ontario. The plan resulted in a set of terrestrial and aquatic "Conservation Areas" that represent viable natural community types, globally rare native species, and other selected features. Totogatic Wild River is included within the Upper St. Croix Conservation Area, included in over 829,000 acres that approximates the watershed above the Gordon Dam. The conservation area boundary expands to the southeast to include the Land Type Associations that define the Namekagon River corridor.

The Northwest Sands Landscape Level Management Plan (NWRPC & WDNR 2000), prepared by the Northwest Regional Planning Commission and Wisconsin DNR, includes the Northwest Barrens properties. Many of the strengths within this landscape are linked to the large public land base, including state and county-owned properties and numerous options for habitat management of the rare Pine and Oak Barrens. These include:

- connectivity of properties to enhance landscape scale management opportunities benefitting numerous rare species
- creating a greater diversity of common and game species
- enabling a high concentration of State Natural areas
- providing large wildlife habitat areas attracting wildlife viewers
- increased potential for ecological research sites

Grassland Bird Habitat Management

Namekagon and Douglas County Barrens are among the highest ranking priority landscapes for grassland bird management. Mowing, prescribed burning and forestry practices (cut-overs and fire breaks) are noted as tools to restore barrens habitat (Sample and Mossman 1997).

Wisconsin Sharp-tailed Grouse: A Comprehensive Management and Conservation Strategy (1953-2011) (Supplement Section to REA)

The 1953 Wisconsin Prairie Grouse Management Policy was a noteworthy historical agreement "that every reasonable effort be made to maintain a huntable population through management and restoration of habitat for these birds in the state and to assure their presence for future generations." This was to ensure all other pine/oak barren wildlife species, much of them game species, would be properly managed.

The goal of the 2011 Wisconsin management plan for sharp-tailed grouse is "to ensure a viable population of sharp-tailed grouse within the state that also provides opportunities for regulated harvest." The plan is "to accomplish this goal by focusing our management and research efforts on the existing core range of sharp-tailed grouse in northern Wisconsin." The vision is to develop and facilitate a voluntary and cooperative partnership among public and private organizations to ensure the long-term viability of sharp-tailed grouse populations in Wisconsin through an ecological landscape and conservation area or focus area approach. The core sharp-tailed grouse population occurs in northern Wisconsin within the Northwest Sands.

Forest Certification

All DNR-managed lands, including state parks, wildlife areas, and natural areas, are recognized by the Forest Stewardship Council and the Sustainable Forestry Initiative as being responsibly managed (WDNR 2009). This certification emphasizes the state's commitment to responsibly managing and conserving forestlands, supporting economic activities, protecting

wildlife habitat, and providing recreational opportunities.

ECOLOGICAL CONTEXT

The NWB properties are located in the Northwest Sands Ecological Landscape (WDNR 2015) (Figure 1). Major landforms include flat plains or terraces along glacial meltwater channels, and pitted or "collapsed" outwash plains containing kettle lakes. Soils are predominantly deep sands, low in organic material and nutrients.

Historic vegetation for the Northwest Sands Ecological Landscape at the time of the General Land Office survey was predominantly jack pine (*Pinus banksiana*) and scrub oak (*Quercus spp.*) forest and barrens. Eastern white pine (*Pinus strobus*) and red pine (*Pinus resinosa*) forests were also a sizable component of the Ecological Landscape. Numerous barrens occurred in the southwest half, and a few large barrens within the northeast half. Most of the trees in the barrens were jack pine, but red pine savannas were present and oak savannas occurred in the south central section.

Current vegetation is dominated by open grasslands, barrens or shrublands, dry forests of oaks and pines, a small but significant amount of emergent/wet meadow and open water, and small amounts of agriculture. Both wildlife areas are ecologically similar and managed for Pine and Oak Barrens and open grasslands for sharp-tailed grouse. The barrens plant community occurs on infertile droughty soils and is dominated by grasses, forbs, low shrubs, and scattered trees. Pits and depressions were formed by melting blocks of ice left embedded in the sand and gravel drift, many of the depressions are occupied by lakes and marshes while others are dry. Douglas County Wildlife Area contains an Inland Beach community and the properties have scattered lakes and depressions classified as Open Bog with components of Poor Fen, Northern Sedge Meadow, and Northern Wet Forest.

The headwaters of the St. Croix-Namekagon and Brule River systems are located here amid flat plains, sedge meadows, bog complexes, and major barrens. Several hundred kettle lakes occur in the pitted outwash plain. Water quality in seepage lakes is generally very good.

Groundwater conditions are among the least polluted yet most vulnerable in the state.

Ecological Landscapes are based on aggregations of ecoregional units called **Landtype Associations** (LTAs) from the national system of delineated ecoregions: National Hierarchical Framework of Ecological Units (NHFEU) (Cleland, 1997). Landtype Associations represent an area of 10,000 – 300,000 acres and contain similarities of landform, soil, and vegetation.

The following Landtype Associations are represented on the Northwest Barrens properties:

- **Bayfield Level Barrens (212Ka06).** The majority of Namekagon Barrens and Douglas County wildlife areas fall within this category which has a characteristic landform pattern of a nearly level outwash plain with excessively drained sand over outwash.
- **Lower Namekagon Rolling Barrens (212Ka15).** The entire south unit of Namekagon Barrens. Characteristic landform pattern is rolling outwash plain, with soils of excessively drained sand over acid sand outwash. Approximately 5% of Totagatic Wild River.
- **Upper Brule – St. Croix Valley (212Ka14).** A portion of Douglas County Wildlife Area, with representative landform patterns of sloping outwash valleys with stream terraces and floodplains common.
- **Gordon Rolling Barrens (212Ka11).** Approximately 80% of Totagatic Wild River. The characteristic landform pattern is rolling outwash plain. Soils are excessively drained sand over acid sand outwash. Bedrock type is sandstone. Common landcover types are upland coniferous forest, upland deciduous forest, and upland mixed deciduous/coniferous forest.
- **Webb Lake Collapsed Barrens (212Ka05).** Approximately 15% of Totagatic Wild River. The characteristic landform pattern is rolling collapsed outwash plain with lakes common. Soils are excessively drained loamy sand over outwash. Bedrock types are igneous, metamorphic, and volcanic rock. Common landcover types are upland deciduous forest, upland coniferous forest, grassland and forested wetland.

GEOLOGY AND GEOGRAPHY

The Northwest Sands is a large glacial outwash system consisting primarily of two major landforms: flat plains or terraces along glacial meltwater channels and pitted or 'collapsed' outwash plains containing kettle lakes (WDNR 2015b). Along the Totagatic River, the varied terrain ranges from steep cliff-like banks to wide flood plain forest and barrens.

Soils

Upland soils are typically sands or loamy sands over deeper-lying strata of sand, or sand mixed with gravel. These soils drain rapidly, leading to xeric, droughty conditions. Soils are derived from both sandy outwash deposits as well as wind-blown sand deposited post-glaciation.

The narrow floodplain of the Totogatic River is poorly drained sandy alluvium with thin layers of organic matter and occasional deposits of muck.

Hydrology

Streams and river systems within the St. Croix River basin characterize the properties. The Totogatic Wild River property surrounds the lower reaches of the Totogatic River. Fivemile Creek is a class II trout stream within this property. A small portion of the Minong Flowage is within the project boundary.

The Totogatic River is a fairly large, brown stained, warmwater drainage stream originating in Bayfield County, flowing through Sawyer County before entering Douglas and Washburn counties and draining into the Namekagon River in Burnett County. Because of the river's large watershed, flooding and subsequent extreme water level fluctuations occur in the spring and after heavy rainfalls. The stream bottom type is stable consisting of sand, gravel, rubble, boulder, bedrock, and silt. The fishery includes northern pike, walleye, largemouth and smallmouth bass, and panfish.

Fivemile Creek is a small, Class II clear water brook trout stream, starting at the outlet of Spring Lake and flowing southwesterly into the Totogatic River. The stream is spring-fed and is largely in an unaltered state. The bottom conditions are stable consisting mainly of sand with gravel, rubble, and silt.

The Minong Flowage is a 1,587 acre lake located in Douglas and Washburn counties, maintained by an 18-foot headwater control structure on the Totogatic River, used for power production. The northernmost parcels of the Totogatic Wild River property occur along the Minong Flowage. It has a maximum depth of 21 feet with low water clarity. The fishery includes panfish, largemouth and smallmouth bass, northern pike, and walleye. Common carp have also been reported from the flowage.

Connecting Upland Activities to Protection of Groundwater and Surface Waters (Supplement to REA)

The Northwest Barrens Properties and surrounding lands drain to three of the highest quality rivers in northwest Wisconsin and in the state: the St. Croix and Namekagon rivers, both federally designated Wild and Scenic Rivers, and the Totogatic (Totogatic) River, one of five state-designated Wild Rivers. There are also numerous high quality lakes, wetlands and streams fed by the water moving over and through this land area. The water quality of these surface waters and the health of the organisms they support is dependent on both the quantity and quality of the groundwater recharging them and the runoff that enters them over land. It is likely that the many acres of sand providing filtration have helped protect and enhance the quality of these surface waters over past centuries.

The sandy soils in the area can transmit precipitation to the groundwater rapidly. Any pollutants or contaminants that contact the ground surface can affect groundwater quality directly, and surface water quality indirectly. Careful land management to prevent migration of materials applied to the land (fertilizers, pesticides, etc.) is important to prevent seepage to groundwater or runoff to surface water. Safe transport and storage of materials that could be considered contaminants (in either groundwater or surface water) is also important on and around these properties.

CURRENT VEGETATION – NATURAL COMMUNITIES

Current vegetation of the Northwest Barrens Properties has been influenced by many historical factors including grazing, homesteads, unsustainable logging during the “cutover” period, and wildfires; and present day factors including fire suppression, invasive species, ecological restoration, and hydrological manipulation; and environmental factors including geology, soils, hydrology, and climate.

Namekagon Barrens and Douglas County Wildlife Area

Namekagon Barrens and Douglas County Wildlife Areas are located within a pitted, sand plain landscape dominated by open grasslands, barrens/shrublands, dry forests of oaks and pines, a small but significant amount of emergent/wet meadow and open water, and small amounts of agriculture (WDNR 2005). Both wildlife areas are very similar ecologically and managed for Pine and Oak Barrens and open grasslands for Sharp-tailed Grouse. The barrens plant community occurs on infertile

droughty soils and is dominated by grasses, forbs, low shrubs, and scattered trees (WDNR 2005). Pits and depressions were formed by melting blocks of ice left embedded in the sand and gravel drift, many of the depressions are occupied by lakes and marshes while others are dry (Evrard 2000). Douglas County Wildlife Area contains an Inland Beach community and both properties have scattered lakes and depressions classified as Open Bog with components of Poor Fen, Northern Sedge Meadow, and Northern Wet Forest. The characteristic vegetation is described in detail for each natural community type found on these properties.

Moderate to good quality **Pine and Oak Barrens** are present providing excellent opportunities to manage for these globally rare systems. They exist in this landscape of nutrient-poor and drought-prone soils with frost pockets, inhibiting the growth of mature canopy trees and favoring conifer species such as jack pine and red pine. Both properties are farther north from the closely related prairie region, exhibit variable climatic tolerances of individual species and topographic differences, and therefore are less diverse and contain fewer prairie species compared to barrens south of the tension zone.

Current management is aimed at keeping the barrens in an early successional state for Sharp-tailed Grouse and grassland birds. The early successional barrens management unit has grasses, sedges, forbs, patches of oak grubs and hazelnut, and scattered red pine as dominants. Good quality early successional barrens habitats in Wisconsin are maintained with prescribed fire (Hoffman pers. comm.). Additional management may include small amounts of herbicide treatment for invasive species and mechanical means for scattered large diameter trees. Prescribed burns are scheduled when the oak and pine reaches a density where it begins to diminish the diversity of the understory of grasses and forbs.

More diverse barrens would include a mosaic from late succession stages of dry forest or savanna with a scattered overstory of larger diameter trees to early succession barrens and grasslands (WDNR 2006b). Historically, the Northwest Sands Ecological Landscape supported barrens that favored scattered large diameter trees spaced about 150 to 1500 feet apart, mostly jack pine, but some oak savanna likely existed in the south central part of this landscape (WDNR in prep.). A comparison of relative dominance (basal area) of tree species within this Ecological Landscape shows eastern white pine, red pine, and jack pines have decreased in dominance while aspen (*Populus sp.*), oaks (*Quercus spp.*), and red maple (*Acer rubrum*) have increased (WDNR in prep.). This conversion along with the early succession management resulting in a lack of scattered large diameter pines on these properties has essentially created a pine-oak barrens or scrub barrens type that is not currently recognized in the Wisconsin Natural Heritage Inventory Natural Community classification system (Epstein et al 2002).

The early successional barrens in the NWBPG are currently dominated by graminoids such as little bluestem (*Schizachyrium scoparium*), big blue-stem (*Andropogon gerardii*), poverty oat grass (*Danthonia spicata*), June grass (*Koeleria macrantha*), Pennsylvania sedge (*Carex pensylvanica*), and panic grasses (*Panicum spp.*). Forbs are generally patchily distributed and dominated by hairy puccoon (*Lithospermum carolinense.*), hoary puccoon (*L. canescens*), wood lily (*Lilium philadelphicum*), prairie phlox (*Phlox pilosa*), gray goldenrod (*Solidago nemoralis*), prairie goldenrod (*S. ptarmicoides*), smooth aster (*Aster laevis*), rough blazing-star (*Liatris aspera*), showy blazing-star (*L. ligulistylis*), and western sunflower (*Helianthus occidentalis*). Low shrubs are variable, but can be very abundant and are dominated by blueberries (*Vaccinium angustifolium* and *V. myrtilloides*) and bearberry (*Arctostaphylos uva-ursi*) along with New Jersey tea (*Ceanothus americanus*). The tall shrub layer includes oak grubs, American hazelnut (*Corylus americana*), sweet-fern (*Comptonia peregrina*), quaking aspen (*Populus tremuloides*), and prairie willow (*Salix humilis*). Young, stunted, and scattered trees present include jack pine, red pine with some rare, scattered mature trees, along with northern pin (Hill's) oak (*Quercus ellipsoidalis*), bur oak (*Q. macrocarpa*), black oak (*Q. velutina*), and copses of quaking aspen (*Populus tremuloides*). Rare plants include the state threatened dwarf milkweed (*Asclepias ovalifolia*), as well as the species of Special Concern clustered broom-rape (*Orobancha fasciculata*) and Richardson's sedge (*Carex richardsonii*) at Namekagon Barrens Wildlife Area.

Two-track roads, firebreaks, trails, old home sites, and former food plots are present and provide sources and corridors for the spread of invasive species. Invasive species present in the barrens include spotted knapweed (*Centaurea biebersteinii*), leafy spurge (*Euphorbia esula*), cypress spurge (*E. cyparissias*), orange hawkweed (*Hieracium aurantiacum*), and bird's-foot trefoil (*Lotus corniculata*). Invasive species occupy less than 5% of the area.

An **Inland Beach** community is a lakeshore, typically of seepage lakes, that experiences enough water level fluctuation from precipitation and groundwater to prevent the development of a stable shoreline forest or other community and may, instead support a specialized biota adapted to sandy or gravelly littoral habitats (Epstein et al, 2002). An Inland Beach community is located at Douglas County Wildlife Area in association with a large softwater seepage wetland comprised of a sandy-peaty shoreline and strongly zonal vegetation. A small bog dominated by black spruce (*Picea mariana*) occurs on an island in the center of the lake. Dominant species of the beach include steeplebush (*Spiraea tomentosa*), Canada blue-joint grass (*Calamagrostis canadensis*), narrow-leaved woolly sedge (*Carex lasiocarpa*), grass-leaved goldenrod (*Euthamia graminifolia*), brown-fruited rush (*Juncus pelocarpus*), narrow-panicle rush (*J. brevicaudatus*), autumn sedge (*Fimbristylis autumnalis*), northeastern sedge (*Carex cryptolepis*), bog St. John's-wort (*Triadenum fraseri*), Canadian St. John's-wort

(*Hypericum canadense*), rattlesnake grass (*Glyceria canadensis*), northern manna grass (*G. borealis*), soft-stem bulrush (*Schoenoplectus tabernaemontani*), three-way sedge (*Dulichium arundinaceum*), American white water-lily (*Nymphaea odorata*), water-shield (*Brasenia schreberi*), and common pondweed (*Potamogeton natans*).

The alternation of high and low water periods maintains populations of beach specialists over time, including rare species of unusual geographic affinity, such as Fassett's locoweed (*Oxytropis campestris* var. *chartactea*) known from the northern portion of the Northwest Sands Ecological Landscape. This plant is endemic to Wisconsin and found in only two geographic areas; Portage and Waushara Counties and Bayfield County.

There are scattered examples of **Open Bogs** throughout the pitted outwash landscape of the NWBPG. Open Bogs are acidic, low nutrient, northern Wisconsin peatlands dominated by *Sphagnum* species mosses that occur in deep layers, often with pronounced hummocks and hollows (Epstein et al 2002). Although typically characterized by low floristic diversity, the Open Bogs of the NWBPG are diverse due to the close proximity of other wetland communities.

Totogatic Wild River

Current vegetation of the Totogatic Wild River (TWR) has been influenced by anthropogenic factors, principally logging in the mid- to late 1800s and subsequent wildfires. In addition, more recent timber management has influenced the vegetation including both timber harvesting and attempted reforestation to red pine. Ecological factors also influenced the vegetation both historically and in the present, particularly the drought-prone, excessively drained sandy soils and naturally occurring wildfires.

Like the landscape that surrounds it, the TWR is dominated by a mixture of coniferous forest (primarily dominated by jack pine) and deciduous forest (primarily dominated by northern pin oak), with barrens interspersed in areas that have been more recently disturbed by fire or logging. Along major drainages, deciduous forested wetlands occur. Numerous lakes and flowages are also scattered throughout the larger landscape.

Consistent with the historic vegetation, **Northern Dry Forest** comprises a majority of the upland landscape on the TWR property, while barrens currently occupy a smaller, yet still significant portion of the uplands. Forests are dominated by jack pine and northern pin oak with lesser amounts of red pine, white pine, bur oak (*Quercus macrocarpa*), American hazelnut (*Corylus americana*), low sweet blueberry (*Vaccinium angustifolium*), bracken fern (*Pteridium aquilinum*) as well as numerous grasses including poverty grass (*Danthonia spicata*), big bluestem (*Andropogon gerardii*), June grass (*Koeleria macrantha*), and Pennsylvania sedge (*Carex pennsylvanica*). In some areas, timber management has created small canopy openings which are filled with hazelnut, tree saplings, and herbaceous plants characteristic of barrens. The highest quality Northern Dry Forest occurs in the western most parcel, north of the river.

On the Former Solar Property Red Pines Primary Site, a **natural origin red pine forest** occurs, dominated by trees up to 18 inches DBH (diameter at breast height). This forest is unique on the property, and very uncommon in this part of the Northwest Sands Ecological Landscape. It may owe its origin in part to past timber management practices and the large bend in the river that wraps around from the east, to the south, finally to the west, as well as wetlands to the north. Together these landscape features may have historically created lower intensity fire conditions, allowing the red pine to establish and grow into the closed canopy stand that exists today. Small pockets of trembling aspen (*Populus tremuloides*) also occur in this area.

Pine Barrens occur scattered across several areas of the property, with the highest quality sites being in the northeast part of the property east of Kimball Lake Rd and in the southwest part of the property east of County Line Rd. Pine Barrens have resulted in part, from recent clear cutting. Pine Barrens at TWR are characterized by scattered young jack pine, red pine, northern pin oak, and American hazelnut with a relatively diverse ground flora including big bluestem, little bluestem (*Schizachyrium scoparium*), June grass, poverty grass, Pennsylvania sedge, hoary puccoon (*Lithospermum canescens*), long-leaved bluets (*Houstonia longifolia*), prairie phlox (*Phlox pilosa*), showy goldenrod (*Solidago speciosa*), prairie goldenrod (*S. ptarmicoides*), western sunflower (*Helianthus occidentalis*), and bird's-foot violet (*Viola pedata*).

In many places the rolling uplands drop over 150 feet in elevation down steep sandy slopes to the floodplain and associated terraces of the Totogatic River. The forest along the river is characterized by a variable canopied forest of bur oak (*Quercus macrocarpa*), basswood, American elm (*Ulmus americana*), trembling aspen, silver maple (*Acer saccharinum*), and white ash (*Fraxinus americana*) with low open areas of bluejoint grass (*Calamagrostis canadensis*), tussock sedge (*Carex stricta*), white meadowsweet (*Spiraea alba*), and winterberry (*Ilex verticillata*). Previous active timber management is evident in wider areas of the Floodplain Forest.

Small wetland pockets also occur on the property, including **Springs and Spring Runs, Forested Seep, Alder Thicket, and Tamarack Poor Swamp**, particularly southeast of Banks Lake between the lake and the Totogatic River. An Oxbow Lake also occurs on the northwest portion of the Former Solar Property Red Pines Primary Site, a remnant of an old channel scour.

This topographically diverse portion of the Former Solar Property Red Pines Primary Site also contains pockets of **Northern Wet Forest** in depressions dominated by black spruce (*Picea mariana*) and tamarack (*Larix laricina*). An **Open Bog** occurs along the south end of Banks Lake and is dominated by few-seeded sedge (*Carex oligosperma*), leatherleaf (*Chamaedaphne calyculata*), bog laurel (*Kalmia polifolia*), cotton-grass (*Eriophorum* sp.), scattered tamarack and jack pine, and Sphagnum moss (*Sphagnum cuspidatum*). Alder Thicket and Northern Sedge Meadow also occur on margins of several of these wetlands and in drainage ways to the east where small streams enter the main stem of the Totogatic River.



The Totogatic River winds past steep slopes dominated by pine and oak.
Photo by Richard Staffen.

The Wisconsin Wildlife Action Plan (WDNR 2006b) and the **Ecological Landscapes of Wisconsin Handbook** (WDNR 2015b) identifies 21 natural communities for which there are “Major” or “Important” opportunities for protection, restoration, or management in the Northwest Sands Ecological Landscape. Fourteen of these natural communities are present on the NWB properties:

- Alder Thicket (Totogatic)
- Coldwater Streams (Totogatic)
- Coolwater Streams
- Emergent Marsh – wild rice
- Northern Dry Forest
- Northern Dry-Mesic Forest (Totogatic)
- Northern Sedge Meadow
- Northern Wet Forest (Tamarack (poor) Swamp)
- Oak Barrens
- Open Bog
- Pine Barrens
- Inland Lakes
- Northern Dry-mesic Forest (Totogatic)
- Warmwater Rivers (Totogatic)

LAND COVER - FORESTRY

In addition to the “*Rapid Ecological Assessment*”- this section presents the department’s sustainable forestry data. The “Interim Forest Management Plans” for NWB properties (WDNR, 2013, 2014) guide forestry management until revision of the properties’ master plan is completed.

Note: Different terminology exists in this document for describing GPS-mapped land cover than for describing vegetation ecology. This reflects programmatic and database differences between forestry management and other DNR programs. Vegetation and ecological community descriptions include details based on analyses of plant and animal communities, viewed from a “ground up” perspective. The forestry land “cover types” in the attached Map series and listed in tables 1-3, provide “tree-top” or aerial land cover perspective; a forestry management perspective. This “top down” land cover is a broad-brush overview and generally omits ground level ecological communities; for instance, a rare bog or springs community will be listed only as a wetland.

Namekagon Barrens Wildlife Area (~6,500 acres)

This wildlife area contains the largest oak/pine barrens of all the NWB properties. It is dominated by an oak (brush) covertime, though a pine component also exists within this cover type (maps Cn-3 and Cs-3). Table 1 provides a breakdown of current cover types on the property, based on DNR Forestry Management data (WISFIRS).

Wisconsin oak brush prairie remnants are considered among the largest and best state habitat for sharp-tailed grouse and other species reliant on this habitat type. This is important because sharp-tailed grouse populations are well below historic levels and have dropped sharply since 1998, according to the [Wisconsin Sharp-tailed Grouse Survey and Status](#). (WDNR 2015a). Other rare animal and plant species, and high quality natural communities are identified in the Rapid Ecological Assessment portion of this document.

Douglas County Wildlife Area (~4,000 acres) is also considered an oak/pine barrens community. Similar to Namekagon Barrens, it is primarily classified as oak (Map D-3) and also contains a pine component. Table 2 provides a breakdown of current cover types on the property, based on DNR Forestry Management data (WISFIRS).

The oak and pine barrens have since 1925 been managed to provide optimal habitat for sharp-tailed grouse and other barrens dependent wildlife species.

Totogatic Wild River (~2,400 acres) is the smallest and most recent acquisition of the NWB properties. It contains proportionately more upland conifer (jack and red pine) than oak, and like the others, has a good component of barrens species among the range of cover types (Map E-3). A noteworthy stand of older red pine, rare in this region, is located on the southernmost parcel. Table 3 provides a breakdown of current forestry-based cover types (DNR WISFIRS) on the property. While a draft feasibility study exists for this property (WNDR, 2011a), a master plan has not yet been developed.

Cover Types	Acres	% Cover
Oak	5428	84
Upland Conifer	739	11
Swamp Hardwood	114	< 1
Non-Forested Wetland	95	< 1
Water	57	< 1
Developed	5	< 1

Cover Types	Acres	% Cover
Oak	3,480	89
Aspen	142	4
Non-Forested Wetland	131	3
Upland Conifer	48	1
Swamp Conifer	33	< 1
Water	30	< 1
Swamp Hardwood	22	< 1
Developed	18	< 1

Cover Types	Acres	% Cover
Upland Conifer	1,508	63
Oak	360	15
Aspen	228	9
Bottomland Hardwood	164	7
Water	91	4
Non-Forested Wetland	29	1
Swamp conifer	20	< 1
Emergent Vegetation	1	< 1

LANDSCAPE LEVEL PRIORITIES

Pine and Oak Barrens

Pine and Oak Barrens were historically common (covering a combined 4.1 million acres) in Wisconsin but are now rare throughout the entire state with only an estimated 50,000 acres remaining (WDNR in prep.). Wisconsin has a unique responsibility for preserving and restoring this community, because the highest percentage of barrens worldwide is found in the state. Major opportunities for sustaining these barrens communities exist within the Northwest Sands Ecological Landscape (WDNR 2015b). Historically, barrens sites occurred on sandy glacial outwash plains, extinct glacial lake beds, and outwash terraces along large rivers (WDNR 1995). Regardless of location or land type, this is a community dependent upon disturbance and fire has been consistently important in maintaining barrens. The lack of regular burning continues to be the most limiting factor in barrens restoration and maintenance (WDNR 1995).

The combination of habitat loss and landscape fragmentation poses a great threat to biodiversity conservation leading to an increase in numbers of rare or endangered species and limitations to the necessary barrens fire management regime. Most barrens sites throughout this ecological landscape are small, isolated, and are in a mosaic of public and private ownerships. One priority conservation objective is to connect these smaller units to facilitate conservation of viable populations of rare plants and animals. Douglas County Wildlife Area and Namekagon Barrens are two of the best examples of Pine and Oak Barrens found in this ecological landscape and both hold potential for expansion. Considerations for connecting these sites and other barrens areas found at nearby Crex Meadows Wildlife Area, Fish Lake Wildlife Area, and Moquah Barrens should be explored.

Active management, including the use of prescribed fire, commercial timber harvests, and mechanical cutting of woody vegetation, is already occurring and plays an important role in preventing the succession of the NWB properties to closed canopy forests. Larger, unfragmented, landscape scale preserves provide more options for delineating prescribed burn units, securing permanent and safe burn breaks, and managing for wildlife species that require greater patch size such as the sharp-tailed grouse. In addition, larger units can buffer and protect core areas from invasive species like spotted knapweed and spurge species. Climate change could exacerbate the negative cumulative impacts of habitat loss and fragmentation. Local climate disturbances likely will further alter long-term ecological cycles like fire, drought, and floods as well as seasonal temperature and precipitation patterns. Because these changes may shift the distribution and abundance of plant and animal communities, landscape fragmentation will impede the ability of many species to respond, move, and/or adapt to climate-related impacts (Tabor and Meiklejohn 2009).

Additional threats to barrens communities include their conversion to monotypic pine stands which can cause conflicts with barrens or grassland wildlife management objectives and can eliminate ground layer plants (WDNR 2006b). Off-road and all-terrain vehicle use is popular on sandy soils, but can destroy vegetation, disturb animals, and aid in spread of invasive plant species. The uncertainty associated with the lack of permanent state ownership is reason for concern.

There is a need for good-quality Pine and Oak Barrens to serve as reference areas for determining restoration potential, demonstrate most effective management techniques, and maintain associated plants and animals. In addition, barrens provide numerous recreational opportunities for blueberry picking, hunting, bird-watching, hiking, botanizing, horse riding, and dog trialing. Despite the neglect and abuse that most barrens have undergone since settlement, this is one of our most resilient natural communities and it will respond to careful management by controlled burns and cutting (Mossman et al 1991). Significant opportunities exist to restore these ecosystems, increase connectivity between remnant sites, and improve habitat for many barrens plants and animal specialists.

Managing large tracts of land for barrens, including using large clear-cuts in areas managed for timber production, can help to mimic the natural disturbance patterns that are important to many barrens-dependent species (Radeloff et al. 2000).

Forested Seeps and Springs

Within the Namekagon Barrens and Totogatic Wild River properties, springs and seepage areas, with active discharges of groundwater, sometimes host uncommon or rare plant and animal species. They also contribute to high water quality of the streams they feed. These features are highly susceptible to damage by land use practices that lead to soil or hydrological disturbance. Recharge areas are critical to the continued function and quality of the springs and seeps.

Game Species

These properties provide good opportunities for hunting, trapping, and fishing. Important game species utilizing the Totogatic River include ducks, geese, smallmouth bass, northern pike, and walleye. The lower portion of the Totogatic River receives a fair amount of fishing pressure, but also gets used seasonally by fish migrating up from the Namekagon River.

White-tailed deer, wild turkey, black bear, eastern gray and red squirrel, eastern cottontail rabbit, coyote, red fox and gray fox are common game species present throughout these properties.

Additional upland game species known to be present on these properties based upon museum records, inventory work, or tracks and sign are bobcat, fisher, mourning dove, snowshoe hare, and ermine or short-tailed weasel. Common raccoon, American mink, beaver and river otters are found near the river or in wetlands. Ruffed grouse is common on the Totogtic. Sharp-tailed grouse, a trophy game species with potential to increase populations and habitat on these properties, are present in barrens on the Namekagon and Douglas County wildlife areas. Management to support game species that are dependent on large, open landscapes (e.g. sharp-tailed grouse) would also benefit other rare species like the Kirtland's warbler, grassland birds, and American badger.

Migratory Birds

The properties support good populations of two declining suites of birds: grassland birds and shrub or scrub loving birds. Numerous uncommon species of concern utilize the open, sandy grasslands of the Pine and Oak Barrens of Namekagon and Douglas County barrens such as Sharp-tailed Grouse, Upland Sandpiper, Dickcissel, Western Meadowlark, Northern Harrier, Vesper Sparrow, Whip-poor-will, and Common Nighthawk. Many of the scrubland birds are Species of Greatest Conservation Need and include Brown Thrasher, Black-billed Cuckoo, Veery, and Field Sparrow. Sharp-tailed Grouse are considered a signature species for barrens habitats. Wisconsin DNR estimates show Namekagon Barrens and Douglas County Wildlife Area having two of the three best populations in the state. Sharp-tailed Grouse are area-sensitive and research suggests that limited hunting and a 10,000 acre minimum parcel is needed for long-term stability (WDNR 1995).

The TWR and surrounding area provide excellent opportunities to support significant populations of regionally and globally rare birds associated with the full spectrum of grassland/barrens and Northern Dry Forest communities. Barrens and Northern Dry Forest habitats are globally rare, and populations of bird specialists of these communities are likewise doing poorly due to loss of habitat, small or isolated patch size, and conversion to other types. Bird rarities of these types include the Federally Endangered Kirtland's warbler and globally uncommon species like sharp-tailed grouse and Connecticut warbler (WDNR 2011a). In addition, numerous SGCN in Wisconsin were also located during breeding bird surveys within barrens habitats of the TWR. These included good populations of both nightjar species found in Wisconsin: common nighthawk and whip-poor-will, along with brown thrasher, vesper sparrow, and field sparrow.

Of critical importance for many uncommon birds of barrens and bracken grassland habitats is patch size. Many of these uncommon species are area-sensitive, meaning they require large patches of habitat for nesting and are highly sensitive to habitat fragmentation. Sharp-tailed grouse are considered a signature species for barrens habitats. They are area-sensitive with research suggesting they need a 10,000-acre minimum parcel for long-term stability (WDNR 1995). Currently, species of low area-sensitivity like field sparrow, vesper sparrow, and clay-colored sparrow are found at TWR. Area-sensitive species of conservation concern like sharp-tailed grouse, upland sandpiper, and northern harrier are known from the surrounding landscape, and connecting these parcels could effectively increase patch size and likely improve bird species diversity and richness. **Kimball Barrens Primary Site** currently offers the best opportunity to consider connecting grassland/barrens habitat patches to enhance habitat for area-sensitive birds. The surrounding landscape includes large tracts of County Forest lands and the Brule-St. Croix Legacy Forest enhancing early successional management opportunities.

Diversity of age classes is an important factor for barrens ecosystem function. Providing for the full spectrum of age classes within the barrens system will maximize the diversity of birds and associated animals. Historically, fire played a large role in determining the makeup of these landscapes. They were a patchwork of open grassland with very few scattered trees, grading into areas with more shrubs or scrub oak and young patches of jack and red pines, and finally to areas with larger diameter scattered trees along with closed canopy forests. This entire successional spectrum is very important in providing nesting and foraging habitat for a variety of rare or declining birds. At the more open barrens end of the spectrum, grassland birds can be prevalent. When more brush and young trees are present sharp-tailed grouse, common nighthawk, whip-poor-will, brown thrasher, field sparrow, vesper sparrow, and Kirtland's warbler would be found. Finally, an important stage not often accounted for in barrens management is areas of denser canopy pines or Northern Dry Forest. This stage is important for Connecticut warbler, black-billed cuckoo, black-backed woodpecker, and gray jay. **County Line Road Barrens and Forest Primary Site** presents an opportunity to further enhance this full spectrum of barrens to dry forest continuum.

Herptiles

Pitted wetland areas are intermingled amongst the dry, sandy barrens of these two sites, representing remnants of past glacial activity and serving as important water sources and habitat for numerous reptiles and amphibians. Evrard and Hoffman's studies (Evrard 2000; Evrard and Hoffman 2000) of the taxa groups utilizing the Pine Barrens of northwest Wisconsin included reptile and amphibian trapping and frog and toad calling surveys at both properties. They found blue-spotted salamander, eastern tiger salamander, American toad, northern spring peeper, and northern red-bellied snake to be common at

both sites. Uncommon species found included the prairie skink at both sites, eastern hog-nosed snake at Douglas County Wildlife Area, and bullfrogs and mink frogs using pitted lake beds at Namekagon Barrens Wildlife Area.

Water and wetland resources, along with sandy soils associated with the NWB, provide excellent nesting, foraging, and hibernation opportunities for numerous turtle species including the state threatened Blanding's & wood turtles. Douglas County is near the northern extent of the Blanding's turtles range. They are still somewhat common in sedge meadows and wet marshes in this area but likely become much less common north of this region. Wood turtles are an increasingly uncommon species both in Wisconsin and across their entire range due to road mortality, high rates of nest predation, and over-collection. Protecting turtle nesting areas would be helped by limiting disturbances including minimization of recreational activities in the vicinity of these locations and limiting road-building near rivers, streams, and wetlands.

The aquatic resources associated with the Totogatic River, along with the sandy soils of the barrens, provide excellent conditions for numerous rare herptiles. The river and its tributaries provide foraging, basking, and overwintering habitat for several rare and common aquatic turtles. Sandy river banks and adjacent sandy uplands, particularly open sand blows, provide critical nesting habitat not only for turtles but also for snakes and lizards. Pine Barrens and Northern Dry Forest provide excellent foraging and thermoregulation opportunities for numerous snakes and a population of the prairie skink. Connecting barrens habitats and Northern Dry Forests and increasing patch sizes of these areas would be beneficial in enhancing these populations and allowing safe movement between sites for terrestrial herptiles and other taxa.

Wetlands are uncommon on Totogatic WR yet they are an important ecological feature surrounding the property group and in much of the Northwest Sands Ecological Landscape. Wetland areas along with scattered lakes on or near the property support good numbers of breeding frogs and toads and also support populations of semi-aquatic turtle species including Blanding's, painted, and snapping turtles.

A number of herptile species occur or have potential to occur on the TWR property group near their range limits. Several southern species at the northern extent of their range, including eastern hog-nosed snake, northern watersnake, gophersnake, common map turtle, and Blanding's turtle occur here or nearby. At their range limits, species are generally thought to be encountering physical or physiological limits to successful competition, and are therefore more sensitive to stressors which may tip the balance of success at these limits. Because of this strong association and range limit status, these species should be excellent indicator species for environmental monitoring, including monitoring the effects of ongoing climate change (Casper 2010).

Additional inventory and monitoring would be beneficial as several rare or uncommon species have the potential to occur within the property group. The Spring and Spring Run, Northern Sedge Meadow, Alder Thicket, and Tamarack Poor Swamp complex southeast of Banks Lake has the potential to support pickerel frog and northern leopard frog along with four-toed salamanders. The Totogatic River could support a population of common mudpuppy, a species of Special Concern in Wisconsin. Additional efforts to locate more turtle nesting areas would also be beneficial. Once the nesting areas are located, protecting these sites would be aided by limiting disturbances such as recreational activities, limiting forest succession and maintaining an open canopy around them.

Terrestrial Invertebrates

Barrens habitats with intact and diverse prairie forbs and grasses are critically important areas for a large number of butterflies and moths. This encompasses both common and rare species with many butterflies and moths being limited to specific larval host plants. Some of the best Pine Barrens found on the TWR, especially those noted as Primary Sites (**Kimball Barrens, County Line Road Barrens and Forest**) during this inventory effort, support a moderate diversity of native prairie flora, increasing the likelihood that a diverse Lepidoptera community could be present. Additionally, open sand areas on the property have potential to support uncommon tiger beetles, while barrens and sand prairies are important habitats for many grasshoppers.

Identifying and managing barrens habitat for a diversity of native plants and important butterfly and moth host plants (wild lupine, prairie phlox, blueberries, New Jersey tea) would facilitate the interdependent relationship between plants and animals and aid in conserving any rare species on the landscape. Prairie phlox, blueberries and New Jersey tea were all found on the property and are known host plants for rare butterflies. In addition, several barrens-associated butterflies, including Olympia marble, eastern pine elfin, and hoary elfin were noted during inventory efforts, pointing to the potential of the property to support rare barrens Lepidoptera.

Ecological Priorities for SGCN

The Wisconsin Wildlife Action Plan identifies ecological priorities in each Ecological Landscape. Priorities highlighted in Figure 2 are the natural communities in each Ecological Landscape that are most important to the Species of Greatest Conservation Need (SGCN).

Appendix A highlights the Ecological Priorities for vertebrate Species of Greatest Conservation Need (SGCN) on the Northwest Barrens Properties. Ecological Priorities include all of the natural communities that were determined to provide the best opportunities for management, from an ecological and biodiversity perspective.

Rare Animals

Wisconsin's Natural Heritage Inventory (NHI) Working List includes those species that are listed either at the Federal or State level. As of September 2007, NHI documented 49 rare fauna within the Northwest Lowlands Ecological Landscape including one mammal, six birds, three herptiles, seven fishes, and 32 invertebrates. These include one federally endangered species, one candidate for future listing, five Wisconsin Endangered species, 10 Wisconsin Threatened species, and 34 Wisconsin Special Concern species. NHI documented 100 rare fauna within the Northwest Sands Ecological Landscape including three mammals, 28 birds, four herptiles, seven fishes, and 58 invertebrates. These include one federally endangered species, one candidate for future listing, five Wisconsin Endangered species, 11 Wisconsin Threatened species, and 79 Wisconsin Special Concern species.

Priority Species Management Plans (supplement to REA)

Sharp-tailed grouse have their own set of management objectives and population recovery activities under the overall management goal for the Northwest Barrens properties.

Sharp-tailed grouse (*Tympanuchus phasianellus*) populations on managed properties in Wisconsin are well below historic levels, and in 2013, were 24% lower than the average number of dancing males during 2008-2012. Populations have been declining since 1998, according to the [Wisconsin Sharp-tailed Grouse Survey and Status](#). (WDNR 2015a).

Rare Plants

The rare plant database of WDNR's Natural Heritage Inventory as of September 2007 (WDNR 2007) contains records for 41 vascular plant species occurring within the Northwest Sands Ecological Landscape that are currently listed as Endangered (4), Threatened (9), or Special Concern (22) by the state of Wisconsin. In the Northwest Lowlands Ecological Landscape, the NHI contains records for 21 vascular plant species that are currently listed as Endangered (3), Threatened (5), or Special Concern (13) by the state of Wisconsin.

Invasive Plants

Non-native invasive species thrive in newly disturbed areas because they establish quickly, tolerate a wide range of conditions, are easily dispersed, and are not limited by the diseases, predators, and competitors that keep their populations in check in their native range. As a result, invasive plants can kill and outcompete native plants by monopolizing light, water, and nutrients and altering soil chemistry and mycorrhizal relationships. In situations where invasive plants become dominant, they may even alter ecological processes by limiting the ability to use prescribed fire and by modifying hydrology. In addition to threats on native communities and native species diversity, invasive species negatively impact forestry (by reducing tree regeneration, growth and longevity), recreation (by degrading fish and wildlife habitat and limiting access), agriculture, and human health (noxious weeds and non-native pathogens).

Invasive plant species, although well-established in some areas of the NWB properties, are generally restricted to trails, roadsides, and low quality habitats. Many of the high-quality areas and areas managed for wildlife habitat are not heavily infested. Invasive plant species that are widespread on the NWB and have the greatest impact to native species diversity, rare species habitats, or high-quality natural communities are spotted knapweed, leafy spurge, cyprus spurge, orange hawkweed, bird's foot trefoil, and tansy. Eradication of glossy buckthorn and showy bush honeysuckle along the Totogatic River should be a priority because they have not yet established a stronghold. Eurasian water milfoil is established in nearby Minong Flowage and poses a potential threat to the river ecosystem.

For recommendations on controlling specific invasive species: consult DNR staff; and refer to websites on invasive species such as <http://dnr.wi.gov/> search 'Invasives'; and the Invasive Plants Association of Wisconsin (<http://www.ipaw.org>). Also refer to invasive species Best Management Practices (BMPs) for forestry, recreation, urban forestry, and rights-of-way, which were developed by the Wisconsin Council on Forestry (<http://council.wisconsinforestry.org/>).

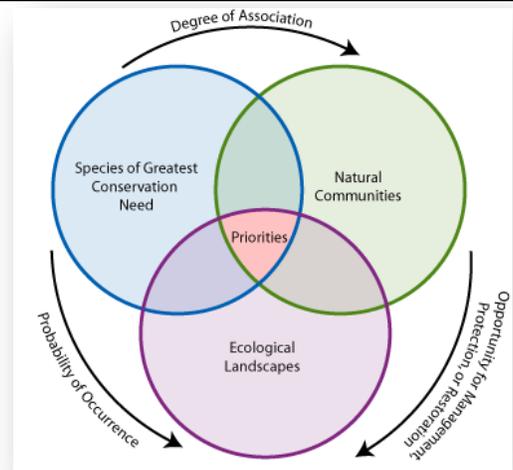


Figure 2. Illustrates the process used for identifying Ecological Priorities in the Wisconsin Wildlife Action Plan.

PRIMARY SITES: SITE-SPECIFIC OPPORTUNITIES FOR BIODIVERSITY CONSERVATION

The following **seven Primary Sites** on the Northwest Barrens Properties were delineated because they generally encompass the best examples of 1) both rare and representative natural communities and 2) rare species populations that have been documented to date. These sites warrant high protection and/or restoration consideration during the development of the new property master plan. Site boundaries and acreages provided are first approximations. All Primary Sites can be considered High Conservation Value Forests for the purpose of Forest Certification. This report is meant to be considered along with other information when identifying opportunities for various management designations during the master planning process.

1) Douglas County Wildlife Area Primary Site – Pine Barrens Management Area, 4287 acres

(Map D-4)

Site Description: This Pine and Oak Barrens community occurs on rolling pitted outwash terrain in the Northwest Sands Ecological Landscape. This site includes the Solon Springs Sharptail Barrens SNA (240 ac). Management for Sharp-tailed Grouse and grassland birds at this site has resulted in a very sparse canopy cover (1% or less) dominated by jack pine, red pine, northern pin (Hill's) and black oak. The tall shrub layer is moderate, but short shrubs such as blueberries, bearberry, and New Jersey tea are very abundant. Groundcover is dominated by graminoids with forbs being generally sparse or patchy in distribution. The community also includes numerous moist depressions with elements of Open Bog, Poor Fen, Northern Sedge Meadow, and Northern Wet Forest and occasional pockets of open water. There is also an Inland Beach community present that is associated with a large softwater seepage wetland with fluctuating water levels and comprised of a sandy-peaty shoreline and strongly zonal vegetation. A small bog dominated by black spruce occurs on an island in the center of the lake. Much of the site is owned by Douglas County with the remainder owned by Wisconsin DNR.

Significance: The globally rare Pine and Oak Barrens communities are better represented in the Northwest Sands than in any other Ecological Landscape and offers the best opportunities in the state for managing this type (WDNR 2006b). A good quality example of the globally rare barrens community types makes up the vast majority of the site. An active gray wolf den site from 2004 exists within the site. This habitat type supports numerous rare species documented on this primary site including one of the best remaining populations in the state of the Sharp-tailed Grouse, a good population of Upland Sandpipers, along with Canada Warbler, Blanding's turtle, eastern hog-nosed snake, prairie skink, pygmy shrew, woodland jumping mouse, rocky mountain sprinkled locust, speckled rangeland grasshopper, Midwestern fen buckmoth, chryxus arctic butterfly, cobweb skipper, dusted skipper, and Leonard's skipper. In addition, numerous SGCN birds are present that prefer or depend upon grassland or shrubland conditions including Northern Harrier, American Woodcock, Veery, Brown Thrasher, Vesper Sparrow, and Field Sparrow.

Douglas County Wildlife Area is recognized as a priority landscape for grassland and brush prairie bird management (Mossman and Sample 1997) and as an Important Bird Area (WDNR 2007).

Management Considerations: Barrens and bracken grasslands are globally rare ecosystems that require collaborative and multiagency planning. Effective barrens management crosses ownership boundaries and needs many partners to be successful. Managing many thousands of acres in a mosaic of barrens, grasslands, wetlands, and forests may be the best way to protect many uncommon species. Small barrens sites can be managed to keep remnants of barrens flora and fauna on private land. The best of the barrens communities should be considered as HCVF. Management options should be considered on a landscape basis with timber harvest and fire applied in a shifting mosaic across the landscape enabling for the full spectrum of barrens successional stages. Adherence to the Natural Heritage Conservation Bureau Grassland and Savanna Protocols for avoidance of take should be part of the management considerations. For more information, see:

http://dnr.wi.gov/org/land/er/take/Grassland_Savanna_Protocol.htm.

Control of invasive plants should be a high priority as several problem species were noted along roads and firebreaks, as well as in former food plots. Invasive species present include spotted knapweed, leafy spurge, black locust, orange hawkweed, and bird's-foot trefoil.



Spotted knapweed along trail at Douglas County Wildlife Area (O'Connor, 2009)

2) and 3) Namekagon Barrens Wildlife Area Primary Sites - Pine Barrens Management Areas: North Unit, 4326 acres & South Unit, 722 acres (Maps Cs-4 and Cn-4)



Sharp-tailed grouse at Namekagon Barrens Wildlife Area. Photo: L. Dau

Site Description: The Pine and Oak Barrens communities making up these two primary sites cover both the north and south units and occur on rolling pitted outwash terrain in the Northwest Sands Ecological Landscape. The two units are separated by the Namekagon River. The south unit of Namekagon Barrens falls within the Lower Namekagon Rolling Barrens LTA and occurs on a more rolling landform than the north unit although both units have characteristic soils of excessively drained sand over outwash. The north unit is in Bayfield Level Barrens LTA and is drained by two headwater streams which flow into the St. Croix River. The surrounding landscape has large amounts of Northern Dry Forest affording options for barrens expansion. Both sites are managed for Sharp-tailed Grouse and grassland birds resulting in a very sparse canopy cover (1% or less) and occasionally dense shrub layer consisting of oak grubs, American hazelnut, sweet-fern, New Jersey tea, and blueberries.

The groundlayer is dominated by various sand prairie species of graminoides such as big blue-stem, little blue-stem, and June grass, as well as forbs like rough blazing star, bird's-foot violet (*Viola pedata*), prairie smoke (*Geum triflorum*), and wild bergamot (*Monarda fistulosa*). Each unit also includes numerous moist depressions typed as Open Bog with elements of Poor Fen, Northern Sedge Meadow, and Northern Wet Forest and occasional pockets of open water.

Significance: The globally rare Pine and Oak Barrens communities are better represented in the Northwest Sands than in any other Ecological Landscape, and offer the best opportunities in the State for managing these types (WDNR 2006b). A good quality example of these rare community types make up the vast majority of both sites. Numerous rare species documented on these primary sites include sharp-tailed grouse, upland sandpipers, Connecticut warbler, dickcissel, western meadowlark,

gray wolf, prairie skink, pygmy shrew, speckled rangeland grasshopper, club-horned grasshopper, clear-winged grasshopper, rocky mountain sprinkled locust, mottled duskywing, Henry's elfin, cobweb skipper, dwarf milkweed, one-flowered broomrape and Richardson's sedge. In addition, numerous SGCN birds are present including northern harrier, veery, brown thrasher, golden-winged warbler, vesper sparrow, grasshopper sparrow, and field sparrow. Additionally, the seepage lakes intermingled amongst the barrens support two rare amphibians: the bullfrog and mink frog. This site has been recognized as a priority landscape for grassland and brush prairie bird management (Mossman and Sample 1997) and as an Important Bird Area (WDNR 2007).

Management Considerations: Barrens and bracken grasslands are globally rare ecosystems that require collaborative and multiagency planning. Effective landscape-scale barrens management crosses ownership boundaries and needs many partners to be successful. Managing many thousands of acres in a mosaic of barrens, grasslands, wetlands, and forests may be the best way to protect many uncommon species. Small barrens sites can be managed to keep remnants of barrens flora and fauna on private land. The best of the barrens communities should be considered as HCVF. Management options should be considered on a landscape basis with timber harvest and fire applied in a shifting mosaic across the landscape enabling for the full spectrum of barrens successional stages. Adherence to the Natural Heritage Conservation Bureau Grassland and Savanna Protocols for avoidance of take should be part of the management considerations. More information is available at: http://dnr.wi.gov/org/land/er/take/Grassland_Savanna_Protocol.htm.

Control of invasive plants should be a high priority as several problem species that have the potential for large infestations were noted along roads and firebreaks. These include spotted knapweed, cypress spurge, orange hawkweed, and bird's-foot trefoil.



2008 Prescribed burn at Namekagon Barrens Wildlife Area

4) Totogatic Wild River Primary Site: County Line Road Barrens and Forest, 207 acres (Map E-4)

Site Description: The site lies on the north side of the Totogatic River and is characterized by three habitats: a high-quality Pine Barrens, a mature Northern Dry Forest in the western and southern portion of the site, and a young Northern Dry Forest in the east portion of the site. The highest quality and most significant is an irregularly shaped 40-acre block of Pine Barrens in the center of the Primary Site. The Pine Barrens was recently logged and is dominated by young jack pine (*Pinus banksiana*) and northern pin oak (*Quercus ellipsoidalis*) that create 30% canopy coverage over a low shrub layer of American hazelnut (*Corylus americana*) and low sweet blueberry (*Vaccinium angustifolium*). Occasional larger trees of red pine (*Pinus resinosa*) and white pine (*P. strobus*), 6-10 inches diameter at breast height (dbh), are widely scattered in the barrens. Grasses and forbs are prominent at the site and include species characteristic of barrens such as big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), June grass (*Koeleria macrantha*), fleabane (*Erigeron glabellus*),

western sunflower (*Helianthus occidentalis*), long-leaved bluets (*Houstonia longifolia*), rough blazing-star (*Liatris aspera*), hoary puccoon (*Lithospermum canescens*) and prairie phlox (*Phlox pilosa*).

The west portion of the Primary Site is dominated by an approximately 100-acre mature Northern Dry Forest of jack pine and occasional red pine that form a moderately closed canopy (50-65% cover) over a shrub layer of American hazelnut and northern pin (Hill's) oak. Characteristic groundlayer species include wood anemone (*Anemone quinquefolia*), wild rose (*Rosa* sp.), big-leaved aster (*Aster macrophyllus*), bracken fern (*Pteridium aquilinum*) and, in openings, big bluestem, hoary puccoon and prairie phlox. Near the river the land slopes steeply down to the river. Trees are larger on the bank and along the slope, likely due to a combination of factors including being spared from logging, being somewhat protected from fire by the river, and potentially having better site quality due to increased soil moisture near the river.

The east portion of the Primary Site could be classified as either a young Northern Dry Forest or an overgrown Pine Barrens as a result of the 5-Mile Fire that burned over 13,000 acres in 1977. It encompasses approximately 100 acres. Other significant features on the Primary Site include Fivemile Creek and the wetlands associated with it (primarily Alder Thicket), and floodplain benches dominated by silver maple (*Acer saccharinum*) along the Totogatic River.

Significance: The Primary Site contains high quality examples of Pine Barrens and closed canopy Northern Dry Forest, both rare community types. The flora is dominated by an abundance of native prairie species with a scarcity of non-native invasive plants. There are several colonies of the State Threatened dwarf milkweed (*Asclepias ovalifolia*). The barrens support a typical assemblage of shrub birds including rare or declining species such as brown thrasher (*Toxostoma rufum*), field sparrow (*Spizella pusilla*), and vesper sparrow (*Pooecetes gramineus*). The Northern Dry Forest yielded the only breeding records of the special concern Connecticut warbler (*Oporornis agilis*) and black-billed cuckoo (*Coccyzus erythrophthalmus*) found on the TWR during surveys.

Namekagon Barrens Conservation Opportunity Area (COA) encompasses nearly the entire Primary Site. This COA has been recognized for its global significance due to rarity of barrens ecosystems remaining worldwide (WDNR 2005). The site is adjacent to the Totogatic River and a half-mile section of Fivemile Creek, both supporting rare fishes and other aquatic elements. The lowland shrub community along Fivemile Creek adds to the overall bird diversity of the site supporting golden-winged warbler (*Vermivora chrysoptera*) and veery (*Catharus fuscescens*), both Species of Greatest Conservation Need (SGCN). The site is connected to the Lyme Timber Company parcel of the Brule-St. Croix Legacy Forest, presenting good opportunities for landscape scale management of barrens and Northern Dry Forest.

Management Considerations: Overall, barrens are quite rare across the landscape, having declined significantly since the mid-1800s. Given the statewide rarity of barrens, the high quality nature of the barrens in this Primary Site, and the fact that this site is located in the Namekagon Barrens Conservation Opportunity Area, a strong emphasis on barrens maintenance and restoration is warranted. It is important to manage for the full spectrum of barrens, including mature forest stands, as outlined in the Northwest Sands Integrated Ecosystem Management Plan (NSIEMP), cited in the Wisconsin Wildlife Action Plan (WAP) and Implementation Plan (WDNR 2008).

This Primary Site and surrounding landscape is an ideal candidate for this type of planning. The NSIEMP includes identification and management of early successional core barrens areas, such as those that occur at the center of this site. It also prescribes management of forested areas beyond their normal rotation age, such as those that occur on the western portion of this site. Finally, the NSIEMP suggests thinning of stands for both savanna structure and for fire hazard reduction, followed by prescribed burning for stand regeneration while leaving charred legacies; either of these approaches might be appropriate for the area east of Fivemile Creek, where overgrown barrens are succeeding to young forest. The WAP Implementation Plan also notes the importance of integrating planning efforts across federal, state, county, local and industrial ownership boundaries. In particular, the adjoining Brule-St. Croix Legacy Forest easement presents an excellent opportunity to coordinate management across property boundaries, with the joint goal of enhancing and maintaining a shifting landscape mosaic of jack pine forest/barrens representing the full spectrum of age classes and structures.

It is important to recognize both the spatial and temporal patterns of forest and barrens, as well as relative patch sizes of these habitats in the regional landscape. Barrens were highly variable across the landscape, and included areas of open barrens and savanna-like forests embedded in a larger landscape matrix of pine forests (Public Land Survey data, Radeloff et al. 1999). This spatial heterogeneity was historically maintained by stochastic disturbances such as fire and infrequent catastrophic windstorms. Management that mimics natural spatial heterogeneity on TWR and surrounding properties will maximize benefits across the landscape. This could include prescribed burns with large burn units in which not all vegetation will burn in a given event or establishing rotational management units that follow ecological boundaries and that are of sufficient size to provide habitat for various species, including those that need large open areas (i.e. sharp-tailed grouse), as well as those

that need blocks of mature to overmature forests (i.e. Connecticut warbler). There are opportunities to maintain the barrens at this Primary Site as a moderate-sized "stepping stone" between larger barrens complexes in the landscape (i.e., Namekagon Barrens and Douglas County Wildlife Area) (Reetz et al. 2012).

Although not a State Natural Area, managers will find the "WDNR Barrens State Natural Area Management Guide" a helpful resource for establishing a management plan (McKenny 2012).

5) Totogatic Wild River Primary Site: Former Solar Property Red Pines, 128 acres (Map E-4)

Site Description: This 128-acre site is located along the Totogatic River and contains examples of good quality natural communities throughout the Primary Site. The site has three distinct zones: a red pine forest with forested slopes leading down to the river, a central area of barrens with scattered moderate-sized red pine, aspen, and northern pin (Hill's) oak, and a small but ecologically significant wetland complex in the northwest portion of the site.

The major feature of the site is a maturing stand of Northern Dry-mesic Forest in the southern portion of the parcel. The forest is dominated by red pine that averages 16" dbh, with some individuals over 20" dbh, and is likely of natural origin, a very rare occurrence in the state. The forest also contains occasional white pine and scattered to moderate density northern pin (Hill's) oak and red maple (*Acer rubrum*). Widely scattered individual bigtooth aspen (*Populus grandidentata*) and paper birch (*Betula papyrifera*) also occur. White pine regeneration is present in some areas. The shrub layer is contains American hazelnut along with patches of blueberries, but overall density of tall shrubs is low. Herbaceous vegetation is common and includes cow-wheat (*Melampyrum lineare*), mayflower (*Maianthemum canadense*), whorled loosestrife (*Lysimachia quadrifolia*) and starflower (*Trientalis borealis*). Coarse woody debris is sparse, with some oak and birch just beginning to fall over.

The riparian zone is almost exclusively steep banks dominated by jack and red pine with lesser amounts of bur oak (*Quercus macrocarpa*). Small terraces are also occasionally present, and in one site surveyed, were dominated by bur oak with northern pin (Hill's) oak as an associate. Groundlayer vegetation was dominated by wetland species such as bluejoint grass (*Calamagrostis canadensis*), false dragonhead (*Physostegia virginiana*), and poison ivy (*Toxicodendron radicans*). At least one high bank had a sandy eroding slope used by turtles as a nesting site.

The central part of the site contains a relatively open landscape, appearing to have been selectively harvested within the past 5-10 years. Scattered red pine (5-15" dbh) occurs as scattered trees or clusters, along with occasional aspen and northern pin (Hill's) oak saplings. The shrub layer is dominated by dense waist-high hazelnut. Oak grubs are also present. Between thickets of hazelnut lie patches of open barrens with prairie vegetation such as big bluestem, little bluestem, hoary puccoon, rough blazing star, western sunflower, long-leaved bluets, butterfly weed (*Asclepias tuberosa*) and harebell (*Campanula americana*). In addition, some areas are dominated by non-native grasses, particularly in disturbed sites.

The northwest portion of the site contains a unique wetland complex including Forested Seeps running into an Oxbow Lake, and Springs and Spring Runs bordered by bands and pockets of Northern Sedge Meadow and Alder Thicket. The Springs and Spring Runs originate in a Tamarack Swamp, in places mixed with swamp hardwoods and Black Spruce Swamp. Common trees in this forested wetland complex include tamarack (*Larix laricina*), black spruce (*Picea mariana*), balsam fir (*Abies balsamea*), black ash (*Fraxinus nigra*), and alder (*Alnus* sp.). The Oxbow Lake occurs in the river floodplain, partially separated from the wetland complex by a high ridge of red pine.

Significance: This property has several features that make it an excellent opportunity for biodiversity conservation. It is adjacent to state-owned parcels, both to the east and west, forming a corridor in both the uplands and riparian zones. As



Wetland complex with Spring Run through Northern Sedge Meadow at Former Solar Property Red Pines Primary Site. Photo R. Staffen.

a larger block, these parcels together present opportunities for Pine Barrens management across multiple successional stages, benefitting area-sensitive species, and enabling a wider array of management options. The landscape context of the site with its proximity to the Namekagon Barrens State Wildlife Area, County Forest lands, and the Brule-St. Croix Legacy Forest makes it an important piece of a large-scale barrens restoration and for creating corridors/connections for many wildlife and plants.

Red pine-dominated forests, of natural origin and with good sized trees, are rare in the Northwest Sands Ecological Landscape. Upland/riparian protection will benefit the aquatic vertebrates and invertebrates of the Totogatic River, including several rare fishes and freshwater mussels. Nesting wood turtles (*Clemmys insculpta*) (Threatened) were also found on an exposed sand bank along the Totogatic River and a prairie skink (*Plestiodon septentrionalis*) (Special Concern) was found in the narrow sedge meadow at the site.

The wetland complex in the northwest corner of the site adds to the diversity as wetlands are rare on the TWR. These include an Oxbow Lake which should be surveyed for backwater fishes, aquatic invertebrates, and additional herptiles. Herptile surveys here in 2012 revealed only common amphibians and reptiles, but the site has the potential to support rare species, including Blanding's turtle (*Emydoidea blandingii*). There is an active seep flowing off the forested slope into the Oxbow Lake. Forested Seeps are known to support rare plants. A Spring coursing through the small sedge meadow is likely to harbor pickerel frog (*Lithobates palustris*) and/or northern leopard frogs (*L. pipiens*) while the Alder Thicket and Tamarack Swamp could support four-toed salamanders (*Hemidactylium scutatum*).

Management Considerations: This Primary Site could serve as an ecological reference area¹ due to its collection of exceptional site characteristics, particularly the natural origin red pine stand, the Totogatic Wild River corridor, and the unique complex of wetland communities. The site should be considered for designation as a State Natural Area, especially given the lack of natural origin red pine forest in the Northwest Sands Ecological Landscape.



Forested Seep along bank of Oxbow Lake on the Former Solar Property Red Pines Primary Site. Photo R. Staffen

It represents one of the best opportunities in the region to maintain and restore savanna-like areas dominated by large-diameter red pine, now mostly lost from this landscape (Radeloff et al. 1999). The Northwest Sands Integrated Ecosystem Management Plan notes this can be accomplished through thinning (where needed) and underburning for stand regeneration, and leaving charred legacies for wildlife. Opportunities also exist to manage small stands of early successional jack pine forest and adjacent areas as patches of open barrens within a matrix of red pine savanna.

Per [ch. NR 302](#) DNR does not manage vegetation within 150 feet of the river corridor. Even so, the adjacent Totogatic River and associated steep slopes and bluffs should be buffered from timber management that could increase erosion (such as timber harvesting) and all BMPs should be strictly followed. If Wild River buffer zones do not adequately protect steep slopes and associated wetlands, additional set-backs may be warranted from management that could cause erosion. Fire is a natural part of the landscape in this region, and prescribed burning is a useful management tool to manage barrens at this site. NR 302 does allow for restoration activities necessary to restore the natural appearance of river areas previously modified by man. In instances of barrens restoration and management, burn planning may incorporate slopes adjacent to the river to more closely mimic historical fire patterns and natural burn breaks. Although dramatic reduction of vegetative cover along steep slopes and streambanks could be detrimental to soil retention and water quality, provision of some open areas along the river corridor for turtle nesting and wildlife migration may be considered. Ignition techniques that yield variable fire intensities and flame lengths may help achieve these goals. In addition, any management must take into account the presence of wood turtles; Incidental Take Protocols (available on DNR webpages) should be followed for this State Threatened species.

¹ Ecological reference areas, or ecological benchmarks, provide baseline natural community data for comparison with non-reference areas specifically to evaluate changes in habitat, species abundance, and species composition due to natural changes, human impacts, or broad-scale environmental changes.

The unique wetland features of this site may warrant special management designations to protect their fragility and high contribution to biodiversity. The features present, including an Oxbow Lake and Forested Seep, exist nowhere else on the property, and are rare in the region. Buffer zones should be utilized to protect these sensitive features from soil compaction, erosion, and loss of forest canopy.

Non-native invasive species were found in disturbed areas such as two-tracks and an old logging landing, which contained a small patch of spotted knapweed (*Centaurea maculosa*). Control of small, localized infestations of non-native invasives such as knapweed should be a priority action along with long-term monitoring along corridors and in disturbed areas.

6) Totogatic Wild River Primary Site: Kimball Barrens, 322 acres (Map E-4)

Site Description: This Primary Site consists largely of a recently logged forest that has now reverted to high-quality Pine Barrens. Scattered Northern Dry Forest also occurs in small stands, as well as along ridge crests and slopes that drop steeply to the Totogatic River directly to the east. The topography is rolling with areas of both upland plateaus as well as deep depressions characteristic of a pitted outwash plain, dropping steeply to outwash valleys occupied by a marsh connected to Lower Kimball Lake to the west and the Totogatic River to the east.

The Pine Barrens is dominated by scattered jack pine and red pine as well as occasional northern pin (Hill's) oak. The shrub layer is dominated by American hazelnut. The herbaceous groundlayer is diverse and includes Pennsylvania sedge (*Carex pennsylvanica*), bracken fern (*Pteridium aquilinum*), big bluestem, little bluestem, poverty oat grass (*Danthonia spicata*), June grass, Kalm's brome (*Bromus kalmii*), inland New Jersey tea (*Ceanothus herbaceus*), prairie phlox, hoary puccoon, western sunflower, rough blazing-star, fleabane, long-leaved bluets, showy goldenrod (*Solidago speciosa*), sky-blue aster (*Aster oolentangiensis*), prairie violet (*Viola pedata*), and the State Threatened dwarf milkweed (*Asclepias ovalifolia*).

Forested areas are dominated by a mixture of northern pin (Hill's) oak, red pine, jack pine, and white pine over American hazelnut, bracken fern, Pennsylvania sedge, and Canada mayflower. Other important features of the Primary Site include sand blows and depressions with open sand that are favored by several rare herptiles (described in more detail below).

Significance: This site represents the largest intact barrens area on the property. The existing barrens habitat has some potential for additional restoration within the property, though even greater potential exists on adjacent properties. Combined together, this site has the potential to be part of a much larger functioning barrens ecosystem. As it is currently configured, the site is benefitting several special concern shrub birds including whip-poor-will (*Caprimulgus vociferous*), common nighthawk (*Chordeiles minor*), brown thrasher, field sparrow, and vesper sparrow. Expanding the site through connections to Namekagon Barrens and other scattered Bracken Grasslands and barrens could provide habitat for area-sensitive birds like sharp-tailed grouse (*Tympanuchus phasianellus*), northern harrier (*Circus cyaneus*), upland sandpiper (*Bartramia longicauda*), and Kirtland's warbler (*Dendroica kirtlandii*).

The diverse ground flora of the site is still intact in most places supporting common prairie grasses and forbs along with several colonies of the State Threatened dwarf milkweed. As potential host plants for rare barrens butterflies and moths, these native grasses and forbs increase the habitat potential for rare Lepidoptera. During limited survey effort, only common barrens species were noted such as Olympia marble (*Euchloe olympia*), eastern pine elfin (*Callophrys nippon*), and hoary elfin (*C. polios*). However, since important larval host plants like prairie phlox are present, there is potential for rare barrens butterflies (phlox moth [*Schinia indiana*], mottled dusky wing [*Erynnis martialis*]), to be utilizing the area.

Open sand blows and lightly vegetated barrens at the Primary Site showed good potential for rare tiger beetles and grasshoppers during site assessments, emphasizing the need for follow-up surveys. These open sand areas are also important habitat for reptiles like prairie skink and eastern hognose snake (*Heterodon platirhinos*), both found at or near the site. They could also potentially support gophersnake (*Pituophis catenifer*) and, where they occur in close proximity to the Totogatic River or wetlands (200-900 feet), could provide nesting sites for turtles.

Management Considerations: A strong emphasis on barrens maintenance and restoration is warranted at this Primary Site. As noted above, barrens are quite rare across the landscape, having declined significantly since the mid-1800s. The Kimball Barrens are the highest quality on the property, and the site is adjacent to the Namekagon Barrens Conservation Opportunity Area. At over 300 acres, this site could serve as an early successional core area for sharp-tailed grouse management, an opportunity noted in a Draft Feasibility/Environmental Analysis for the Totogatic Wild River property (WDNR 2011a). Though likely not large enough to support a self-sustaining grouse population, it is ideal as a moderate-sized "stepping stone" between larger barrens complexes in the surrounding landscape (i.e., Namekagon Barrens and Douglas County Wildlife Area) (Reetz 2012). Increasing dispersal among habitat patches and colonization of new habitat is likely necessary to

maintain overall population size and genetic viability of sharp-tailed grouse in the long-term (WDNR 2011b). Opportunities exist to expand the barrens westward toward Namekagon Barrens and northward toward Douglas County Wildlife Area by coordinating management with the Brule-St. Croix Legacy Forest and other partner landowners.

Barrens were historically highly variable across the landscape, and included areas of open barrens and savanna-like forests embedded in a larger landscape matrix of pine forests (Radeloff et al. 1999). It is thus important to manage for the full spectrum of barrens, including mature forest stands, as outlined in the NSIEMP, and as cited in the Wisconsin Wildlife Action Plan - Implementation Plan (WDNR 2008). This includes: 1) management of forested areas beyond their normal rotation age (e.g., those that occur near the crest of steep slopes leading down to the river and scattered patches in rolling uplands); 2) thinning (where appropriate) to create savanna structure; and 3) prescribed burning.

On a finer scale, small patch habitats such as areas of open sand, present in the southwest portion of the site, also warrant management attention. As noted above, open sandy areas are important habitat for rare reptiles such as the prairie skink and hognose snake and should be maintained in an open condition.

Non-native invasive species, including spotted knapweed and tansy (*Tanacetum vulgare*) were found in disturbed areas such as two-tracks and areas furrowed for red pine planting. Control of small, localized infestations of non-native invasives such as knapweed and tansy should be a priority action along with long-term monitoring along corridors and in disturbed areas.

Although not a State Natural Area, managers may find the "WDNR Barrens State Natural Area Management Guide" a helpful resource for establishing a management plan (McKenny 2012).

7) Totogatic Wild River Primary Site: the Totogatic Wild River, 1,511 acres (Map E-4)

Site Description: This Primary Site encompasses the Totogatic River and its associated floodplain and wetlands from the Minong Flowage to its confluence with the Namekagon River. Landowners within this site include DNR (281 ac); Burnett County Forest (709 ac); Federal St. Croix National Scenic Riverway (22 ac); and private (499 ac). The Totogatic River itself is a fairly large, brown stained, warmwater drainage stream originating in Bayfield County, flowing through Sawyer County before entering Douglas and Washburn counties and draining into the Namekagon River in Burnett County. Because of the river's large watershed, flooding and subsequent extreme water level fluctuations occur in the spring and after heavy rainfalls (Sather & Busch 1978). The stream bottom type is stable consisting of sand, gravel, rubble, boulder, bedrock, and silt (Sather & Busch 1978).

The river is bordered by a mixture of Floodplain Forest and Northern Sedge Meadow that ranges in width from just a few feet to over 2,000 feet, with the average width being several hundred feet. The floodplain lies in a relatively narrow valley with steep slopes rising, on average, more than 100 feet in elevation to the jack pine, red pine, and northern pin (Hill's) oak-dominated barrens and forest on the outwash terrace above the river.

In the river valley, Floodplain Forest predominates and is dominated by silver maple, American elm (*Ulmus americana*), white ash (*Fraxinus americana*), and in places, bur oak and trembling aspen (*Populus tremuloides*). Portions of the floodplain have been selectively logged in the recent past. Occasional river terraces that are slightly higher in elevation contain uneven-aged stands of bur oak (*Quercus macrocarpa*), basswood (*Tilia americana*), and American elm. Shrubs and ground layer species in the floodplain include alder, sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), narrow-leaved hedge nettle (*Stachys tenuifolia*), lake sedge (*Carex lacustris*), bluejoint grass, and, in higher elevation areas, Pennsylvania sedge. One notable area included in the Primary Site on Burnett County forest land is a large expanse of Floodplain Forest/Northern Hardwood Swamp at the confluence of the Totogatic and Namekagon Rivers.

Northern Sedge Meadow is interspersed throughout the floodplain, and occasionally occupies large areas. Dominant plants include tussock sedge (*Carex stricta*), lake sedge, and bluejoint grass as well as shrubs such as alder, slender willow (*Salix petiolaris*), meadowsweet (*Spiraea alba*), and winterberry (*Ilex verticillata*). In some areas where shrub density and dominance are higher, sedge meadow grades into Shrub-carr or Alder Thicket.

Significance: This portion of the Totogatic Wild River is a high-quality undammed stretch of river connecting to the federally designated St. Croix National Scenic Riverway and Namekagon River. In addition, the Totogatic River is currently one of only five rivers in the state designated as a Wild River, and is also designated as an Outstanding Resource Water (ORW), receiving the state's highest protection standards. Of Wisconsin's 53,413 streams and rivers, only 254, or less than

1%, are designated as ORW. Finally, this site is directly adjacent to the Namekagon River aquatic Conservation Opportunity Area (WDNR 2008), which could be expanded in the future to include this stretch of the Totogatic River.

The site also provides significant wildlife habitat, including for birds and bats. The river corridor is an important area for migratory and resident breeding birds. During a canoe survey in early May 2012, the river corridor was teeming with neotropical migrant warblers including: magnolia, black-and-white, pine, Nashville, blackburnian, northern parula, golden-winged, yellow, ovenbird, and Tennessee. Numerous waterfowl use the river during migration or breeding including: blue-winged teal, wood duck, mallard, and hooded merganser. Broad-winged hawks were commonly heard near the river and likely nest here, two pairs of bald eagles nest along this stretch of the river, American woodcock nest in the floodplain of the river, Common nighthawk were commonly observed foraging over the river and nest in the barrens, and belted kingfishers nest on the sandy banks along the river.

Bat acoustical surveys were conducted on the Namekagon River in summer 2010, including the area at the mouth of the Totogatic River. **Surveys found six of the possible seven summer resident bats for Wisconsin,** including big brown bat, little brown bat, eastern red bat, hoary bat, silver-haired bat, and northern long-eared bat, making this an important area for bat conservation. The only species not found was eastern pipistrelle, but this is likely outside of the northern extent of its range in Wisconsin. River corridors are important foraging and roosting areas for bats, providing emerging insects, a good flight corridor, and tree cover for roosting during daytime hours.



Sandy banks along the Totogatic River. Photo by R. Staffen.

The site also provides exceptional habitat for herptiles, including basking areas, overwintering habitat, and stretches of sandy banks that are ideal for turtle nesting. During surveys, both wood turtles and snapping turtles were observed nesting at several locations on these banks along the river. The state Special Concern prairie skink is also commonly found on these open sandy banks along rivers. Spiny soft-shell turtles were frequently observed in the river or in its tributaries. A diversity of frogs utilize the site as well. At a calling station near the confluence of the river and the stream outlet from Lake Nancy, species noted included wood frog, chorus frog, spring peeper, eastern gray treefrog, Cope's gray treefrog, and green frog.

Several rare aquatic elements are known from the primary site from recent surveys. Qualitative mussel surveys from 2005-2012 of the entire Totogatic River found this stretch, below the Minong flowage to its confluence with the Namekagon River, to support the greatest species richness in the entire system. This included several rare mussels: the State Endangered Purple Wartyback, found as only a relict shell, and four special concern mussels (black sandshell, round pigtoe, elktoe, and creek heelsplitter). In addition, the gilt darter, a State Threatened species, was found here in 2009 fish surveys. Silt-free systems with sand, cobble, gravel, and small boulders along with riffles and rapids are important features present in numerous stretches within the primary site for all of these aquatic species.

Management Considerations: The Totogatic River is one of only five rivers in the state designated as a Wild River. Within DNR-owned lands designated Wild River, state statute and administrative code specify: no vegetative control within 150 feet from the bank on either side of the river, and additional restrictions beyond 150 feet, walk-in access only, no motorized vehicles within one-quarter mile of the river, no stream alterations, no maintained trails within 400 feet of the river, and few developed parking lots or canoe put-ins. These rules are intended to preserve the wild and scenic qualities of the river.

The Totogatic River is also designated as an Outstanding Resource Water (ORW), receiving the state's highest protection standards. ORWs typically do not have any point sources discharging pollutants directly to the water, 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. Following the guidelines for Wild Rivers and ORWs will benefit the diverse aquatic life, including rare mussels and fishes.

As noted above, existing regulations are meant to protect vegetation within 150 feet of the river corridor. Even so, the steep slopes and bluffs adjacent to the river should be buffered from management that could increase erosion and all BMPs should be strictly followed. If Wild River buffer zones do not adequately protect steep slopes, additional set-backs may be warranted. In addition, any management action must take into account the presence of wood turtles and other rare species, and Incidental Take Protocols for rare species (available on the Endangered Resources website) should be followed if work is being conducted that could result in take of a state-listed species.

Fire is a natural part of the landscape in this region, and prescribed burning could potentially be a useful management tool to manage and restore barrens at this site. [NR 302](#) does allow for restoration activities necessary to restore the natural appearance of river areas previously modified by man. Burn planning may incorporate slopes adjacent to the river to more closely mimic historical fire patterns and natural burn breaks. Although dramatic reduction of vegetative cover along steep slopes and stream banks could be detrimental to soil retention and water quality, provision of some open areas along the river corridor for turtle nesting and wildlife migration may be considered. Ignition techniques that yield variable fire intensities and flame lengths may help achieve these goals.

Only two invasive species were noted from this Primary Site. A single large glossy buckthorn (*Frangula alnus*) was found on the south bank of the river across from the south end of County Line Road, and showy bush honeysuckle (*Lonicera X bella*) was found locally scattered on river banks and the interior of the Floodplain Forest. Invasive shrubs appear to be just gaining a foothold on the site. Targeted efforts to remove infestations, particularly large shrubs along the river floodplain, represent a high-priority action. Research has demonstrated the negative impact of both glossy buckthorn and exotic honeysuckle on wetland and aquatic communities (Fiedler and Landis 2012, McNeish et al. 2012).



Mature red pine grows on a slope above the Totogatic River. Photo by Andy Clark.

SOCIO-ECONOMIC CHARACTERISTICS

Information below is mostly from the “Northwest Sands Ecological Landscape” chapter (WDNR 2015b). This includes population data, which is primarily from 2012 U.S. Census Bureau.

Archaeological Resources (Map Cn-5)

A cultural review indicates the presence of recorded Euro-American buildings and a cemetery adjacent to Namekagon Barrens Wildlife Area. Sites are signed and they relate to original attempts at settling the area in the late 1800’s – early 1900’s. Management policy in Wis. Stats. 44.40 and Manual Code 1810.10 requires that any activities with the potential to disturb archaeological sites will only be undertaken after consultation with the department Archaeologist (Dudzik 2013).

Ceded Territory and Tribal Resources

The Northwest Barrens properties are within the ceded territory of the Ojibwe Tribes. Native American tribes are independent, sovereign nations, as they were prior to the arrival of Europeans in North America. The Ojibwe Tribes ceded some lands in the northern one-third of Wisconsin to the United States Government in the Treaties of 1837 and 1842 (Appendix E). In those treaties, they reserved their rights to hunt, trap, fish and gather within various publicly-owned lands. Treaty rights are currently being exercised and implemented.

Wild Rice: Consultation and Conservation – To the Ojibwe, wild rice is “manoomin,” the “food that grows on water.” Wild rice has been a central component of Native American culture for hundreds of years. Within Wisconsin’s ceded territory, prior to any actions that could affect wild rice abundance or habitat, federal law requires that consultation occur with tribal government leaders via the Voigt Task Force.

Population

The population density of the Northwest Sands counties is about one-fifth that of Wisconsin as a whole. At 21 persons per square mile, the area is rural in relation to the statewide population density of 105 persons per square mile, according to 2012 U.S. Census Bureau information. The city of Spooner (pop, 2680) is the only urban center within the ecological landscape (defined by the U.S. Census as cities with population over 2,500).

The area is racially homogeneous, with a 92% white population. However, compared to the rest of the state, a significant population of Native Americans (9.6%) resides in nearby Bayfield County, and 1.2% reside in Washburn County (USCB, 2012). The tribal headquarters of the St. Croix band of Ojibwe is in Big Sand Lake, a Burnett County reservation community near the unincorporated village of Hertel.

Land Use and Ownership

Land use patterns will partly determine the type of recreation that is available to the public. For instance, in the Northwest Sands Ecological Landscape, there is a much higher percentage of forest land and a much lower proportion of agricultural land compared to the rest of the state (“Comparison of Ecological Landscapes” Chap 3, WDNR 2015b). The surface area in water is third highest as is the proportion of that water in lakes.

Forty-eight percent of the land and water in the Northwest Sands Ecological Landscape is in public ownership. Federal lands include parts of the Chequamegon-Nicolet National Forest and the St. Croix National Scenic Riverway. Important state-owned lands include Crex Meadows, Fish Lake, Amsterdam Sloughs, Namekagon Barrens, and Douglas County Wildlife Area, Totogatic Wild River lands and parts of the Brule River and Governor Knowles State Forests. Extensive county forests are owned and managed by Bayfield, Burnett, Douglas, and Washburn counties. Approximately 65,000 acres owned and managed by Lyme St. Croix Forest Company in the region have a DNR conservation easement for public recreation within this working forest. Almost 608,700 acres or 49% of all land and water in the region is publicly owned. This is significantly higher than the statewide average of 20% and ranks second among 16 ecological landscapes in the proportion of public ownership. There are about 69,100 acres of water; 107,300 acres of state recreational lands; 151,800 acres of federal land; and 280,500 acres of county lands.

The total area of the Northwest Sands Ecological Landscape is approximately 1.2 million acres, of which 76% is forested. About 53% of all forested land is privately owned, 33% belongs to state, counties, or municipalities, and 14% is federally owned (USDA 2009). Agriculture is not a major factor in the economy, ranking 13 out of 16 categories in the percent of land area in agriculture.

Economic Overview

The economy of the Northwest Sands counties is depressed when compared with the rest of the state. Per capita income and average wage are third lowest, and the rates of poverty and unemployment are third and fifth highest among the state's 16 ecological landscape approximations. The top four economic sectors in terms of employment within the Northwest Sands Counties are: Government, Tourism-related, Retail trade, and Health care and social assistance. Although forestry does not have a large impact on the number of jobs, it is the sector that has the largest impact on the natural resources in the ecological landscape.

The 39,535 jobs in Northwest Sands counties represent only 1.1% of total employment in Wisconsin in 2007. The top four economic sectors (for definitions of economic sectors, see <http://www.census.gov>) in terms of the number of jobs provided to the local economy within the Northwest Sands Counties are: Government employment (18.7%), Tourism-related (15.8%), Retail trade (10.7%), and Health care and social assistance (9.7%). Service sector jobs dominate the economy. Approximately 20% of jobs are in Manufacturing, Transportation and Warehousing, and Construction combined. Figures for Agriculture, Fishing & Hunting (4.0% of Northwest Sands employment) and Forest Products & Processing (2.7%) are only slightly higher than statewide averages, and do not greatly contribute to Northwest Sands Counties' employment (MIG 2009).

Northwest Sands counties have high levels of service jobs with low wages and few benefits, a high proportion of part-time and seasonal jobs, a narrow economic activity base with high reliance on the volatile recreation sector; and low representation of important agriculture, manufacturing and technology sector jobs in the Northwest Sands Counties. This contributes to high unemployment, low per capita income, and generalized economic stress.

In particular, the Douglas County and Namekagon Barrens wildlife areas are an economic benefit for the state, county and nearby towns. The barrens are a unique recreational resource that draws yearlong visitation. Statewide, an influx of revenue from hunters is anticipated during fall hunting seasons; however, the visitor season here is much longer. People from throughout Wisconsin and many non-residents regularly visit the area in the spring to watch sharp-tailed grouse dance, view song birds and wildflowers in May and June, pick blueberries in July and August, or hike the scenic vistas along the North Country Trail throughout the year. Other visitors come to the area to attend dog trials and for horseback riding on the Douglas County Wildlife Area (DCWA). DCWA is unique among wildlife properties in Wisconsin in that it offers horseback riding opportunities for individuals and groups, including on-site boarding and camping opportunities. The barrens contribute to the area's appeal for vacation home buyers as well as general visitors.

Collectively, these barrens properties generate thousands of dollars in direct and indirect revenue for the local economy by drawing visitors who stay in hotels, eat at restaurants, get gas, supplies and spend a little time shopping on the local specialty stores that would otherwise have no reason to come to this part of the state.

RECREATION RESOURCES: USE AND POTENTIAL

Information on outdoor recreation in Wisconsin comes from multiple sources: 1) Wisconsin DNR Ecological Landscapes Handbook (WDNR 2015b); 2) the Statewide Comprehensive Outdoor Recreation Plan (SCORP) (WDNR 2006a) a national template that describes the status, trends and needs for outdoor recreation in Wisconsin; includes 2010 recreational updates; and 3) information in the Land Legacy Report, (WDNR 2006b).

For planning purposes, this Regional Analysis focuses on "nature-based" and motorized activities that generally take place in natural or undeveloped settings. These include traditional activities (e.g., hunting, trapping, fishing, berry picking, camping, hiking, wildlife watching, canoeing, swimming in lakes and rivers, horseback riding), non-traditional activities (e.g., geocaching, kayaking) and motorized activities (e.g., ATV, snowmobile riding). These properties have been purchased or managed with funds from the Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act). Statutes and applicable federal regulations prohibit a state fish and wildlife agency from allowing recreational activities and related facilities that would interfere with the purpose for which the State acquired, developed, or is managing the land. This analysis does not include outdoor activities associated with developed settings, facilities, and infrastructure.

The department is committed to providing exceptional outdoor recreation opportunities for people of all abilities. All new construction and renovation of infrastructure will follow guidelines set forth within the Americans with Disabilities Act and also be done in a manner consistent with Wisconsin Ch. NR 44 standards for land use classification, at the site where the development is located.

The property manager has the authority to make reasonable accommodations for people with disabilities, consistent with the requirements of the area's land use classification. Property managers may also allow the use of power-driven mobility

devices (PDMDs) on trails consistent with federal law for PDMDs located in 28 CFR s. 35.137.

Opportunities and Needs

The Northwest Sands Ecological Landscape has the second highest proportion of public lands, combining federal, state, and county ownerships. The density of campgrounds and multi-purpose trails is above average and the number of visitors to state properties (in 2004) below average. The density of multi-purpose trails is the highest in the state. The number of legacy sites in general is low but the number with high recreation potential is above average.

Opportunities

Land and water - The Northwest Sands Ecological Landscape comprises 3.4% of Wisconsin's total land area and 5.4 % of the state's acreage in water (see Chapter 3, "Comparison of Ecological Landscapes" of the Handbook). Streams and rivers make up only 6% of the surface water area of the Northwest Sands Ecological Landscape whereas lakes and reservoirs make up over 93% of the area. The largest rivers are the Namekagon, Yellow and Saint Croix rivers. Yellow Lake and the Saint Croix Flowage cover over 2,000 acres each while the Minong Flowage, Big Sand Lake, Clam Lake, Spooner Lake and McKenzie Lake are each over 1,000 acres (WDNR 2003).

Recreation along, on, and in our waters is important to the character and quality of life in Wisconsin and supports a vital tourism industry. In Burnett, Polk, Washburn and Barron counties, there are over 100,000 acres of lakes, 6,000 acres of flowages and 3,500 miles of inland shoreline, trout streams and canoe/kayak miles. The St Croix National Scenic Riverway is a sizeable and significant river resource in Wisconsin. It meanders 154 miles southward from the St. Croix Flowage, in Douglas County, through Burnett, Polk, and St. Croix Counties to its confluence with the Mississippi River at the southern edge of Pierce County. The St. Croix River was designated as a National Scenic Riverway in 1968 for its outstandingly remarkable scenic, recreational and geologic values. It is one of the last undisturbed, large floodplain rivers in the upper Mississippi River System. The Riverway is an unrivaled combination of exceptional natural and cultural resources and scenic, aesthetic and recreational values.

Canoeing and kayaking opportunities are plentiful within the region. High quality water resources and a network of glacial watersheds throughout northern Wisconsin provide water recreation of all types. The St. Croix, Namekagon, Totogatic, Flambeau and Bois Brule rivers vary in character, size, flow, and surrounding vegetation and land forms.

Public Access Lands - In the Northwest Sands Ecological Landscape, almost 608,700 acres or 48.6% of all land and water is publicly-owned (based on FIA data; USDA FS 2009). This is significantly higher than the statewide average of 19.5% and ranks second out of 16 ecological landscapes in the proportion of public ownership. There are about 69,100 acres of water, 107,300 acres of state recreational lands, 151,800 acres of federal and 280,500 acres of county lands (USDA FS 2009).

State-owned lands and facilities are important to recreation in the Northwest Sands. There are over 36,900 acres of state forest including parts of the Brule River and Governor Knowles state forests. In addition, there are 59,300 acres in fisheries and wildlife management lands. The largest of these, Crex Meadows and Fish Lake State Wildlife Areas, provides over 40,000 acres of recreational land (WDNR 2005).

Approximately 65,000 acres owned and managed by Lyme St. Croix Forest Company in the region have a conservation easement within this working forest. The easement includes rights for public recreation such as hunting, fishing, trapping, hiking, and cross-county skiing.

Trails - The Northwest Sands counties have almost 2,900 miles of recreational trails (Table 4) and rank sixth (out of 16 ecological landscapes) in trail density (miles of trail per mi² of land). Compared to the rest of the state, there is a higher density of mountain-biking, ATV and cross-country ski trails (Prey 2010).

The [Wild Rivers State Trail](#) is a popular 96-mile long multi-use trail through Washburn, Barron, and Douglas counties that follows an abandoned railroad bed, established in the 1880's. Riding snowmobiles, ATVs, horseback, mountain bikes, and hiking are all uses on this groomed trail, owned by the state of Wisconsin and managed by the counties.

The [Gandy Dancer State Trail](#) runs through Burnett, Douglas, and Polk counties in Wisconsin and Pine County in Minnesota. In Wisconsin, the Gandy Dancer trail is managed by county recreation departments. Built on a former railroad bed, it is 98-miles long, and provides opportunities for seasonal bicycling, snowmobiling, and hiking.

The [North Country National Scenic Trail](#) traverses northwest Wisconsin and when completed, will be the longest continuous hiking trail in the United States, crossing seven states from New York to North Dakota. Wisconsin has the highest percentage of completed trail; Douglas County contains several premier segments. The trail is administered by the [National Park Service](#), managed by federal, state, and local agencies, and built and maintained primarily by the volunteers of the North Country Trail Association and its partners. In 2014, approximately 3,000 miles had been completed.

Snowmobiling is a popular winter pursuit, with groomed trails maintained by local snowmobile clubs. These trails cross both private and public land. Snowmobile trail access is available in most portions of the Northwest Sands counties, and provides links to cities and village amenities. ATVs are allowed on many county roads and forest trails.

Trail Type	Northwest Sands (miles)	Northwest Sands (miles/100 square mile)	Wisconsin (miles/100 square mile)
Hiking	66	1.5	2.8
Road biking	104	2.4	4.8
Mountain biking	144	3.3	1.9
X-country skiing	426	9.7	7.2
ATV: summer & winter	895	20.4	9.3
Snowmobile	1,206	27.5	31.2

Camping – There are 129 public and privately-owned campgrounds which provide about 4,300 campsites in the Northwest Sands Counties. With 7% of the state’s campgrounds, this ecological landscape ranks 6th (out of 16 ecological landscapes) in terms of the number of campgrounds and ranks 2nd in campground density (campgrounds per mile² of land) (Prey 2010).

Land Legacy Sites – The Land Legacy project identified over 300 places of significant ecological and recreational importance in Wisconsin, with 13 places either partially or totally located within the Northwest Sands Ecological Landscape. Three of them, the Crex Meadows wildlife area, the Bois Brule River, and the Chequamegon-Nicolet National Forest were rated highest in both recreation and conservation significance. In addition, the nearby Danbury to Sterling Corridor, the Namekagon-Brule Barrens, the Namekagon River and the St. Croix River all received ratings of highest conservation significance (WDNR 2006a).

State Natural Areas – The Northwest Sands has about 13,748 acres of State Natural Areas, all of which is publicly-owned (including government and educational institutions). The largest State Natural Areas in this ecological landscape include Reed Lake Meadow (3,568 Burnett County), Brule Glacial Spillway (2,656 acres, Douglas County), Fish Lake Meadow (1,881 acres, Burnett County), Buckley Creek and Barrens (899 acres, Douglas County), and Mott’s Ravine (655 acres, Douglas County) (WDNR 2003b).

Metro vs. Non-Metro Recreation Counties – Johnson and Beale (2002) classified Wisconsin counties according to their dominant characteristics. One classification is “Non-Metro Recreation County.” This type of county is characterized by high levels of tourism, recreation, entertainment, and seasonal housing. Three of the four Northwest Sands Counties are classified as “Non-Metro Recreation”: Bayfield, Burnett and Washburn counties.

Needs

Visitors to state lands – This region contains some of Wisconsin’s most attractive and diverse outdoor recreation opportunities with the blending of federal, state and local recreation resources. While this region’s population density is low, its recreational resources are used by an active resident base along with in-state and out-of-state visitors. Travel for the purposes of outdoor recreation is an integral part of the state’s tourism industry and a key economic sector within this region.

Nature-Based Recreation – Outdoor recreation demand is defined by the Statewide Comprehensive Outdoor Recreation Plan (SCORP) according to the reported desires of users of outdoor recreational facilities within a region. As part of the national SCORP template, outdoor recreation participation surveys were conducted by the National Survey on Recreation and the Environment. The surveys examined 62 recreational uses by region. Table 5 shows the percentage of responders participating in each recreational activity in northwest Wisconsin. The recreational uses were selected from 62 uses in the survey as the top 10 uses in the Northwest region of

Rank	Recreational Uses*	Region (%)	State (%)
1	Visit a Wilderness or Primitive Area	62.2%	38.3%
2	Picnicking	60.9%	56.6%
3	Boating	56.2%	47.6%
4	Swimming in Lakes, Streams, etc.	52.9%	45.8%
5	Freshwater fishing	49.4%	40.7%
6	Visit a beach	48.8%	47.3%
7	Snow/ice activities	48.7%	44.4%
8	Fishing	44.1%	36.4%
9	Day hiking	42.7%	35.0%
10	Bicycling	42.6%	49.3%

Wisconsin that are nature-based activities.

Out-of-State Recreation Interest – Recreational demand is largely determined by Wisconsin residents but is also influenced by out-of-state visitors. Minneapolis and St. Paul, Minnesota are about a 2-hour drive from Northwest Barrens properties. Although more than 300 miles away, residents from the Chicago, Illinois area also recreate here. Popular regional recreational pursuits among these groups include: fishing, sightseeing, camping, picnicking, hiking, birding, boating, and canoeing. Visitors come from all over the country, notably as far away as California and Florida, to view sharp-tailed grouse on their dancing grounds.

The Wisconsin Department of Tourism surveyed the Chicago and Minneapolis-St. Paul Designated Market Areas (DMAs) to gauge out-of-state recreation interest. The five most popular activities identified by the study for the Great Northwest SCORP region are shown in Table 6.

Rank	Chicago DMA	Twin Cities DMA
1	Fishing	Fishing
2	Bird watching	Sightseeing
3	Camping	Camping
4	Boating	Picnicking
5	Hiking	Hiking

Hunting and Fishing

There are over 500,000 acres of lands available for public hunting in the four-county region surrounding the properties. Hunting is allowed on all undeveloped public property, private Managed Forest Law (MFL) land designated as open, and on industry owned forest lands in the region. This includes the Lyme St. Croix Forest Company land, protected with a 67,000 acre conservation easement. Common species in the area include black bear, Canada geese, ducks, ruffed grouse, white-tailed deer, wild turkey and woodcock. When populations are high enough, limited sharp-tailed grouse hunting is allowed.

Fishing and hunting license sales – Of all license sales, the highest revenue producers for the Northwest Sands Counties are non-resident fishing (41% of total sales), resident hunting licenses (22% of total sales), non-resident hunting licenses (17% of total sales) and resident fishing licenses (15% of total sales). Table 7 shows a breakdown of various licenses sold in the Northwest Sands Counties. Burnett County accounts for both the highest number of licenses sold and the highest revenue from sales. This ecological landscape accounts for about 4% of total license sales in the state. However, persons buying licenses in the Northwest Sands counties may travel to other parts of the state to use them.

County	Resident Fishing	Non-resident Fishing	Misc. Fishing	Resident Hunting	Non-resident Hunting	Stamps	Total
Douglas	8,092	4,638	902	12,630	1,377	7,158	34,797
Washburn	7,900	11,729	171	9,485	773	2,630	32,688
Bayfield	5,421	6,206	960	5,854	592	5,274	24,307
Burnett	6,308	16,861	214	8,185	1,810	2,319	35,697
	27,721	39,434	2,247	36,154	4,552	17,381	127,489
Sales (\$)	\$637,206	\$1,725,402	\$36,331	\$947,103	\$728,397	\$159,335	\$4,233,774

Source: Wisconsin Department of Natural Resources, FY2007 Sales per County.

Wildlife Viewing, Outdoor Education and Interpretation

Facilities for nature education and interpretation in the region include Crex Meadows Wildlife Education and Visitor Center, Interstate State Park Ice Age Interpretive Center, and the St. Croix River National Scenic Riverway Visitor Center. The National Park Service Visitor Center in St. Croix Falls is 30 miles away. Also nearby are the Hunthill Audubon Sanctuary near Spooner, Wisconsin and the Northern Great Lakes Visitor Center in Ashland, Wisconsin.

Friends of Namekagon Barrens Wildlife Area (FNBWA) and Friends of The Bird Sanctuary are 501(c)(3) non-profit corporations organized for the sole charitable purpose of supporting, assisting, and promoting the Wisconsin Department of Natural Resources with wildlife education and management activities at the Namekagon Barrens and Douglas County Wildlife Areas (Appendices B-D). Opportunities exist to educate visitors, hunters, bird watchers, and nature enthusiasts about conservation and management practices, property regulations and safety. FNBWA manages the sharp-tailed grouse

viewing calendar for the Namekagon Barrens on its website. This activity offers two months of opportunities to observe sharp-tailed grouse dancing, see and hear upland sandpipers and countless other rare and game wildlife species. Douglas County Wildlife Area also offers sharp-tailed grouse viewing. For more information, see <http://www.fnbwa.org/> and <http://fotbs.org/>.

Many visitors come to view the wildlife and landscape. Visitors range from casual observer to serious birder and naturalist. The future of wildlife is best assured by raising the public's awareness and understanding of wildlife conservation. This can be done effectively on public lands where visitors can see for themselves the connections between people and wildlife, habitat, and land management. Well-designed interpretive signs and exhibits would explain wildlife's needs and DNR management actions. While helping to instill a land ethic, these properties can also show landowners how to make sustainable use of their lands and leave room for wildlife (USFWS, 1999).

Birding in Wisconsin and the United States

Bird watching is a more popular and growing recreational activity, both in Wisconsin and nationally, than hunting and fishing. Wisconsin ranks second nationally in the proportion of citizens considered birders, with one-third of residents 16 and older reporting they travel to watch birds, or actively watch and identify birds around their home (USFWS, 2011). By the numbers, Wisconsin boasts 1.7 million birders, compared to 1.2 million residents who fish and 895,000 residents who hunt. Over 270 species of birds use the NWB properties. They also are featured in the Great Wisconsin Birding and Nature Trail: Lake Superior Northwoods Region. Wisconsin features both northern and southern breeding species and sits astride a major migration pathway, allowing birders easy access to one of the most diverse collections of bird life in the United States. The report, "Birding in the United States: A Demographic and Economic Analysis," indicates that nationally about 47 million birders annually spend an estimated \$41 billion on trip-related expenditures, and generate a total economic impact of \$106 billion. This December 2013 report is a significant addendum to the 2011 U.S. Fish & Wildlife national Survey of Fishing, Hunting and Wildlife Associated Recreation. Additional information is available at <http://www.census.gov/prod/2013pubs/fhw11-wi.pdf>.

Challenges

Results of a statewide survey of Wisconsin residents indicate that a number of current issues are affecting outdoor recreation opportunities within Wisconsin. Many of these issues, such as increasing ATV usage, overcrowding, increasing multiple-use recreation conflicts, loss of public access to lands and waters, invasive species, and poor water quality, are common across many regions of the state (WDNR 2006a). To avoid conflict and protect the uses for which public properties were purchased, all activities cannot be allowed in all places.

Competing Interests - Over the next decade the most dominant recreation management issues will most likely revolve around conflicts between motorized and non-motorized recreation interests. From a silent sport perspective, noise pollution from motorized users is one of the higher causes for recreation conflict (WDNR 2006a). Recreational motorized vehicles include snowmobiles, ATVs, motor boats and jet skis. ATV riding has many new opportunities available on forest trails, snowmobile trails and town roads.

Unauthorized motor vehicle access poses a safety hazard to staff. The open landscape and remoteness of these properties make them susceptible to unauthorized motor vehicles on interior firebreaks. Regular unauthorized motor travel erodes the sandy soil and creates hazardous situations to staff who travel over the area when conducting prescribed burns. Gates are ineffective because individuals simply drive around them. Unauthorized use can sometimes be prevented with better signing.

Timber Harvesting - A high percentage of people across the state are concerned about timber harvesting in areas where they recreate. They are most opposed to large-scale visual changes (e.g., openings) in the forest landscape. Forest thinning and harvesting that creates small openings are more acceptable. Silent-sport enthusiasts (e.g. hikers, bird watchers) as a group are the most concerned about the visual impacts of harvesting, while hunters and motorized users are somewhat less concerned (WDNR 2006a). However, the attitudes of people within this planning region may differ some from the statewide perspective because of their exposure to sustainable forestry within the open nature of many natural communities within this ecological landscape.

Littering - is an ongoing problem, especially on public parking lots and roadways. Avoiding disposal fees for tires, appliances, and electronic devices have caused these items to be dumped on public lands. Demands on time and funds for clean-up continue to increase.

3. PROPERTY MANAGEMENT

The following section includes an overview of property attributes including: public access, infrastructure, existing uses, current management, challenges and constraints. (For descriptions of rare animal and plant species, high quality Natural Communities, and Land Cover (forestry) types, refer to text and tables in the preceding Regional Analysis section and in Appendix A.) Sources for the information described below include original property master plans, knowledge from the property manager and regional staff, property descriptions on DNR web pages, the preceding Rapid Ecological Assessment, and DNR Forestry data. In 2013 and 2014, the department completed Interim Forest Management Plans that describe management objectives and prescriptions for these properties until the next master plan is adopted.

1. Namekagon Barrens Wildlife Area

(MAP SERIES C)

Namekagon Barrens Wildlife Area, located at the junction of Burnett, Douglas, and Washburn counties, is long-established as an important property for pine/oak barrens habitat. It is an important breeding grounds for many rare barrens/grassland-dependent wildlife species, including the state-listed upland sandpiper and the sharp-tailed grouse; the latter a rare, and popular game bird. It has been managed as a wildlife area since 1956. Most of the land was originally leased from Burnett County until late 2015, when the state acquired it as part of a land trade. The Conservation Fund recently donated 1,400-acres specifically for barrens management. (Maps A and C-1).

Managed Land:	6,438 acres
Acquisition Goal:	9,312 acres
Project Boundary:	9,312 acres
Approved Property Master Plan:	1989

Administrative Facilities and Access

The wildlife area is made up of two units located a few miles apart; approximately 7 miles east of STH 35 and 11 miles west of the Village of Minong and STH 53. The north unit (5,668 ac) is located along St. Croix Trail Rd; the south unit (753 ac) is bisected by Springbrook Trail. The well-known Namekagon River, a tributary to the St. Croix National Wild and Scenic River flows between the North and South Units. Both rivers are part of the federal National Wild and Scenic Rivers system. Namekagon Barrens Wildlife Area is managed by a DNR wildlife biologist and technician stationed in Spooner, WI. They work closely with forestry, neighboring wildlife staff and natural heritage staff when conducting timber sales and prescribed burns. A series of town and primitive roads, seasonal viewing blinds, self-guided auto tour, an observation area, and a small clubhouse provide excellent access and wildlife viewing opportunities.

A tiny cinder block cabin is located at the intersection of St. Croix Trail and Gomulak Fire Lane. Volunteers and DNR staff restored it to a useable space in 2011, with efforts led by dog trialers from the Northwest Field Trial Association, and help from Friends of Namekagon Barrens. Historically it was a deer hunting shack on county forest property, from when counties leased sites for an annual fee. It is used now for meetings by the Friends of Namekagon Barrens Wildlife Area, dog trialers and wildlife researchers. When using a generator, non-potable well water is available. FNBWA volunteers provided and installed both a solar electric unit for the cabin and an outhouse.

Parking is permitted along the shoulders of town and county roads. One gravel parking lot at a scenic overlook is maintained on the South Unit. Approximately 15 miles of department-owned, unimproved service roads provide interior property access for DNR maintenance and public recreation; roads are not plowed during winter. They were originally constructed as firebreaks and are easily eroded; however, only a few department-owned roads are closed to public motorized travel because they are deemed unsafe. Erosion caused by regular use presents hazards to staff conducting prescribed burns. When combined with township and county roads, there are many more miles of road access within the property. A few roads are seasonally closed to parking, to protect breeding sharp-tailed grouse when they are dancing.

A self-guided [auto tour](#) with 19 stopping places is a popular attraction, with instruction and maps from a guidebook available at the Spooner DNR service center, at kiosks on site, and from the web pages of the Friends of Namekagon Barrens Wildlife Area. The tour offers an opportunity to learn about the history of the property, the importance of the pine/oak barrens, observe multiple land management techniques and numerous watchable wildlife opportunities.

Snowmobiles and wintertime use of ATVs are allowed on approximately 12 miles of designated snowmobile trails, after close of firearm deer season during December-March, as conditions allow. Burnett, Washburn, and Douglas counties regulate the opening and closing of all snowmobile trails. Prohibited activities include horseback riding, ATVs and other vehicles off designated trails.

Infrastructure for the north and south units of Namekagon Barrens Wildlife Area is on Maps Cn-2, Cn-2a, Cs-2, and Cs-2a.

Recreation

Primary public uses are hunting, trapping, sharp-tailed grouse viewing, dog training and trialing, birding, other types of wildlife observation, and nature study. Game and furbearer species commonly found include sharp-tailed grouse, white-tailed deer, coyote, black bear, woodcock, fisher, bobcat, wild turkey, snowshoe hare, muskrat, beaver, mink, otter, raccoon, weasel, skunk, red fox, gray fox, and just about every mammal known in Wisconsin.

Namekagon Barrens is one of few places in Wisconsin that occasionally offers opportunities for sharp-tailed grouse hunting. Sharp-tailed grouse occur only in a few isolated areas of the state, and their population size is well below historic levels; they have been declining since 1998, according to the [Wisconsin Sharp-tailed Grouse Survey and Status](#) (WDNR 2015a). Very few hunters actually pursue sharp-tailed grouse here, because permits are limited to protect the small population. Similar to greater prairie chickens, sharp-tails gather at grassy openings, called dancing grounds or leks during the early morning hours of spring. At the dancing grounds, males court females by spreading their wings, rapidly stomping their feet, and rattling their upturned tails as they coo and gobble with the aid of purple air sacs inflated on their necks. Viewing sharp-tails dancing is a popular activity among the public. Wildlife management staff set up blinds (*donated by Friends of Namekagon Barrens Wildlife Area and The Wisconsin Sharp-tailed Grouse Society*) to aid in viewing and surveying the spring population of these birds. Reservations to use a viewing blind are provided April through May at the Friends group website. Calendar reservations are available in early January and often fill up within weeks. This activity attracts visitors from throughout the United States.

The property is regularly included among the popular field trip destinations offered by the Wisconsin Natural Resources Foundation. It also is featured in the Great Wisconsin Birding and Nature Trail: Lake Superior Northwoods Region.

Dog training for obedience and hunting is popular and has a long history on the property. All dogs must be leashed from April 15 through July 31 to protect breeding wildlife. Starting August 1, the property is open to running dogs off leash. Since the open barrens habitat allows people to see their dogs more easily than the more forested public lands of northern Wisconsin, it has become a highly attractive area for training dogs.

Professional and amateur dog trials occur annually on the property in late summer and early fall, under a permit issued by DNR. This is one of the most popular areas for dog trials, not only for the wide open landscape that provides good viewing opportunities, but also for the highly-prized sharp-tailed grouse. Because it is one of their favorite locations, the dog trialing community offers significant financial support to the property. They welcome spectators who wish to observe the activity and learn about dog trials.

The wildlife area is closed to the general use of horses to protect the easily eroded soil and prevent the spread of invasive species. The only exception is use during dog trials where the negative impacts are greatly minimized because use is limited to only a few days a year and care is taken to prevent the import of plant seeds on horses' hooves.

As noted previously, Important Bird Areas (IBA) are critical sites for the conservation and management of Wisconsin's birds. Namekagon Barrens wildlife area is an IBA (WDNR, 2007) that draws visitors interested in viewing high populations of barrens and grassland species. For further information, see the Wisconsin Bird Conservation Initiative web page for Namekagon Barrens at <http://www.wisconsinbirds.org/iba/sites/NamekagonBarrens.htm>

A self-guided [auto tour](#) with 19 stopping places is a popular attraction, with instruction and maps from a guidebook, available at the visitor center and on the Friends of Namekagon Barrens web site. It offers an opportunity to observe multiple land management techniques and numerous watchable wildlife opportunities. Additional recreational uses include hiking, cross-country skiing (no designated trail), nature study, and wild edibles gathering.

Snowmobiles and wintertime use of ATVs are allowed on approximately 12 miles of designated snowmobile trails, after close of firearm deer season during December-March, as conditions allow. Burnett, Washburn, and Douglas counties regulate the opening and closing of all snowmobile trails. Prohibited activities include horseback riding, ATVs and other vehicles off designated trails.

Clemens Creek, a Class I trout stream for fishing flows across the property. Game species such as turkeys, deer, bear and furbearers such as coyotes are abundant and heavily hunted. Many visitors use the property for "non-consumptive uses," such as bird watching, or to look for or to study the many different species of rare wildlife. Simply observing the great diversity of prairie plants or gazing over the scenic South Unit attracts many visitors. Still others come to enjoy the opportunity to use their snowmobile or ATV on designated trails.

A scenic viewing area exists at the Springbrook Trail Rd parking lot, on the South Unit that overlooks a rolling topography of oak/pine barrens and wetlands.

Current Management, Opportunities, Challenges, & Constraints

Namekagon Barrens Wildlife Area is managed to protect and perpetuate a unique mix of natural communities and their associated plant and wildlife species. It is also managed to provide opportunities for public hunting, trapping, fishing, bird watching and other compatible forms of outdoor recreation. The property is intensively managed using a wide variety of wildlife management practices. Intensive oak/pine barrens management and restoration practices are employed to a greater degree here than at most other wildlife areas in Wisconsin.

The sandy soils of this region recover very slowly from any form of disturbance. Past attempts to farm some of the land left rectangular grass fields nearly a century later. Tree plantings have left furrows that will still be visible decades from now. The wagon trail of the late nineteenth century is visible across the South Unit immediately after a prescribed burn, because the vegetation on the packed earth frequently doesn't burn – leaving a distinct wagon path across the burned prairie. Shortly thereafter, regrowth of the vegetation causes the 'trail' to disappear once again.

Challenges that include reduction in permanent staff over the last several decades have negatively impacted the ability to conduct habitat management and maintenance activities on all northwest barrens properties. Property staff increasingly relies on community involvement and partnerships and are grateful for their assistance.

Oak and Pine Barrens (approximately 5,000 acres) are maintained and restored using techniques such as mowing, commercial and non-commercial timber harvest, whole tree harvesting for biomass fuels, herbicide application, clearing, firebreak construction, and prescribed burning. Approximately 30 units are managed through a 5 to 8 year prescribed burn rotation, to maintain early successional barrens.

This landscape is known as Fire Landscape 15, also known as the northwest sands, and it is considered one of the highest forest fire risk landscapes in Wisconsin. It generally consists of continuous pine stands. The tight canopies of these pine stands contribute to the potential for long fire runs through the crowns of the trees. The wildlife area serves as a fuel break in the landscape. An opportunity exists to create 'rolling' or transitional barrens and pine stands around permanent barrens cores. Open areas with finer fuels provide fire control personnel beneficial fuel breaks; in other words, an opportunity to either slow or stop a forest fire. The barrens and rolling barrens landscape provides additional benefits by offering patches of fuel breaks that support prescribed burning which also maintains their ecological diversity. In the event of a forest fire, fuel breaks increase the safety and effectiveness of forest fire suppression operations.

These properties are located just north of Communities-At-Risk wildfire area that is designated as "Very High". With this elevated risk of catastrophic losses due to wildfire, the communities of Webb Lake, Scott and Jackson drafted the "Jackson and Webb Lake Community Wildfire Protection Plan" and adopted it in 2013. This plan outlines areas with values-at-risk including homes, businesses, critical infrastructure, natural resources and others that would have a direct impact on these communities. Also within the plan, mitigation activities are outlined to protect these values-at-risk which include the development of fuel breaks, fuel reduction efforts. The rolling barrens support these efforts by breaking up the landscape, thus reducing the potential for large, catastrophic wildfire impacts on the values that these communities believe should be protected.

Burnett County Forestry allows DNR forestry staff to maintain a 400-acre fuel break in Swiss township, in parts of sections 16, 15, 14, & 13. This fuel break serves two important roles. It provides an opportunity to help slow or stop a forest fire and it also acts as a stepping stone in the rolling barrens concept between Crex Meadows and Namekagon Barrens wildlife areas.

Burnett County Forestry and Crex-Namekagon Barrens partners are working to incorporate priorities of the Burnett County Forest Fifteen Year Plan, the Northwest Sands Landscape Level Management Plan, DNR Wildlife Action Plan, Sharp-tailed Grouse Management Plan, NW Sands Habitat Corridor Plan, and DNR Land Legacy Report. Collaboration is intended to offset dwindling wildlife populations, benefit outdoor recreationists, better address established conservation goals, enhance local partnerships, and support the local timber industry. (Appendix F, Map F)

Some areas of large diameter, natural origin red pine stands have been identified for potential management as Red Pine Savannas to provide an overall mosaic that also includes late successional, large diameter legacy trees. Long-term research has been conducted on sharp-tailed grouse population and habitat.

Additional opportunities for future barrens management are described in the previous Regional Analysis section entitled, "Namekagon Barrens Wildlife Area Primary Sites."

Revising the property master plan will also provide an opportunity to review the project boundary to ensure that goals for optimal resource protection, public access and recreation opportunities are achievable.

Barrens management has sometimes been questioned by a few members of the community. Additional community outreach and environmental education opportunities has been helpful.

Important Bird Area status reflects landscape-level management for pine-oak barrens and northern sedge meadows. Similarly, it is a designated **Land Legacy Place** and a **Conservation Opportunity Area** for pine-oak barrens of global significance and large sedge meadows, fens, and prairies of Upper Midwest/regional significance in the Wisconsin Wildlife Action Plan (WDNR 2011).

Unauthorized Uses are one of the greatest challenges and pose a safety hazard for staff. The open landscape and remoteness of this property make it very susceptible to unauthorized motor vehicles on interior firebreaks. Unauthorized motor travel erodes soil and creates hazardous situations to staff who thereafter travel over the area when conducting prescribed burns. Gates are ineffective because individuals simply drive around them. Except for a chronic problem area on the South Unit, unauthorized use has occurred less frequently over the years following better signing.

Invasive species threats and control opportunities are described previously in this Rapid Ecological Assessment section. A variety of surveys are conducted to monitor wildlife populations and harvest levels, evaluate management practices, and determine levels of public use.

Funds primarily from sales of Wisconsin hunting and trapping licenses, from the Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act), and donations from the Friends of Namekagon Barrens contribute to the management of the property. While sportsmen and sportswomen cover the costs of these public lands, there are multiple benefactors.

Friends of Namekagon Barrens Wildlife Area, Inc. established in 2007, is a dedicated volunteer group who serve as an informational resource for visitors and area landowners, with a mission “to ensure that the Namekagon Barrens Wildlife Area is permanently protected as public land open to the public and maintained as barrens habitat.” It is a non-profit corporation that provides volunteer and financial assistance needed to support the wildlife education programs and management goals of the Namekagon Barrens Wildlife Area (Appendices B & C). For more information, visit [Friends of Namekagon Barrens Wildlife Area](http://www.fnbwa.org/) (<http://www.fnbwa.org/>).

2. DOUGLAS COUNTY WILDLIFE AREA (MAP A AND MAP SERIES D)

Douglas County Wildlife Area, established in 1935, is another critical piece of the Northwest Sands oak/pine barrens Priority Conservation Area (Appendix A). The barrens extend from northern Polk County to southern Bayfield County and cover 1,900 square miles.

Managed Land:	4,005 acres
Acquisition Goal:	4,036 acres
Project Boundary:	4,036 acres
Leased from Douglas Co:	3,011 acres
Owned in Fee Title:	994 acres
Approved Property Master Plan:	1985

Located in southeast Douglas County, between the towns of Solon Springs and Gordon, it is easily accessible from STH 53 by heading west on County Highway M. It has been known as the *Bird Sanctuary* since 1935 (including highway signs), when it was established by the county to preserve sharp-tailed grouse habitat. DNR currently manages this wildlife area (994 acres owned; 3,011 leased) through a 25-year lease agreement (2003-2028) with [Douglas County Forestry](#), a partnership that began in 1948. Douglas County solely manages the 20-acre developed recreation site within the project boundary. The wildlife area can be traced back to 1925 when the Northern States Amateur Field Trial Association conducted its first sport dog trial on the property. Since then, many nationally recognized dog competitions have been held here. [An informational brochure](#) produced by Douglas County is available on-line and by contacting Douglas County Forestry.

Solon Springs Sharptail Barrens (240 ac), designated as a State Natural Area in 1968, is embedded within the county property. It is characteristic of the pre-settlement vegetation of the region, with sandy soils covered by jack pine savannah or oak/pine barrens. The jack and red pine were widely scattered throughout an open expanse of prairie grasses and wildflowers, with a variety of woody vegetation including sweet fern, hazel, willow, blueberry and oak brush. Natural and human-caused fires frequently swept through the area.

Leo Creek, a Class II trout stream, is located in the northeast corner of the property.

Administrative Facilities and Access

A 20-acre developed recreational area, located on Bird Rd, is not leased to DNR, but instead managed directly by [Douglas County Forestry Department](#). Use of this area is permitted by reservation with Douglas County (rental fees are charged). Amenities include horse stables, a corral, dog kennels, an open picnic shelter, vault toilets, and a primitive camping area. Seasonal preference is given to field dog trials and educational events hosted by the Friends of the Bird Sanctuary. There is a clubhouse constructed of rustic half-log siding with a large stone fireplace that can hold up to 75 people. It includes lights and electrical service, and limited kitchen facilities, but has no heat, and no indoor plumbing. One well-water electric pump (non-potable) is available for water at the horse area and another (potable) at the clubhouse.

Over 50 miles of road access (including 30 miles of department-managed, unimproved service roads) provide property access for public recreation. County Highway M runs through the center of the property for approximately 3 miles. Interior property roads are not plowed during winter. A gravel parking lot is available near the main entrance off CTH M, and parking is permitted seasonally along the shoulders of most town and county roads.

Infrastructure for Douglas County Wildlife Area is shown on Maps D-2 and D-2a.

Recreation

Primary public uses are wildlife observation, dog trialing, hunting, trapping, horse riding, and fishing. Fishing is available at Leo Creek, a Class II trout stream located in the northeast corner of the property. Bird Sanctuary Lake and Rovers Lake contain minnows, reptiles, amphibians and other wildlife of interest for nature study. Primary game species are white-tailed deer, bear, wild turkey, and grouse, followed by bobcat, beaver, muskrat, coyote, red and gray fox, raccoon, fisher, striped skunk, woodcock, snipe, rail, gray squirrel, snowshoe hare, and cottontail rabbits.

Field dog trials are hosted on the property each fall, organized by kennel clubs or other sport dog organizations. Permits are issued by WDNR. Dog training is allowed between August 1st and December 31st in the designated dog training area on over 300 acres in the southwest portion of the property. All dogs must be leashed April 15 – July 31.

Approximately 14 miles of designated horse trails can be accessed directly from the corral and stable area. Riders on horseback and those on horse drawn vehicles may travel on the “Dog Trial and Horse Trail” trail network, as posted with signs designating permitted horse travel.

Although hiking opportunities exist throughout the property, one designated hiking trail, the North Country National Scenic Trail meanders through the property for 5 miles. Trail access points are located off Bird Sanctuary Rd, County Highway M,

Stuckey Rd, and Prairie Trail County Forest Rd. A main trailhead is located off Bird Rd and a primitive campsite is available along the trail approximately 0.75 miles south of Highway M at Rovers Lake. The trail continues both north and south for many miles beyond the property.

Douglas County Wildlife Area is one of few places in Wisconsin that occasionally offers opportunities for sharp-tailed grouse hunting. Sharp-tailed grouse populations are found only in a few isolated areas of the state, and are well below historic levels; they have been declining since 1998, according to the [Wisconsin Sharp-tailed Grouse Survey and Status](#) (WDNR 2015a). Few hunters actually pursue sharp-tailed grouse here, because permits are limited to protect the small population. Similar to greater prairie chickens, sharp-tails gather at grassy openings, called dancing grounds or leks, during the early morning hours of spring. At the dancing grounds, males court females by spreading their wings, rapidly stomping their feet, and rattling their upturned tails as they coo and gobble with the aid of purple air sacs inflated on their necks.

Viewing sharp-tails dancing is a popular activity among the public. Wildlife management staff set up blinds to aid in viewing and surveying the spring population of these birds. Reservations to use a viewing blind are provided mid-April to mid-May through the [Friends of the Bird Sanctuary](#).

Bird watching is more popular than hunting and fishing, and is a growing recreational activity both in Wisconsin and nationally (USFWS and USCB, 2011). Wisconsin ranks second nationally in the proportion of citizens considered birders, with one-third of residents aged 16 and older reporting they travel to watch birds, or actively watch and identify birds around their home (USFWS, 2011). Cross-country skiing and snowshoeing are also popular; however there are no groomed trails.

Snowmobiles and wintertime use of ATVs are allowed on an approximately 1.5 mile connection to a designated winter recreation trail, after close of firearm deer season during December-March, as conditions allow. Douglas County regulates the opening and closing of all snowmobile trails in the county. Prohibited activities include ATVs and other vehicles off designated trails. Prohibited use of off road vehicles on parts of the property has caused erosion and spread invasive species.

Current Management, Opportunities, Challenges & Constraints

The wildlife area is actively managed as a brush prairie habitat (barrens) encompassing both the Douglas County and Department of Natural Resources owned lands. The focal points of this area, aside from the miles of open fields scattered with wildflowers and wildlife perfect for nature viewing, are the stables, corrals, and clubhouse. Timber sales and prescribed burning are the primary tools used to restore and maintain this brush prairie habitat. Additional management opportunities are described in the previous Regional Landscape section entitled, "Douglas County Wildlife Area Primary Site."

The wildlife area is located in a landscape known as Fire Landscape 15, also known as the northwest sands, and it is considered one of the highest forest fire risk landscapes in Wisconsin. It generally consists of continuous pine stands. The tight canopies of these pine stands contribute to the potential for long fire runs through the crowns of the trees. The wildlife area serves as a fuel break in the landscape. An opportunity exists to create 'rolling' or transitional barrens and pine stands around permanent barrens cores. Open areas with finer fuels provide fire control personnel beneficial fuel breaks; in other words, an opportunity to either slow or stop a forest fire. The barrens and rolling barrens landscape provides additional benefits by offering patches of fuel breaks that support prescribed burning which also maintains their ecological diversity. In the event of a forest fire, fuel breaks increase the safety and effectiveness of forest fire suppression operations.

This property is located in a Communities-At-Risk wildfire area that is designated as "Very High". With this elevated risk of catastrophic losses due to wildfire, the communities of Wascott, Gordon, Solon Springs, and Village of Solon Springs drafted the "Brule-St.Croix Community Wildfire Protection Plan" and adopted it in November 2011. The protection plan outlines areas with values-at-risk including homes, businesses, critical infrastructure, natural resources and others that would have a direct impact on these communities. Within the plan, mitigation activities are outlined to protect these values-at-risk, which include the development of fuel breaks and fuel reduction efforts. The Douglas County Wildlife Area barrens support these efforts by breaking up the landscape, thus reducing the potential for large, catastrophic wildfire impacts on the values that these communities believe should be protected.

Douglas County Forestry allows DNR forestry staff to maintain two 40-acre fuel breaks in Wascott Township, that serve two important roles. They provide an opportunity to help slow or stop a forest fire, and they act as stepping stones for the rolling barrens concept between Namekagon Barrens and Douglas County wildlife areas.

Solon Springs Sharptail Barrens Natural Area (240 acres) was designated in 1968 within the Douglas County property. Situated on the rolling glacial outwash sand plain that extends from Burnett to Bayfield counties, Solon Springs Sharptail Barrens features a large pine barrens with widely scattered clumps of jack pine, pin oak, bur oak sprouts, and occasional red pine. The vegetation is characteristic of the pre-settlement vegetation that once covered much of northwestern Wisconsin.

Challenges that include reduction in permanent staff over the last several decades have negatively impacted the ability to conduct habitat management and maintenance activities on all northwest barrens properties. Property staff increasingly relies

on community involvement and partnerships and are grateful for their assistance.

Prohibited use of off road vehicles on parts of the property has caused erosion and spread invasive species.

Funds primarily from sales of Wisconsin hunting and trapping licenses, from the Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act), and donations from the Friends of the Bird Sanctuary contribute to the management of the property. While sportsmen and sportswomen cover the costs of these public lands, there are multiple benefactors.

Friends of the Bird Sanctuary (Douglas County Wildlife Area) was established in 2005 for the charitable and educational purpose of supporting, assisting, and promoting the Wisconsin Department of Natural Resources with interpretive, scientific, historical, educational, management, and related visitor services at Douglas County Wildlife Area. For more information, visit [Friends of the Bird Sanctuary \(http://fotbs.org\)](http://fotbs.org).

3. TOTOGATIC WILD RIVER ‘AREA’ (MAP SERIES E)

Managed Land:	2,373 acres
Acquisition Goal:	2,373 acres
Project Boundary:	2,373 acres
Draft Feasibility Study & EA:	2011
Property Master Plan:	NA

The Totogatic Wild River ‘Area’ is located primarily in northwestern Washburn County, in close proximity (2½ miles southeast) to Namekagon Barrens Wildlife Area. It is west of the Village of Minong and STH 53, and one mile north of STH 77 (Map A). The property consists of seven parcels, all south of the Minong Flowage; adjacent to the lowest reaches of the ~70-mile Totogatic River, with only a couple of miles remaining before it’s confluence with the larger Namekagon River. The two parcels in Douglas County are located at the upstream end of the Minong Flowage.

The Totogatic River is one of only five rivers in Wisconsin designated to be protected and kept wild as a state Wild River. It flows approximately 70 miles from the outlet of Totogatic Lake in Bayfield County through portions of five counties and eventually empties into the Namekagon River in Burnett County. It is a major tributary to the Namekagon and the St. Croix National Wild and Scenic Riverway. The shoreline is relatively wild for much of the river’s length. The name "Totogatic" comes from the Ojibwe word "Totogan" meaning "place of floating bogs" or "boggy river" (Romance of Wisconsin Place Names, 1988). Plat books, maps and tour books show two spellings for the river and its flowages. "Totogatic" and "Totagatic" are used interchangeably in these reference materials.

In 2010, DNR acquired the first parcels in this property from The Conservation Fund, utilizing Stewardship funds and a donation from the Doris Duke Foundation. In 2013, Washburn County Lakes and Rivers Association received Stewardship funding assistance from The Conservation Fund and multiple gifts from private donors to acquire what was once referred to as the “Solar” property, which they subsequently donated to DNR.

The property is approximately 90% upland woods and 10% lowland and swamp. Several town roads intersect the parcels creating points of access to the land. A draft Feasibility Study and Environmental Analysis (WDNR 2011a) was completed, although agency workload prevented its advance to the stage of a property master plan.

Administrative Facilities and Access

The property is managed by a team of DNR staff working out of the Spooner Service Center. There are no buildings on the property. Approximately 5 miles of perimeter roads provide property access for public recreation. The Washburn County parcels can be accessed from County Hwy I, Kimball Lake Rd, Twin Lakes Rd, Nancy Lake Rd, Deeper Lake Rd, Diggs Dr, Misty Bog Rd, Banks Lake Rd, and County Line Rd. The Douglas County parcel can be accessed from Smith Bridge Rd (from the west) or from a walking access easement off County Hwy T (from the east). Parking is permitted seasonally along the shoulders of most town and county roads. Additionally, there are two seasonal (no snow removal) grass parking areas available. Recreation within these parcels is primarily by foot. Due to the highly erodible steep banks and the natural vegetated state of the river shoreline, access to the river from these parcels is not recommended. Better access is available to the river from other points in the county (see below).

The river is a popular place for those with canoes and kayaks. A landing with parking available is located on the north side of County Highway I. Carry-in access off town roads is available down steep banks on Nancy Lake Rd and Bridge Rd. Care should be taken accessing the river off town roads to not block the roadway with launching and parking. Further, the slopes and river banks are susceptible to erosion, so care should be taken in carrying boats and gear up and down the banks.

Shortly after DNR acquisition, a new snowmobile route was created/rerouted to better fit needs of multiple recreation users. Snowmobiles and winter ATVs are allowed on approximately 2 miles of trail in support of the county designated snowmobile trail, after close of firearm deer season during December-March, as conditions allow. Washburn County regulates the opening and closing of all snowmobile/ATV trails in the county. Prohibited activities include ATVs and other vehicles off designated trails. Prohibited use of off road vehicles on parts of the property has caused erosion and spread invasive species.

Infrastructure for Totogatic Wild River Area is shown on Maps E-2 and E-2a.

Recreation

Primary public uses are canoeing, kayaking, fishing, hunting, trapping, and wildlife and plant observation.

Fishing is good on the Totogatic River for species such as northern pike, walleye, largemouth and smallmouth bass, and panfish. Lake sturgeon is also present during spawning season. A spring-fed tributary on the property, Fivemile Creek, supports a Class II trout fishery. Primary game species are white-tailed deer, bear, wild turkey, grouse, and waterfowl (mallard, blue-winged teal, wood duck), followed by bobcat, beaver, muskrat, coyote, red and gray fox, raccoon, fisher,

striped skunk, woodcock, snipe, rail, gray squirrel, snowshoe hare, and cottontail rabbits. Interesting plants include bottled gentian, joe-pye weed, jewelweed, purple fringed orchids and royal ferns (WDNR, 2011a).

Canoeing and kayaking the scenic wild river is a popular seasonal activity. Bald eagles and osprey can often be observed fishing the river and nesting in trees alongside it. Painted, wood, spiny soft-shell and Blanding's turtles can be observed on fallen logs, feeding in the river, and nesting alongside it. River otter and mink can be secretly observed. Canada geese, trumpeter swans, loons, several species of ducks, mergansers, and a variety of marsh birds are also present.

Three hiking trails are located on old logging roads, one of which was also the former snowmobile route.

Snowmobiles and wintertime use of ATVs are allowed on approximately two miles of designated snowmobile trails located on the north end of the property, after close of firearm deer season during December-March, as conditions allow. It is maintained by the county snowmobile club. Washburn County regulates the opening and closing of all snowmobile trails in the county. Prohibited activities include horseback riding, ATVs and other vehicles off designated trails.

Current Management, Opportunities, Challenges & Constraints

The Totogatic Wild River is managed to preserve and protect the river in a wild and free-flowing natural state by working with counties, landowners, and partners to prevent development adjacent to the river and by restoring sections of the river to an undeveloped condition. An Interim Forest Management Plan (DNR, 2013) guides timber management until completion of a property master plan. Current management is largely focused on timber harvests that replicate natural disturbances such as fire or wind events. There are opportunities for managing jack pine, a globally declining species, and providing a full range of oak/pine barren successional stages, through providing shifting mosaics and diverse habitats in the landscape context. Techniques may include short rotation, large scale timber harvesting, and/or applying prescribed burns where feasible to select against fire intolerant forest species, keeping some areas in an early seral stage pine barrens condition.

Per Wild Rivers law (s. 30.26, Wis. Statutes) and Wisconsin Administrative Code ([ch.NR 302](#)), on lands owned or managed by DNR, no vegetative management will occur within a 150 foot buffer zone along the river corridor, other than invasive species control or restoration activities. In addition, land beyond the 150-foot zone shall be managed in accordance with DNR Silviculture and Forest Aesthetics Handbook (HB 2431.5), as a "Class D scenic area." Wisconsin Administrative Code ch. NR 302 further specifies a protection zone within 400 feet of the water or to the visual horizon from the water, whichever is greater. Signs may be placed on the perimeter of the protection zone for guidance and regulation of recreational users. Finally, NR 302.03(2) requires that there be no development within the protection zone, and no development other than that which is necessary to accommodate users of the wild rivers, beyond the protection zone up to at least ¼ mile from either side of the Wild River.

Wisconsin Admin. Code [ch. NR 302](#) also specifies how land and water activities will be managed on Wild Rivers, regardless of the type of ownership. This portion of the law specifies that the landowners (state and private) along the river need to recognize and protect the wild characteristics. The rule limits grading on the banks to less than 10,000 square feet (the point at which a permit would be needed from DNR), and prohibits docks, dams, bridges (other than on public roadways), dredging, filling, and removal of natural obstructions, with some exceptions for structures in place at the time of designation.

This landscape is known as Fire Landscape 15, also known as the northwest sands and it is considered one of the highest forest fire risk landscapes in Wisconsin. It generally consists of continuous pine stands. The tight canopies of pine stands contribute to the potential for long fire runs through the crowns of the trees. An opportunity exists to create rolling barrens around the pine stands. Open areas with finer fuels provide fire control personnel fuel breaks that provide an opportunity to either slow or stop a forest fire. A rolling barrens landscape provides additional benefits by offering patches of fuel breaks that also support prescribed burning which also maintains them. In the event of a forest fire, fuel breaks increase the safety and effectiveness of forest fire suppression operations.

The Wild River parcels are located in a Communities-At-Risk wildfire area that is designated as "Very High". With this elevated risk of catastrophic losses due to wildfire, the communities of Minong, Chicog, Frog Creek, and Brooklyn drafted the "Wild and Scenic Rivers Community Wildfire Protection Plan" and adopted it in February of 2015. This plan outlines areas with values-at-risk including homes, businesses, critical infrastructure, natural resources and others that would have a direct impact on these communities. Also within the plan, mitigation activities are outlined to protect these values-at-risk which include the development of fuel breaks, fuel reduction efforts and 'Firewise' practices in priority areas that include the Totogatic River Corridor. The creation of rolling barrens would support these efforts by breaking up the landscape, thus reducing the potential for large, catastrophic wildfire impacts on the values that these communities believe should be protected.

The Former Solar Property Red Pines Primary Site (390 acres) is a management deferral site in the Interim Forest Management Plan, which means that all timber management is deferred until after development/approval of a property master

plan. An opportunity to inform the public about the recreational use and unique ecological attributes found here, and to improve access to the existing hiking trail may be possible by acquiring an easement or permission for kiosk placement and parking off Banks Lake Rd. The potential for scenic viewpoints along the hiking trail could also be considered. Additional management opportunities are described in the previous Regional Analysis section entitled, "Totogatic Wild River Primary Sites." Because of their close proximity to the Namekagon Barrens Wildlife Area, two of the Primary Sites have significant opportunities for barrens restoration and management to support sharp-tailed grouse.

Developing a property master plan will also provide an opportunity to review the project boundary to ensure that goals for optimal resource protection, public access and recreation opportunities are achievable.

Challenges include disturbance to soil, wildlife, recreation, and ecological communities from unauthorized use of vehicles (ATV/UTV). Additional management challenges include illegal dumping of trash and off road vehicle use on the property. Staffing shortages also impact property management, similar to the other properties. Property staff increasingly relies on community involvement and partnerships and are grateful for their assistance.

As noted above, existing regulations are meant to protect vegetation within 150 feet of the river corridor. Even so, steep slopes and bluffs adjacent to the river should be buffered from management that could increase erosion and all BMPs should be strictly followed. If Wild River buffer zones do not adequately protect steep slopes, additional set-backs may be warranted. In addition, any management action must take into account the presence of wood turtles and other rare species, and Incidental Take Protocols for rare species (available on the DNR website) should be followed if work is being conducted that could result in take of a state-listed species.

4. FINDINGS AND CONCLUSIONS

This section presents the findings and conclusions from this Regional and Property Analysis for the Northwest Barrens Properties. Two parts summarize existing conditions and trends on the properties and in the region: 1) the recreational opportunities, needs, limitations and significance, and 2) the ecological significance and capability of the property. A summary of the major findings and conclusions is not meant to include every issue.

These findings and conclusions will help guide future management, use and development of the NWB properties by highlighting significant opportunities and limitations on the properties, and setting the stage for a reasonable range of management alternatives that may be considered during the master planning process. Master planning will also provide an opportunity to review the project boundaries to better ensure that goals for optimal resource protection, public access and recreation opportunities are achievable. As planning continues, these conclusions will help define the future Vision and Goals for the properties.

The NWB Properties: Regional Opportunities

The properties consist of nearly 13,000 acres of oak/pine barrens with a smattering of northern dry forest, rivers and wetlands within the St. Croix River and Namekagon River watersheds, in a predominantly remote setting in Burnett, Douglas and Washburn counties. The Totogatic River, one of only five designated Wild Rivers in Wisconsin, offers a rare opportunity to enjoy a river landscape in its natural and free-flowing condition.

Highly scenic with vast open expanses, these properties attract visitors for dog trialing, hunting, trapping, gathering (especially blueberries) and observing wildlife. Their proximity to regional grasslands and barrens makes them premiere open landscapes for birds. The Northwest Sands barrens extend from northern Polk County to southern Bayfield County and covers 1,900 square miles. Now considered a rare ecological community of bountiful species diversity and beauty, these pine and oak barrens historically covered 7% of Wisconsin's landscape. This fire-adapted savanna system typically occurs on sandy, glacial outwash soil, dominated by grasses, low-growing shrubs and trees, and scattered large trees. In North America, barrens exist primarily in the upper Midwest, especially in Wisconsin, Michigan, and Minnesota. Wisconsin has the most significant opportunity in North America to preserve, restore, and manage large scale barrens communities (Curtis, 1959; WDNR 2015b).

The properties provide an important recreational and economic resource to the region. Travel for the purposes of outdoor recreation is an integral part of the state's tourism industry and a key economic sector within this region.

The population density of the Northwest Sands counties is about one-fifth that of Wisconsin. At 21 persons/square mile, the area is rural compared to 99 persons/square mile in Wisconsin as a whole, according to 2012 US Census Bureau information. Government service, tourism/outdoor recreation, retail trade, and health care are the top four contributors to the economy of the Northwest Sands region.

Native American tribes continue to use these properties for hunting and gathering. Appendix E provides a more detailed summary of Tribal use and treaty rights.

Following state purchase (with federal financing) of tax delinquent lands, the exploitation and fire suppression by European settlers was largely reversed through restoration and management as public wildlife areas. The sandy soils are low in productivity and highly erodible. Care must be taken to avoid causing damage to slopes and fragile vegetation.

RECREATIONAL SIGNIFICANCE AND CAPABILITY

The Northwest Barrens properties are popular, frequently visited properties in northwestern Wisconsin. The region contains some of Wisconsin's most attractive and diverse outdoor recreation opportunities with the blending of federal, state and local recreation resources. While this region's population density is low, its recreational resources are used by an active resident base, along with in-state and out-of-state visitors, especially from the Minneapolis Saint Paul metropolitan area. A self-guided [auto tour](#) on Namekagon Barrens, with 19 stopping places is a popular attraction, with instruction from a guidebook including maps, available at the Spooner DNR visitor center and on the Friends of Namekagon Barrens web site. The self-guided tour offers an opportunity to observe multiple land management techniques and numerous watchable wildlife opportunities. The Douglas County Wildlife Area can be traced back to 1925 when the Northern States Amateur Field Trial Association conducted its first sport dog trial on the property. Since then, many nationally recognized dog competitions have been held here. [An informational brochure](#) produced by Douglas County is available on-line and by contacting Douglas County Forestry.

Wild Rivers such as the Totogatic, are designated by the state legislature, and managed under the authority of s. 30.26, Wis. Statutes, and [ch. NR 302](#) Administrative Code. Wild River designations are established specifically to provide the people of the state an opportunity to enjoy natural streams, to preserve some rivers in a free-flowing condition, protect them from development, and to attract out-of-state visitors and assure the well-being of the tourist industry.

HUNTING, TRAPPING, FISHING, AND GATHERING

Hunting, trapping, gathering and fishing are major recreational activities on the NWB properties. Significant opportunities exist to pursue sharp-tailed grouse (when populations allow), white-tailed deer, American black bear, bobcat, fisher, snowshoe hare, American beaver, North American river otter, waterfowl and small game. Fishing is good on the Totogatic and includes northern pike, walleye, largemouth and smallmouth bass, and panfish. Lake sturgeon is also present during spawning season. A spring-fed tributary on the Totogatic supports a Class II trout fishery. Limited fishing opportunities are also available at Namekagon Barrens and Douglas County wildlife areas. Collecting blueberries and other wild edibles on these properties is a popular local tradition.

DOG TRIALING, HORSEBACK RIDING AND MOUNTAIN BIKING

Field dog trials have a long history here and are hosted on both Namekagon Barrens and Douglas County Wildlife Areas (DCWA) each fall, organized by kennel clubs or other sport dog organizations. Permits are issued by DNR and Douglas County. Dog training is allowed between August 1st and December 31st, otherwise all dogs must be leashed between April 15th and July 31st. There is a designated dog training area on over 300 acres in the southwest portion of DCWA.

Approximately 14 miles of designated horse trails on Douglas County Wildlife Area can be accessed directly from the corral and stable area.

Horseback riding and bike riding is authorized on town roads and any other roads open for vehicle travel. Horseback riding is allowed on designated areas at Douglas County Wildlife Area. Physical limitations of the properties such as easily erodible soils and limited contiguous uplands are not conducive to trail development. Horses and bikes here are restricted by the requirement that non-primary uses of the property not significantly detract from the primary purposes of the property (ch. NR 1.51) and on the Totogatic they are further restricted by the Wild River statutory and rule designations. Significant opportunities for these forms of recreation exist on other public lands in the region.

BIRDWATCHING, WILDLIFE VIEWING, AND NATURE STUDY

Birdwatching, wildlife viewing and nature study are among the most popular activities on the NWB properties. Visitors range from the casual observer to serious birder and naturalist. This is one of the very few places in Wisconsin where it is possible to reserve a viewing blind in spring and watch the courtship dance and displays of sharp-tailed grouse. Bird watching is a more popular and growing activity than hunting and fishing, both in Wisconsin and nationally. Numerous bird species congregate in the region during migration due to the proximity of Lake Superior and the Mississippi River Flyway. All properties have been designated as Important Bird Areas, which draws visitors to view rare populations of barrens and grassland species, especially sharp-tailed grouse, bobolinks, upland sandpipers, and migratory waterfowl and raptors. Natural history study opportunities abound for mammals, too, and include nearly every species found in Wisconsin, with a good variety of reptiles, amphibians, and invertebrates also found on the properties.

Both the [Friends of Namekagon Barrens](#) and [Friends of the Bird Sanctuary](#) provide significant support and contributions for public awareness, education, and hands on opportunities for conservation and enjoyment of the properties. There are endless opportunities for expanding these types of non-consumptive property uses.

CANOEING AND KAYAKING

Anglers, waterfowl hunters and other recreationists use a variety of non-motorized watercraft on the Totogatic River based on water levels and conditions. The river is popular for those with canoes and kayaks. A landing with parking is available on the north side of County Hwy I. Carry-in access down steep banks is located off town roads: Nancy Lake Rd and Bridge Rd.

HIKING, SNOWSHOEING AND CROSS-COUNTRY SKIING

Hiking, snowshoeing and cross-country skiing are all pursued, with little impact on the property or other recreational uses.

Improving low impact recreation access to the **Former Solar Property Red Pines Primary Site** (390 acres) on the Totogatic Wild River property is a potential item for master planning. There could be an opportunity to better inform the public about the recreational use and unique ecological attributes found here, possibly by acquiring an easement or permission for kiosk placement and parking off Banks Lake Rd. The potential for scenic viewpoints along the hiking trail could also be considered.

CAMPING

Primitive camping, primarily for dog trialing purposes, is allowed only at Douglas County Wildlife Area. Camping is restricted to a small number of primitive sites located at the recreation area, and one primitive site located along the North County National Scenic Hiking Trail near Rovers Lake. Campers are required to register with Douglas County Forestry. A small fee is required. Nearby, there is an above-average density of campgrounds that exist at state parks, county, and federal locations in the region.

MOTORIZED SPORTS

Segments of regional snowmobile trails traverse some parts of all the NWB properties. These trails are regulated by each of their respective counties and maintained by local snowmobile clubs. ATV use is allowed during winter on many of these regional designated snowmobile trails.

ECOLOGICAL SIGNIFICANCE AND CAPABILITY

The following sections describe the most significant regional attributes to benefit from protecting high quality and/or rare ecological landscapes. Protecting or restoring habitat at the landscape level maintains the widest variety of species. Discussion begins with protection opportunities for rare, threatened, and endangered species and closes with threats posed by invasive species. These are the major ecological attributes of the NWB landscape of plant and animal communities to be addressed during the Master Planning process.

OAK AND PINE BARRENS

The Northwest Sands is the best place in Wisconsin to manage for the globally rare oak and pine barrens community. Management is generally a continuum extending from open and brush/oak grub-dominated, to oak/pine savanna, to oak/pine woodland. Large-scale barrens management is possible here because of the ecological suitability of the land, the presence of an intact ecosystem, and substantial public ownership, as in the NWB properties. Opportunities exist to connect existing barrens remnants and restoration projects with corridors, and manage them with a mosaic of compatible vegetation types; management critical for sharp-tailed grouse. Prescribed fire, timber harvests and other management tools can be used to develop more diverse structural characteristics, and to enhance or restore species composition in the pine-oak barrens communities.

FORESTED SEEPS, SPRINGS, AND BOGS

Within all three properties, springs and seepage areas, with active discharges of groundwater, host uncommon or rare plant and animal species. They also contribute to high water quality of the streams they feed. These features are very susceptible to damage by land use practices that cause soil or hydrological disturbance. Recharge areas are critical to the continued function and quality of the springs and seeps.

RARE PLANTS AND ANIMALS

Seven important tracts identified as “primary sites” present the greatest opportunity for biodiversity conservation. These sites warrant consideration for special management or protection because of their native community representation and for the rare and/or Species of Greatest Conservation Need that are present on them:

- Douglas County Wildlife Area: Pine Barrens Management Area (4,287 acres)
- Namekagon Barrens Wildlife Area, North Unit: Pine Barrens Management Area (4,326 acres)
- Namekagon Barrens Wildlife Area, South Unit: Pine Barrens Management Area (722 acres)
- Totogatic Wild River: County Line Road Barrens and Forest (207 acres)
- Totogatic Wild River: Former Solar Property Red Pines (128 acres)
- Totogatic Wild River: Kimball Barrens (322 acres)
- Totogatic Wild River: the Totogatic Wild River (~1,511 acres)
(DNR 281 ac; Burnett County Forest 709 ac; St. Croix National Scenic Riverway 22 ac; private 499 ac)

Some of the species present are rare because of their sensitivity to disturbance, while others rely on disturbance. Many benefit from specific management and large contiguous tracts of intact habitat.

BIRDS

The integrity of the barrens ecosystem on all three of the NWB properties led to their designation as Important Bird Areas:

sites that are critical for the conservation and management of uncommon birds.

Expanses of upland barrens communities provide nesting and foraging habitats for rare, migratory birds such as upland sandpipers, golden-winged warblers, and whip-poor-wills.

Numerous birds from the arctic and boreal regions winter here, including short-eared owl, rough-legged hawk, northern hawk owl, snowy owl, northern shrike, snow bunting, and common redpoll. These birds depend on the vast grasslands. Other wintering birds of conservation importance include Lapland longspurs, and horned larks.

The Wisconsin sharp-tailed grouse population is segregated into isolated subpopulations that are primarily associated with intensively-managed barrens on Crex Meadows, Namekagon Barrens, and Douglas County wildlife areas, with smaller remnant populations elsewhere. Opportunities exist to re-connect grouse subpopulations and insure their presence into the future, by linking habitat areas that have become isolated and improving habitat quality.

HERPTILES

Water and wetland resources, along with sandy soils associated with the NWB properties, provide excellent nesting, foraging, and hibernation opportunities for numerous common and uncommon salamander, skink, frog, snake and turtle species including the state threatened Blanding's & wood turtles. Douglas County is near the northern extent of the Blanding's turtles range. They are still somewhat common in sedge meadows and wet marshes in this area but likely become much less common north of this region. Wood turtles are an increasingly uncommon species both in Wisconsin and across their entire range due to road mortality, high rates of nest predation, and over-collection.

The aquatic resources associated with the Totogatic River, along with the sandy soils of the barrens provide excellent conditions for numerous rare herptiles. The sandy river banks and adjacent sandy uplands, particularly open sand blows, provide critical nesting habitat for many turtles, snakes and lizards. Pine Barrens and Northern Dry Forest provide excellent foraging and thermoregulation opportunities for snakes and a population of the prairie skink.

WILDLIFE AND GAME SPECIES

In addition to habitat for rare and sensitive wildlife species, NWB properties provide high-quality habitat for many common wildlife species. Primary wildlife game species include white-tailed deer, American black bear, bobcat, ruffed grouse, American woodcock, waterfowl, wild turkey and small game. Opportunities exist on the properties to improve habitat for these common wildlife species. In addition to wildlife for hunting, these properties provide excellent wildlife viewing opportunities. The lower portion of the Totogatic River receives a fair amount of fishing pressure, with fish composition changing seasonally by fish migrating up from the Namekagon River.

Game species with potential to increase populations or their habitat on NWB include sharp-tailed grouse and wild turkey. Management to support game species dependent on large open or barren landscapes such as sharp-tailed grouse would also benefit other rare species like the Kirtland's warbler, grassland birds, and American badger.

WILD RICE

Wild rice beds on and adjacent to the Totogatic Wild River property are a small but important feature in its wetland ecology, and serve as an important food source to wildlife.

INVASIVE SPECIES AND OTHER BIODIVERSITY THREATS

Invasive species are a significant and growing threat to native communities. Invasive species thrive in newly disturbed areas because they establish quickly, tolerate a wide range of conditions, are easily dispersed, and are no longer limited by the diseases, predators, and competitors that kept their populations in check in their native range.

Invasive plant species, although well-established in some areas of the NWB, are generally restricted to trails, roadsides, and low quality habitats. Many of the high-quality areas and areas managed for wildlife habitat are not heavily infested. Widespread invasive plant species with the greatest impact to native species diversity, rare species habitats, or high-quality natural communities are spotted knapweed, leafy spurge, orange hawkweed, black locust, bird's foot trefoil, and tansy. Eradication of glossy buckthorn and showy bush honeysuckle along the Totogatic River should be a priority because they have not yet established a stronghold. Early detection with rapid control of new and/or small infestations will be essential. Additional threats to maintaining current levels of biodiversity include habitat fragmentation, altered ecological processes, and deer herbivory.

Eurasian water milfoil, established in the Minong Flowage, is a potential threat to the Totogatic River.

Summary

The Northwest Barrens Properties (NWB) in northwest Wisconsin include: Namekagon Barrens Wildlife Area; Douglas County Wildlife Area; and the Totogatic Wild River. The properties consist of nearly 13,000 acres of oak/pine barrens, with a smattering of northern dry forest, wetlands and streams within the St. Croix and Namekagon River watersheds.

The properties provide a regionally important recreational resource and economic benefit. Both the [Friends of Namekagon Barrens](#) and the [Friends of the Bird Sanctuary](#) provide significant management support to DNR staff, including tremendous educational resources for the thousands of visitors who use the properties. These lands are an important destination for hunting, fishing, gathering and bird watching, the latter of which ranks second in the nation in popularity, with 1.7 million Wisconsin residents participating. Canoeing or kayaking the Totogatic River, one of only five designated Wild Rivers in Wisconsin, offers a rare opportunity to enjoy a river landscape in its natural and free-flowing condition. Travel for the purposes of outdoor recreation is an integral part of the state's tourism industry and a key economic sector within this region.

The Northwest Barrens properties are a vital contributor to the preservation of oak/pine barrens, a rare and globally imperiled natural community, in the Northwest Sands Ecological Landscape. The barrens extend from northern Polk County to southern Bayfield County and cover 1,900 square miles. These properties provide abundant hunting, trapping, gathering, wildlife watching and educational opportunities. The abundance and diversity of wildlife, including rare bird species that inhabit this landscape is an ecotourism magnet that attracts those who appreciate not only the wildlife, but the grand scale of oak and pine barrens found here.

The fragile vegetation native to these sandy soils recovers very slowly from human disturbances, which will be important to keep in mind during planning efforts. The failed farming attempts nearly a century ago left prominently rectangular grassy fields. Tree plantings have left furrows that will still be visible decades from now. A wagon trail from the nineteenth century can be visible immediately after a prescribed burn, because the packed-earth frequently does not burn, leaving a distinct line that disappears only after regrowth of the vegetation, when the 'trail' disappears once again.

Thoughtful planning and management will be needed to be able to manage the NWB properties so they continue to provide high-quality natural resources, wildlife recreational experiences, and timber resources for present and future generations.

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- Wisconsin Department of Natural Resources. Property specific webpages can be found for:
- Wildlife Areas: <http://dnr.wi.gov> and search "wildlife areas"
 - Natural Areas: <http://dnr.wi.gov> and search "natural areas"
 - Wild Rivers: <http://dnr.wi.gov> and search "wild river"

APPENDIX A: EXCERPTS FROM RAPID ECOLOGICAL ASSESSMENT

SPECIES OF GREATEST CONSERVATION NEED

The following are vertebrate Species of Greatest Conservation Need (SGCN) associated with natural community types that are present on the Northwest Barrens and Totogatic Wild River properties in the Northwest Sands Ecological Landscape. Only SGCN with a high or moderate probability of occurring in the Northwest Sands Ecological Landscape are shown. Communities shown here are limited to those identified as “Major” or “Important” management opportunities in the Wisconsin Wildlife Action Plan (WDNR 2009). Letters indicate the degree to which each species is associated with a particular habitat type (S=significant association, M=moderate association, and L=low association). Animal-community combinations shown here that are assigned as either “S” or “M” are also Ecological Priorities, as defined by the Wisconsin Wildlife Action Plan (see dnr.wi.gov/org/land/er/WWAP/ for more information about these data). Shaded species have been documented on these planning group properties.

	Major									
	Coldwater streams	Coolwater streams	Inland lakes	Northern Dry Forest	Northern Sedge Meadow	Northern Wet Forest	Oak Barrens	Open Bog	Pine Barrens	
Species that are Significantly Associated with the Northwest Sands Landscape										
American Bittern					S			S		
American Woodcock				L	L	L	L	L	L	
Bald Eagle			S							S
Banded Killifish			M							
Black Tern			M		M					
Black-backed Woodpecker				M		S		L	L	
Black-billed Cuckoo				L	L	L	M		M	
Blanding's Turtle	M	M	S		M		S		S	M
Bobolink					S			M		
Boreal Chorus Frog			S		S		S	S	S	
Brown Thrasher				L			S		S	
Bullsnake							S		S	
Connecticut Warbler				S		M		M	M	
Field Sparrow							M		M	
Franklin's Ground Squirrel							S		S	
Golden-winged Warbler				M		M		M	L	
Greater Redhorse			M							
Le Conte's Sparrow					S			M		M
Least Darter			M							M
Least Flycatcher				M						M
Lesser Scaup			M							M
Nelson's Sharp-tailed Sparrow					S					
Northern Flying Squirrel				M		S			L	
Northern Harrier					S		M	M	M	
Prairie Skink				M			S		S	

Osprey			S						S
Pugnose Shiner			M						
Red Crossbill				S		L			M
Red-headed Woodpecker				L			M		L
River Redhorse									M
Sharp-tailed Grouse					M		S	L	S
Trumpeter Swan			M		L			L	L
Upland Sandpiper					L		M		M
Veery				L		M			
Vesper Sparrow							S		S
Water Shrew	S	S	M		L	S		L	L
Whip-poor-will				M			M		M
Wood Turtle	S	S			M	M	S		S S
Yellow Rail					S			S	
Species that are Moderately Associated with the Northwest Sands Landscape									
American Golden Plover					L				
Blue-winged Warbler				L			L		
Canada Warbler				L		M			
Canvasback			M						S
Four-toed Salamander	M	M			M	M		S	
Gilt Darter									S
Grasshopper Sparrow							M		L S
Lake Sturgeon			S						S
Mink Frog	M	S	S		S	L		S	S
Mudpuppy	M	L	S						
Northern Goshawk				L					
Olive-sided Flycatcher				L		S		M	L
Pickereel Frog	S	S	M		S	M		M	S
Red-shouldered Hawk				L					
Rusty Blackbird								M	
Solitary Sandpiper	M	M			L			M	
Wilson's Phalarope					S				
Wood Thrush						L			
Woodland Jumping Mouse				L	L	M		L	L

Wisconsin Natural Heritage Working List Explanation

Scientific Name: Scientific name used by the Wisconsin Natural Heritage Inventory Program.

Common Name: Standard, contrived, or agreed upon common names.

Global Rank: Global element rank. See the rank definitions below.

State Rank: State element rank. See the rank definitions below.

US Status: Federal protection status in Wisconsin, designated by the Office of Endangered Species, U.S. Fish and Wildlife Service through the U.S. Endangered Species Act. LE = listed endangered; LT = listed threatened; XN = non-essential experimental population(s); LT,PD = listed threatened, proposed for de-listing; C = candidate for future listing.

WI Status: Protection category designated by the Wisconsin DNR. END = endangered; THR = threatened; SC = Special Concern. WDNR and federal regulations regarding Special Concern species range from full protection to no protection. The current categories and their respective level of protection are SC/P = fully protected; SC/N = no laws regulating use, possession, or harvesting; SC/H = take regulated by establishment of open closed seasons; SC/FL =

federally protected as endangered or threatened, but not so designated by WDNR; SC/M = fully protected by federal and state laws under the Migratory Bird Act.

Special Concern species are those species about which some problem of abundance or distribution is suspected but not yet proved. The main purpose of this category is to focus attention on certain species before they become threatened or endangered.

Global & State Element Rank Definitions

Global Element Ranks:

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 = Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single state or physiographic region) or because of other factors making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.

G4 = Apparently globally secure, though it may be quite rare in parts of its range, especially at the periphery.

G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

GH = Of historical occurrence throughout its range, i.e., formerly part of the established biota, with the expectation that it may be rediscovered.

GU = Possibly in peril range-wide, but their status is uncertain. More information is needed.

GX = Believed to be extinct throughout its range (e.g. Passenger pigeon) with virtually no likelihood that it will be rediscovered.

G? = Not ranked.

Species with a questionable taxonomic assignment are given a "Q" after the global rank.

Subspecies and varieties are given subranks composed of the letter "T" plus a number or letter. The definition of the second character of the subrank parallels that of the full global rank. (Examples: a rare subspecies of a rare species is ranked G1T1; a rare subspecies of a common species is ranked G5T1.)

State Element Ranks

S1 = Critically imperiled in Wisconsin because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation from the state.

S2 = Imperiled in Wisconsin because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.

S3 = Rare or uncommon in Wisconsin (21 to 100 occurrences).

S4 = Apparently secure in Wisconsin, with many occurrences.

S5 = Demonstrably secure in Wisconsin and essentially ineradicable under present conditions.

SA = Accidental (occurring only once or a few times) or casual (occurring more regularly although not every year); a few of these species (typically long-distance migrants such as some birds and butterflies) may have even bred on one or more of the occasions when they were recorded.

SE = An exotic established in the state; may be native elsewhere in North America.

SH = Of historical occurrence in Wisconsin, perhaps having not been verified in the past 20 years, and suspected to be still extant. Naturally, an element would become SH without such a 20-year delay if the only known occurrence were destroyed or if it had been extensively and unsuccessfully looked for.

SN = Regularly occurring, usually migratory and typically non-breeding species for which no significant or effective habitat conservation measures can be taken in Wisconsin. This category includes migratory birds and bats that pass

through twice a year or, may remain in the winter (or, in a few cases, the summer) along with certain lepidoptera which regularly migrate to Wisconsin where they reproduce, but then completely die out every year with no return migration. Species in this category are so widely and unreliably distributed during migration or in winter that no small set of sites could be set aside with the hope of significantly furthering their conservation.

SZ = Not of significant conservation concern in Wisconsin, invariably because there are no definable occurrences in the state, although the taxon is native and appears regularly in the state. An SZ rank will generally be used for long-distance migrants whose occurrence during their migrations are too irregular (in terms of repeated visitation to the same locations), transitory, and dispersed to be reliably identified, mapped, and protected. Typically, the SZ rank applies to a non-breeding population.

SR = Reported from Wisconsin, but without persuasive documentation which would provide a basis for either accepting or rejecting the report. Some of these are very recent discoveries for which the program hasn't yet received first-hand information; others are old, obscure reports that are hard to dismiss because the habitat is now destroyed.

SRF = Reported falsely (in error) from Wisconsin but this error is persisting in the literature.

SU = Possibly in peril in the state, but their status is uncertain. More information is needed.

SX = Apparently extirpated from the state.

State Ranking of Long-Distance Migrant Animals:

Ranking long distance aerial migrant animals presents special problems relating to the fact that their non-breeding status (rank) may be quite different from their breeding status, if any, in Wisconsin. In other words, the conservation needs of these taxa may vary between seasons. In order to present a less ambiguous picture of a migrant's status, it is necessary to specify whether the rank refers to the breeding (B) or non-breeding (N) status of the taxon in question. (e.g. S2B,S5N).

Rare Species and High Quality Natural Communities Documented on the Northwest Barrens Properties (WDNR, 2009)

The following paragraphs give brief summary descriptions for some of the rare species and high quality natural communities documented on the Glacial Lake Grantsburg properties and mapped in the NHI Database. More information can be found on the Natural Heritage Conservation Web site (www.dnr.wi.gov) for several of these species and natural communities.

Rare Animals

American Bullfrog (*Lithobates catesbeianus*) may be found throughout Wisconsin in any permanent body of water - lakes, ponds, rivers, and creeks, although they have a very patchy distribution. In Wisconsin, bullfrogs appear to favor oligotrophic to mesotrophic waters, often breeding where dense submergent vegetation filters out the majority of the suspended solids. Adult bullfrogs overwinter in water to avoid freezing. Bullfrogs are active from April through mid-October. They breed from mid-May through late July or later. Larvae overwinter before transforming the following year or, or in rare situations, in their second full year.

Blanding's Turtles (*Emydoidea blandingii*) utilize a wide variety of aquatic habitats including deep and shallow marshes, shallow bays of lakes and impoundments where areas of dense emergent and submergent vegetation exists, sluggish streams, oxbows and other backwaters of rivers, drainage ditches (usually where wetlands have been drained), and sedge meadows and wet meadows adjacent to these habitats. This species is semi-terrestrial and individuals may spend a good deal of time on land. They often move between a variety of wetland types during the active season, which can extend from early March to mid-October. They overwinter in standing water that is typically more than 3 feet in deep and with a deep organic substrate but will also use both warm and cold-water streams and rivers where they can avoid freezing. Blanding's turtles generally breed in spring, late summer or fall. Nesting occurs from about mid-May through June depending on spring temperatures. They strongly prefer to nest in sandy soils and may travel well over a mile to find suitable nesting sites. This species appear to display nest site fidelity, returning to its natal site and then nesting in a similar location annually. Hatching occurs from early August through early September but hatchlings can successfully overwinter in the nest, emerging the following late April or May. This species takes 17 to 20 years or more to reach maturity.

Canada Warblers (*Wilsonia canadensis*) are typically most abundant in moist, mixed coniferous-deciduous forests with a well-developed understory. In Wisconsin they occur in spruce, hemlock, and balsam fir forest types in the northern counties. Important components of breeding habitat include conifers and often creeks and streams. The

Canada Warbler nests in dense vegetation, often in areas with mosses, ferns, and decaying stumps or logs. The breeding season occurs from early June to early July.

Chryxus Arctic (*Oeneis chryxus*), a State Special Concern butterfly, prefers dry grass habitats, cutovers, jack pine barrens, rocky and grassy openings in forest especially along ridges. Populations are localized in northern Wisconsin. Adults fly mid-May to the first week in June, with peak flight usually occurring in late May, perhaps more abundantly in even-numbered years.

Clear-winged Grasshopper

Club-horned Grasshopper

Cobweb Skipper (*Hesperia metea*), a State Special Concern butterfly, has been found in pine barrens and oak savanna. Its host plants are big bluestem (*Andropogon gerardii*) and little bluestem (*Schizachyrium scoparium*). This skipper is a univoltine species. Adults are present from mid-May to early June. Fully grown caterpillars hibernate.

Connecticut Warbler (*Oporornis agilis*), a bird listed as Special Concern, prefers mature, multi-layered pine stands, particularly jack pine, and occasionally in tamarack-pine stands with dense hardwood understory. The breeding season extends from mid-June through mid-July.

Dickcissel (*Spiza americana*), a bird of Special Concern in Wisconsin. This species prefers open pasture and fields of clover and alfalfa. Grasslands, meadows, and savanna are also important nesting areas. This bird requires vegetation with medium to tall height-density and a significant component of forbs, some stiff-stemmed. Breeding occurs from late May to early August.

Dusted Skipper (*Atrytonopsis bianna*), a State Special Concern butterfly, has been found in dry, open sandy areas, dry prairie, and pine barrens. Its host plants are big bluestem (*Andropogon gerardii*) and little bluestem (*Schizachyrium scoparium*). This species is univoltine with adults in flight from late May to early June in Wisconsin when few other skippers are present. Fully grown caterpillars hibernate and pupate in a sealed case 1-3 inches above the ground at the base of the host plant.

Eastern Hog-nosed Snake (*Heterodon platirhinos*) habitats include bracken grassland, oak savanna and sand prairies, but they may be seen in southern forest. Restoration of sand prairies, maintaining areas of loose sandy soil, and controlling the invasive spotted knapweed are all beneficial activities.

Henry's Elfin (*Callophrys henrici*), a State status taxagroup, has been found in pine barrens and oak savanna, occasionally in boggy areas. Adults are usually present from mid-May to early June, sometimes emerging earlier in abnormally advanced seasons. Univoltine. Young larvae bore into the flower parts and fruits of their hostplants and are very sluggish until just before pupation.

Leonard's Skipper (*Hesperia leonardus leonardus*), State Special Concern butterfly, has been found in pine barrens, oak savanna, and dry prairies. Its host plants are little bluestem (*Schizachyrium scoparium*), blue grama (*Bouteloua gracilis*), and panic grass (*Panicum* spp.). This is a univoltine species with adults in flight from early August to early September. Caterpillars hibernate soon after hatching and overwinter.

Midwestern Fen Buckmoth

Mink Frogs (*Lithobates septentrionalis*), a species of Special Concern, prefer rivers and lakes with bog shoreline habitats. They are a shoreline-dependent species but also forage on and around floating mats of vegetation away from the shoreline in the littoral zone. They may sometimes be found in permanent waters where no bog characteristics exist, although they are usually associated with tannin-stained waters. Mink frogs overwinter in water to avoid freezing. They are active from April through October and breed from June through July. Larvae overwinter before transforming the following summer.

Mottled Dusky Wing (*Erynnis martialis*), a State Special Concern butterfly. This skipper is found in scrub forest, pine/oak barrens and oak savanna. It is a bivoltine species, the spring flight occurs from mid-May to mid-June and the summer flight from mid-July to mid-August. Larvae feed only on members of the plant genus *Ceanothus*.

Prairie Skink (*Plestiodon septentrionalis*), prefer open sandy areas in pine-barrens and bracken grasslands, or along sandy stream banks and sandy roadcuts. They construct underground burrows that are used to escape from predators and as shelter at night. This species is restricted to northwestern Wisconsin, but in high densities in some locations. They feed on invertebrates such as crickets, beetles, caterpillars, and spiders.

Pygmy Shrew (*Sorex hoyi*), are found among debris and heavy vegetation in woods, clearings, and meadows, particularly those grown to high grass. Although they avoid swampy or excessively wet areas, they can be found in cold sphagnum or tamarack bogs.

Rocky Mountain Sprinkled Locust (*Chloealtis abdominalis*), a small, light brown grasshopper listed as Special Concern, is found in jack pine barrens & forest openings. Adults are active July through September.

Sharp-tailed Grouse (*Tympanuchus phasianellus*), a Special Concern bird in Wisconsin, requires a mosaic of dense grass and shrubs with rich forb and insect foods during nesting and brood-rearing and a bare open area for lekking. During winter often relies on riparian areas and other sites that support deciduous trees and shrub for feeding, roosting, and escape cover; also utilizes non-native cultivated grains and hedgerow species.

Speckled Rangeland Grasshopper

Upland Sandpiper (*Bartramia longicauda*), a bird listed as Special Concern, prefers prairies, dry grasslands, barrens, sedge meadows, unmowed alfalfa/timothy fields and scattered woodlands. Typical habitats generally have short vegetation height, low to moderate forb cover, moderate amounts of residual vegetation and litter, and little bare ground (Sample and Mossman 1997). This loosely colonial nesting species is most closely related to other obligate grassland birds than large shorebirds. The breeding season extends from early May through late September.

Western Meadowlark (*Sturnella neglecta*) inhabit pastures and small grain fields. This species also occurs in other short, open grasslands and agriculture fields including hayfields, short to medium height idle grasslands, dry old fields, dry-mesic prairies, and open barrens.

Woodland Jumping Mouse (*Napaeozapus insignis*), a state Special Concern mammal, is found in forested or brushy areas near water, wet bogs, stream borders.

Rare Plants

Dwarf Milkweed

Dwarf Milkweed (*Asclepias ovalifolia*), a State Threatened plant, is found in periodically brushed areas, rights-of-way. Blooming occurs early June through early July; fruiting occurs late June through late August. The optimal identification period for this species is throughout June.

One-flowered Broomrape

One-flowered Broomrape (*Orobanche uniflora*), a State Special Concern plant, is found in sandy prairies, thickets, moist woods, and on streambanks. Blooming occurs from May through June. The optimal identification period for this species is May through late June. This parasitic plant obtains its nourishment from the roots of various other plants including members of the Aster family.

Richardson Sedge

Richardson Sedge (*Carex richardsonii*), a State Special Concern plant, is found in dry prairies and barrens. Blooming occurs late April through early May; fruiting occurs throughout May. The optimal identification period for this species is late April through early May.

Natural Communities

Inland Beach

The beaches of inland lakes that experience enough water level fluctuation to prevent the development of a stable shoreline forest or other communities may instead support a specialized biota adapted to sandy or gravelly littoral

habitats. The shorelines of such lakes (usually seepage lakes) may be subject to fluctuations of as much as several meters over a few years or decades. The alternation of high and low periods maintains populations of the beach specialists over time, including some rare species of unusual geographic affinity, such as the Atlantic Coastal Plain of the eastern United States.

Lake—Shallow, Soft, Seepage

Seepage lakes – These lakes do not have an inlet or an outlet, and only occasionally overflow. As landlocked waterbodies, the principal source of water is precipitation or runoff, supplemented by groundwater from the immediate drainage area. Since seepage lakes commonly reflect groundwater levels and rainfall patterns, water levels may fluctuate seasonally. Seepage lakes are the most common lake type in Wisconsin.

Northern Dry Forest

This forest community occurs on nutrient-poor sites with excessively drained sandy or rocky soils. The primary historic disturbance regime was catastrophic fire at intervals of decades to approximately a century. Dominant trees of mature stands include jack and red pines (*Pinus banksiana* and *P. resinosa*) and/or northern pin (Hill's) oak (*Quercus ellipsoidalis*). Large acreages of this forest type were cut and burned during the catastrophic logging of the late 19th and early 20th century. Much of this land was then colonized by white birch (*Betula papyrifera*) and/or quaking aspen (*Populus tremuloides*), or converted to pine plantations starting in the 1920s. Common understory shrubs are hazelnuts (*Corylus* spp.), early blueberry (*Vaccinium angustifolium*) and brambles (*Rubus* spp.); common herbs include bracken fern (*Pteridium aquilinum*), starflower (*Trientalis borealis*), barren-strawberry (*Waldsteinia fragarioides*), cow-wheat (*Melampyrum lineare*), trailing arbutus (*Epigaea repens*), and members of the shinleaf family (*Chimaphila umbellata*, *Pyrola* spp.). Vast acreages of open "barrens" were also planted to pine, or naturally succeeded to densely stocked "dry" forests.

Pine Barrens

This savanna community is characterized by scattered jack pines (*Pinus banksiana*), or less commonly red pines (*P. resinosa*), sometimes mixed with scrubby northern pin (Hill's) and bur oaks (*Quercus ellipsoidalis* and *Q. macrocarpa*), interspersed with openings in which shrubs such as hazelnuts, (*Corylus* spp.) and prairie willow (*Salix humilis*) and herbs dominate. The flora often contains species characteristic of "heaths" such as blueberries (*Vaccinium angustifolium* and *V. myrtilloides*), bearberry (*Arctostaphylos uva-ursi*), American hazelnut (*Corylus americana*), sweet fern (*Comptonia peregrina*), and sand cherry (*Prunus pensylvanica*). Also present are dry sand prairie species such as june grass (*Koeleria macrantha*), little bluestem (*Schizachyrium scoparium*), silky and sky-blue asters (*Aster sericeus* and *A. azureus*), lupine (*Lupinus perennis*), blazing-stars (*Liatis aspera* and *L. cylindracea*), and western sunflower (*Helianthus occidentalis*). Pines may be infrequent, even absent, in some stands in northern Wisconsin and elsewhere because of past logging, altered fire regimes, and an absence of seed source.

RARE SPECIES AND HIGH QUALITY NATURAL COMMUNITIES OF THE NORTHWEST BARRENS PROPERTIES

Numerous rare species and high-quality examples of native communities have been documented within the NWB properties. This table shows the rare species and high-quality natural communities currently known and listed by property.

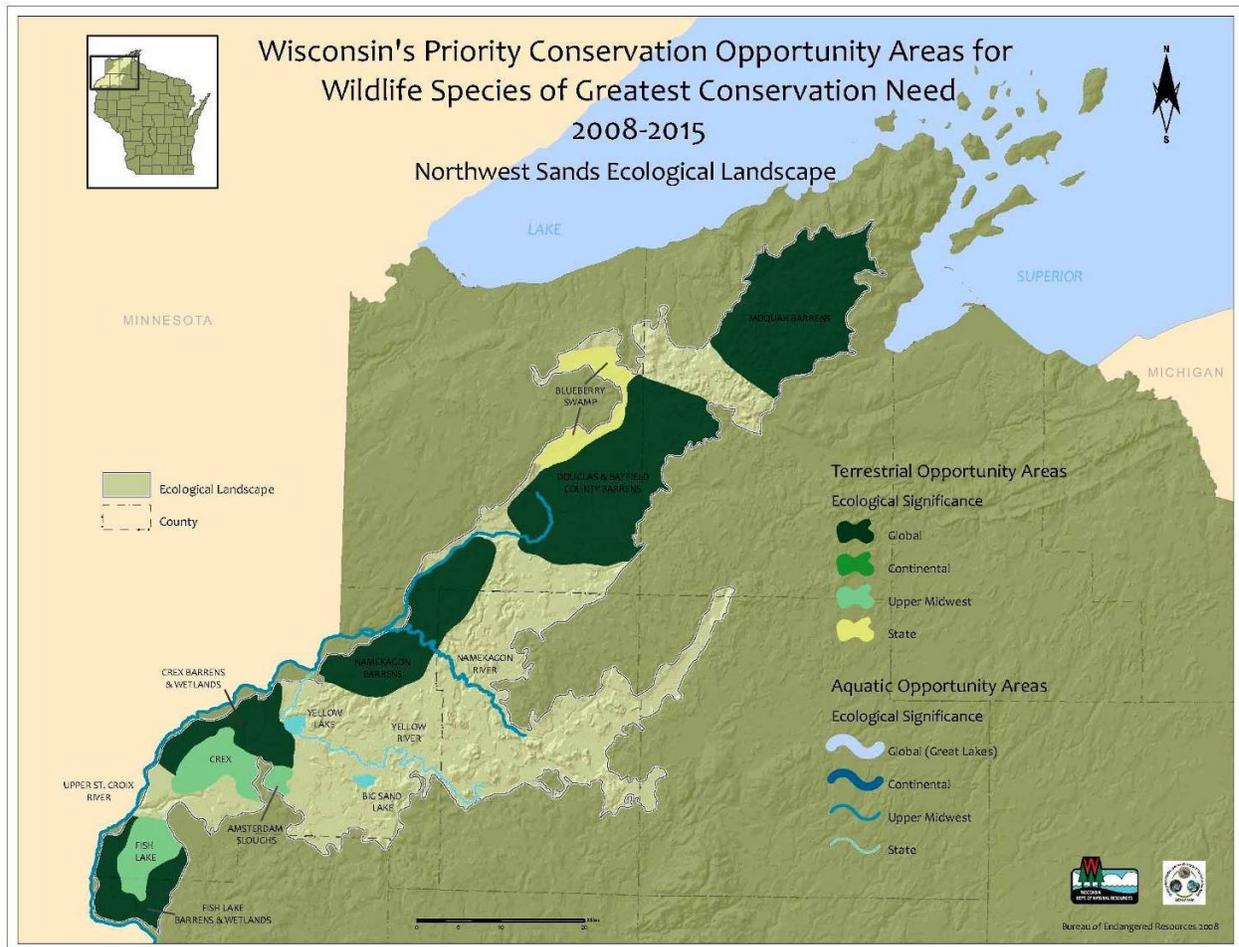
Table 1. Documented rare species and high-quality natural communities on the NWBPG in alphabetical order by common name. There may be more than one element occurrence of the species or natural community per property. Properties include Douglas County Wildlife Area (DCWA) and Namekagon Barrens Wildlife Area (NBWA). Species that have been documented on the NWBPG but are not mapped in the NHI Database appear in **BOLD**. Animal Species shown without a state rank or state status are Species of Greatest Conservation Need but are not on the NHI Working List.

Common Name	Scientific Name	Property Name	Last Date	State Rank	Global Rank	State Status
Animals						
American Bullfrog	<i>Lithobates catesbeianus</i>	NBWA	1997	S3	G5	SC/H
American Woodcock	<i>Scolopax minor</i>	DCWA	2009			
American Woodcock	<i>Scolopax minor</i>	NBWA	2009			
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	NBWA	2009			
Blanding's Turtle	<i>Emydoidea blandingii</i>	DCWA	1989	S3	G4	THR
Brown Thrasher	<i>Toxostoma rufum</i>	DCWA	2009			

Common Name	Scientific Name	Property Name	Last Date	State Rank	Global Rank	State Status
Brown Thrasher	<i>Toxostoma rufum</i>	NBWA	2009			
Canada Warbler	<i>Wilsonia canadensis</i>	DCWA	2009	S3B	G5	SC/M
Chryxus Arctic	<i>Oeneis chryxus</i>	DCWA	1996	S2?	G5	SC/N
Clear-winged Grasshopper	<i>Camnula pellucida</i>	NBWA	2009	S3?	G5	SC/N
Club-horned Grasshopper	<i>Aeropedellus clavatus</i>	NBWA	2009	S2	G5	SC/N
Cobweb Skipper	<i>Hesperia metea</i>	DCWA	1996	S2	G4G5	SC/N
Cobweb Skipper	<i>Hesperia metea</i>	NBWA	1989	S2	G4G5	SC/N
Connecticut Warbler	<i>Oporornis agilis</i>	NBWA	2006	S2S3B	G4	SC/M
Dickcissel	<i>Spiza americana</i>	NBWA	1991	S3B	G5	SC/M
Dusted Skipper	<i>Atrytonopsis hianna</i>	DCWA	1977	S3	G4G5	SC/N
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>	DCWA	2009	S3?	G5	SC/H
Field Sparrow	<i>Spizella fusilla</i>	DCWA	2009			
Field Sparrow	<i>Spizella fusilla</i>	NBWA	2009			
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	NBWA				
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	NBWA	2009			
Henry's Elfin	<i>Callophrys henrici</i>	NBWA	1989	S1S2	G5	SC/N
Least Flycatcher	<i>Empidonax minimus</i>	NBWA	2009			
Leonard's Skipper	<i>Hesperia leonardus</i>	DCWA	1999	S3	G4	SC/N
Midwestern Fen						
Buckmoth	<i>Hemileuca sp. 3</i>	DCWA	1980	S3	G5T3T4	SC/N
Mink Frog	<i>Lithobates septentrionalis</i>	NBWA	1997	S3S4	G5	SC/H
Mottled Dusky Wing	<i>Erynnis martialis</i>	NBWA	2009	S2	G3	SC/N
Northern Harrier	<i>Circus cyaneus</i>	DCWA	2009			
Northern Harrier	<i>Circus cyaneus</i>	NBWA	2009			
Prairie Skink	<i>Plestiodon septentrionalis</i>	DCWA	2009	S3	G5	SC/H
Prairie Skink	<i>Plestiodon septentrionalis</i>	NBWA	2009	S3	G5	SC/H
Pygmy Shrew	<i>Sorex hoyi</i>	DCWA	1997	S3S4	G5	SC/N
Pygmy Shrew	<i>Sorex hoyi</i>	NBWA	1997	S3S4	G5	SC/N
Red Crossbill	<i>Loxia curvirostra</i>	DCWA	1991			
Rocky Mountain						
Sprinkled Locust	<i>Chloealtis abdominalis</i>	DCWA	2009	S2?	G5	SC/N
Rocky Mountain						
Sprinkled Locust	<i>Chloealtis abdominalis</i>	NBWA	2005	S2?	G5	SC/N
Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>	DCWA	2009	S1B,S2N	G4	SC/M
Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>	NBWA	2009	S1B,S2N	G4	SC/M
Speckled Rangeland						
Grasshopper	<i>Arphia conspersa</i>	DCWA	2009	S2	G5	SC/N
Speckled Rangeland						
Grasshopper	<i>Arphia conspersa</i>	NBWA	2009	S2	G5	SC/N
Upland Sandpiper	<i>Bartramia longicauda</i>	DCWA	2009	S2B	G5	SC/M
Upland Sandpiper	<i>Bartramia longicauda</i>	NBWA	2009	S2B	G5	SC/M
Veery	<i>Cathartes fuscescens</i>	DCWA	2009			
Veery	<i>Cathartes fuscescens</i>	NBWA	2009			
Vesper Sparrow	<i>Poocetes gramineus</i>	DCWA	2009			
Vesper Sparrow	<i>Poocetes gramineus</i>	NBWA	2009			
Western Meadowlark	<i>Sturnella neglecta</i>	NBWA	1991	S2B	G5	SC/M
Whip-poor-will	<i>Caprimulgus vociferus</i>	DCWA	2009			
Whip-poor-will	<i>Caprimulgus vociferus</i>	NBWA	2009			
Wood Thrush	<i>Hylocichla mustelina</i>	NBWA	1991			
Woodland Jumping Mouse	<i>Napeozapus insignis</i>	DCWA	1997	S2S3	G5	SC/N
Plants						
Dwarf Milkweed	<i>Asclepias ovalifolia</i>	NBWA	2009	S3	G5?	THR
One-flowered Broomrape	<i>Orobancha uniflora</i>	NBWA	2009	S3	G5	SC
Richardson Sedge	<i>Carex richardsonii</i>	NBWA	1994	S2	G4	SC
Communities						
Inland Beach	<i>Inland Beach</i>	DCWA	2009	S3	G4G5	
Lake--Shallow, Soft, Seepage	<i>Lake--shallow, soft, seepage</i>	NBWA	1979	S4	GNR	

Common Name	Scientific Name	Property Name	Last Date	State Rank	Global Rank	State Status
Northern Dry Forest	<i>Northern dry forest</i>	NBWA	1979	S3	G3?	
Pine Barrens	<i>Pine barrens</i>	DCWA	2009	S2	G2	
Pine Barrens	<i>Pine barrens</i>	NBWA	2009	S2	G2	

PRIORITY CONSERVATION OPPORTUNITY AREAS—NORTHWEST SANDS



5) FUTURE NEEDS

This project was designed to provide a rapid assessment of the biodiversity values for the Northwest Barrens Properties. Although the report should be considered adequate for master planning purposes, additional efforts could help to inform future adaptive management efforts, along with providing useful information regarding the natural communities and rare species on the properties.

- **Invasives monitoring and control:** Establishing an invasives monitoring protocol will be critical. State wildlife areas and many other public lands throughout Wisconsin are facing major management problems because of serious infestations of highly invasive species such as spotted knapweed, leafy spurge, cypress spurge, glossy buckthorn, showy bush honeysuckle, and curly pondweed in the Totogatic River. Public lands throughout Wisconsin are facing major management problems because of serious infestations of highly invasive species.. Some of these species are easily dispersed by humans and vehicles; others are spread by birds, mammals, insects, water, or wind. In order to protect the important biodiversity values of the properties, a comprehensive plan will be needed for detecting and rapidly responding to new invasive threats. Citizens, such as trail users or hunters, could be encouraged to report new sightings of invasive plants and, perhaps, cooperate with property managers in control efforts.
- **Additional research on barrens restoration techniques** is needed. Research should identify the most effective restoration techniques and include procedures for identifying restorable barrens sites.
- **Monitoring pre and post-burn** should be conducted to better understand the effects of prescribed fire rotations and intensity on sensitive plants and animals, and impacts on soils and nutrients.
- **Vegetation plot data** should be collected from the Pine and Oak Barrens communities at both sites. The data would enable more refined descriptions of early succession barrens communities in this region and across their state range, as well as aid in monitoring.

- Additional work is needed to identify the presence of mid and late successional stages of barrens habitat to understand and assure the full spectrum of values provided by Pine and Oak Barrens.
- Additional bird surveys should be done focusing on adjacent county forest land at the Douglas County Wildlife Area.
- Targeted surveys in the NWBPG to locate turtle nesting sites near the St. Croix and Namekagon Rivers.
- Additional reptile surveys should be done to search for gopher snakes in this landscape. This species is significantly associated with the barrens communities in the Northwest Sands Ecological Landscape.
- Small mammal surveys should be continued in areas that have not been previously inventoried to search for Franklin's ground squirrel. Monitoring of small mammal populations should occur in other areas to assess effects of current management regimes.
- Additional rare plant surveys are desirable.
- Additional surveys for terrestrial invertebrates in open uplands would be beneficial. Though some surveys were conducted, they were relatively small in scope and time. Efforts should especially focus on butterflies and moths, grasshoppers, and tiger beetles.
- Acoustical bat surveys along the Totogatic River, within open barrens or other forest openings, and along roads would be useful in identifying summer resident bat species utilizing the property group. To date, bat surveys have been limited to the mouth of the Totogatic River at its junction with the Namekagon River.
- Additional surveys for frogs (pickerel frog, northern leopard frog, and mink frog [*Lithobates septentrionalis*]), four-toed salamander, and snakes along with monitoring of existing populations of herptiles identified during this inventory are recommended.
- Monitoring of flowering and fruiting of dwarf milkweed would be beneficial, as this species is seldom observed with viable seed pods. Establishing a quantitative, regular monitoring program for this poorly understood State Threatened plant species will help inform conservation measures and state listing status.
- Complete forest cover type reconnaissance and mapping to aid in identifying various levels of forest management needs over time.

APPENDIX B: AGREEMENT WITH FRIENDS OF NAMEKAGON BARRENS

This agreement is between the Department of Natural Resources Wildlife Management (hereinafter referred to as the "DNR"), acting through the Secretary and the Friends of Namekagon Barrens Wildlife Area, Inc. (hereinafter referred to as "FNBWA") that was incorporated as a section 501© (3) non-profit charitable organization April 26, 2007, acting through the president of its board of directors or the board's designee. [note: this Agreement is being revised in 2016]

WITNESSETH: WHEREAS, according to the lease agreement, it is the purpose of the DNR to preserve, interpret, research, and manage its property for the benefit, education, and enjoyment of the people of the state; and WHEREAS, the DNR desires to extend its programs, research, services, restoration, and preservation of the flora and fauna at the Namekagon Barrens Wildlife Area (hereinafter referred to as "the property"); and WHEREAS, FNBWA has incorporated to assist the DNR in extending its program and services at the property, NOW, THEREFORE, pursuant to authority contained in Chapter 27, Wis. Stats., and in consideration of the mutual benefits which will accrue to the DNR and the FNBWA, the parties agree as follows:

AUTHORIZATION

The DNR authorizes FNBWA to provide, and FNBWA agrees to provide when able, the hereinafter described services for a period of three years commencing on the day following the ratification of this agreement by the DNR. This agreement will automatically renew for additional consecutive three-year periods, unless reasonable notice of cancellation is given by either party before the date of renewal. The DNR or FNBWA reserve the right to terminate this agreement or any part thereof, at any time upon 30 days written notice without the necessity of any legal process, after holding a meeting prior to the termination setting forth the reasons for termination. An evident and distinct separation shall be maintained between the management and decision-making activities of FNBWA and those of DNR. All steps shall be taken to avoid even an appearance that the DNR directs the management or decision-making process of FNBWA. The management and operation of FNBWA is subject to all applicable Wisconsin Statutes and the Wisconsin Administrative Code.

DNR RESPONSIBILITIES

The DNR will allow FNBWA to use facilities which are designated for the use of FNBWA to hold meetings and events according to the land use agreement Burnett County has granted DNR, and DNR has granted FNBWA, for use of the cabin and cabin site adjacent to the property. The other facility is the DNR Service Center, 810 W. Maple St, Spooner.

- A. Facilities (1) The DNR shall provide FNBWA with temporary storage space, meeting rooms or other facilities as may be deemed necessary or desirable by the DNR. The DNR reserves the right to relocate or remove any such facilities in order to meet needs of the DNR upon reasonable notice. All facilities shall be subject to the right of the DNR to make such surveys and inspections as it deems necessary. (2) The DNR reserves the right to design and construct any new facilities, and shall allow FNBWA to review and comment on any plans therefore. (3) The DNR shall provide FNBWA with incidental utility services at the assigned facilities, including water, local phone calls, copies up to 100 per month, electricity, heat, and air conditioning, to the extent these utilities are required for the operation of the building for governmental purposes. All other utilities will be provided to FNBWA on a reimbursable basis. (4) The DNR shall provide all general maintenance and repair services for the state-owned buildings. (5) FNBWA will be given special consideration in scheduling activities outside the normal building use schedule whenever possible.
- B. DNR shall designate the Namekagon Barrens Wildlife Area property manager as the individual property coordinator with FNBWA.
- C. Monies donated by FNBWA to the DNR shall be expended to support the mission and activities of the property.
- D. DNR will promote FNBWA in appropriate publications and announcements.

FRIENDS RESPONSIBILITIES

- A. Exclusive Support – FNBWA will primarily focus its official activities to the support of the property FNBWA may use facilities and equipment within the property as designated by DNR for its programs and activities for the benefit of the public and the property.
- B. Organization (1) FNBWA's bylaws shall comply with the requirements of the State of Wisconsin. Nonprofit status must be maintained in accordance with state laws and FNBWA will make available for inspection, at the request of DNR, documents demonstrating nonprofit status. This agreement will automatically terminate if nonprofit status is lost, or if the bylaws are amended in such a way as to alter the intent of this agreement. (2) DNR employees may be members of FNBWA, but shall not serve on the board of directors or as treasurer. DNR employees shall not represent FNBWA in

- any negotiations between FNBWA and the DNR. (3) The role of the property coordinator is to represent the interests of the DNR and to provide cooperative assistance to FNBWA. The manager's responsibility to FNBWA shall be limited to providing assistance to FNBWA activities, suggesting property volunteer work needs, and serving as liaison between the DNR and FNBWA.
- C. Interpretive and Educational Activities – Interpretive and educational activities engaged in by FNBWA must meet DNR standards and be approved by the property coordinator.
- D. Fund-raising – Fund-raising events and activities sponsored by FNBWA shall be approved by the property coordinator.
- E. Facilities (1) FNBWA shall exercise reasonable care to prevent damage to any DNR property used by it during its operation and shall, insofar as possible, protect all such property. (2)The erection of signs and advertising or display materials relating to FNBWA is not allowed unless authorized by DNR. All signs, advertising or display materials, and all publications, stationery, and other promotional material issued or used exclusively by FNBWA shall be paid for by FNBWA. All these materials shall clearly identify the property as a property of the State of Wisconsin Department of Natural Resources.
- F. Records and Accounting (1) FNBWA shall conduct its fiscal operations in accordance with accepted business practices, using purchase orders, receipts, invoices, and inventory records. (2) FNBWA shall submit to DNR a complete financial report, through the property coordinator, annually within 90 days following the end of the calendar year. The report is not required to include a list of donors or itemized donations. (3) The DNR may review and/or audit the records of FNBWA at any time during the term of this agreement with reasonable notice. (4) FNBWA shall maintain a checking account in its name, and shall deposit proceeds from donations, dues, etc., in the account within 30 days of receipts. Only the treasurer or the (president's or treasurer's) designee may make the deposits. (5) FNBWA will provide notice of its meetings in a manner which is reasonably likely to apprise interested persons.
- G. Personnel and volunteer staff 1) FNBWA shall designate one member or employee who is authorized to act as liaison with the DNR. (2) FNBWA volunteers, personnel or members are not DNR employees and are not authorized to undertake any DNR function or activity beyond approved volunteer activities. FNBWA employees or volunteers shall not engage in activities that would reasonably lead the visiting public to conclude that they are DNR employees. No FNBWA employee or member shall wear a DNR uniform. (3) Where applicable, FNBWA shall furnish full worker's compensation coverage for its employees and shall comply with all social security and withholding tax laws and rules. A person claiming that the coverage is not required under Chapter 102, Wis. Stats., shall upon request, provide the basis for such opinion in writing to the DNR. (4) Nondiscrimination – In connection with the performance of work under this agreement, FNBWA agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical condition, developmental disability as defined in s. 51.01 (5), sexual orientation or national origin. This provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Except with respect to sexual orientation, FNBWA further agrees to take affirmative action to ensure equal employment opportunities. If the annual work force is less than 10 employees, FNBWA is exempted from this requirement.

INDEMNIFICATION AND INSURANCE

- A. General – FNBWA will not be required to purchase liability insurance as long as it is engaged only in assisting DNR interpretive programs and events, or in minor grounds maintenance and habitat improvement projects.
- B. Exception – In the event of FNBWA sponsorship of events, programs, and projects beyond the scope of those noted in paragraph A, FNBWA shall purchase public liability insurance to be effective during a period of time specified by DNR to provide adequate protection of the state's interests. The liability insurance will name the State of Wisconsin, Department of Natural Resources and its employees as insured in the amount of \$300,000. Single limit per occurrence including coverage of \$300,000 for bodily and personal injury and \$25,000 for property damage so that the DNR will be protected from any liability arising out of the activities of FNBWA. FNBWA shall furnish the DNR with copies of the insurance policy or a certificate of insurance, to be placed in a file with the agreement, at least two weeks before FNBWA begins such events, programs, or projects. FNBWA will indemnify the DNR against any cause of action, claim, damage, cost of expense, including reasonable attorney's fees, arising from its management or operation or from any breach or default by FNBWA in the performance of this agreement, or from any negligence of FNBWA during such events, programs, or projects. If any action or proceeding is brought against the DNR by reason of any such cause or claim, FNBWA (upon notice from the DNR) will defend the DNR by counsel satisfactory to the state. If insurance is required, this agreement will be conditioned on the DNR's approval of the insurance policy. Any notice of cancellation of the insurance policy will require notice to the DNR.

ASSIGNMENT

No transfer or assignment of this agreement or of any part thereof or interest therein, directly or indirectly, voluntary or involuntary, shall be made unless such transfer or assignment is first approved in writing by the DNR Secretary or the Secretary's authorized representative.

APPROPRIATIONS

Nothing herein contained shall be construed as binding the DNR to expend any sum in excess of appropriations made by the Legislature, or administratively allocated, for the purpose of the agreement, or to involve the DNR in any contract or other obligation for the future expenditure of money in excess of such appropriations or allocation.

MISCELLANEOUS

- A. General – The rights and benefits conferred by this agreement shall be subject to the laws of the State of Wisconsin governing the DNR and the rules and regulations promulgated thereunder, whether now in force or hereafter enacted or provided; and the mention of specific restrictions, conditions, and stipulations herein shall not be construed as in any way impairing the general powers of supervision, regulation, and control by the DNR.
- B. All parties agree to keep this agreement in force when signed by all three parties hereto until terminated by mutual agreement or at the option of any party upon three months' notice given in writing upon any anniversary date hereof. The agreement shall be reviewed by DNR and FNBWA every three years and at such other times as may be required by either party on 30 days written notice. The DNR or FNBWA may terminate this agreement upon 30 days written notice to the other party if, after reasonable effort by said party to correct a default, it is determined that conditions still exist contrary to this agreement. In the event of a termination, FNBWA's net assets shall become the property of DNR gifts and donations account.

This agreement is effective between FNBWA and DNR with regard to, and only to, the following specified site, which are collectively referred to throughout this agreement as the "property" to wit:

- (1) Namekagon Barrens Wildlife Area

IN WITNESS WHEREOF, the Friends of Namekagon Barrens Wildlife Area, Inc. has caused this agreement to be executed this ____ day of _____, 2012.

Friends of Namekagon Barrens Wildlife Area, Inc.

By: _____

President, Board of Directors

Attested: _____

Position: _____

IN WITNESS WHEREOF, the Department of Natural Resources has caused this agreement to be ratified this ____ day of _____, 2012.

Department of Natural Resources

By: _____

Cathy Stepp, Secretary

IN WITNESS WHEREOF, Burnett County has caused this Agreement to be ratified this _____ day of _____, 2012.

Burnett County

By: _____

Jason Nichols

Burnett County Forestry Administrator

APPENDIX C: BYLAWS OF FRIENDS OF NAMEKAGON BARRENS

BYLAWS Friends of the Namekagon Barrens Wildlife Area, Inc., (FNBWA)

Article I Name and Purpose

Section 1. The name of the corporation is Friends of the Namekagon Barrens Wildlife Area, Inc., (FNBWA)

Section 2. The corporation is organized for the sole, charitable purpose of supporting the Wisconsin Department of Natural Resources (DNR) in the management of the Namekagon Barrens Wildlife Area (NBWA). This includes assistance and support of management of early successional barrens habitat; public use facilities; infrastructure; permanent ownership; and educational activities directed towards promotion of barrens habitat and the NBWA. In order to accomplish this purpose, the corporation pursues the following activities:

- a. Support, promote and assist in volunteer activities relating to: environmental education, wildlife monitoring, wildlife surveys, barrens habitat development and management activities, and other related projects that benefit or augment barrens habitat in the NBWA.
- b. Provide for the distribution and/or sale of appropriate interpretive materials, such as books, pamphlets, and photography at the NBWA.
- c. Provide financial support to the NBWA for the furtherance of its habitat management and resource development programs by revenues through membership fees, donations, sales, and special events.
- d. Publish a minimum of two newsletters for to the membership annually and conduct an annual meeting for the purposes of promoting the NBWA and educating the membership on activities at the NBWA as well as the value of maintaining barrens habitat.

Article II Membership

Section 1. There shall be five classes of membership in this corporation: individual, family, honorary, patron, and life.

- a. Individual membership. Any person shall be eligible for individual membership upon payment of such dues as may be established by the Board of Directors. An individual member is entitled to one vote at a membership meeting.
- b. Family membership. Any person eligible to be an individual member, together with his or her spouse and dependent minors, shall be eligible for family membership upon payment of such dues as may be established by the Board of Directors. Each family membership is entitled to two votes at a membership meeting.
- c. Honorary membership. Any person eligible to be an individual member shall be eligible to be an honorary member by resolution of the Board of Directors. An honorary member pays no dues or initiation fees and is not eligible to vote.
- d. Patron Membership. Any person eligible to be an individual member may become a patron member upon acceptance by the Board of Directors and payment of such dues and initiation fee as may be established by the Board of Directors. A patron member is entitled to one vote.
- e. Life Membership. Any person eligible to be an individual member together with his or her spouse shall be eligible for life membership, upon payment of such dues and initiation fees as may be established by the Board of Directors. Each life membership is entitled to two votes at membership meetings.

Section 2. All members, of all classes, shall be eligible to receive all annual or other reports of the corporation and all members may attend the annual or other meetings of the corporation. Only individual, family, patron, and life members may become officers or directors of the corporation or vote in any election or on any matter submitted to the membership for a vote.

Section 3. Any members may withdraw from the corporation upon giving notice in writing to the Board of Directors. Any member may be removed from membership upon good cause and by unanimous vote of the Board of Directors.

Section 4. Members will be permitted to purchase any sales items from the corporation at a 10 percent discount.

Article III Organization and Administration

Section 1. The Board of Directors shall consist of five to thirteen directors elected from the voting membership of the corporation. At the time of the adoption of these bylaws, the existing Board of Directors shall designate two to five of its number to serve for three years, two to seven to serve for two years, and one to six to serve one year. Thereafter, at each annual meeting, directors shall be elected to succeed those directors whose terms will be next expiring. Each director thereafter shall take office following his or her election and shall serve for three years, or until a successor shall be elected or appointed. Directors may not serve for more than two consecutive terms or six years, whichever is longer.

Vacancies on the Board of Directors shall be filled by selection and appointment by a majority of the remaining directors.

Section 2. The Board of Directors named in the Articles of Incorporation shall constitute the initial Board of Directors.

Section 3. The Board of Directors shall meet quarterly and at any such other times the president or property liaison of

FNBWA may call a meeting. Minor day-to-day business decisions may also occur through external contacts.

Section 4. At its first meeting after newly elected directors take office, the Board of Directors shall elect the following officers, all of whom shall serve without compensation:

- a. President. The president shall be a member of the Board of Directors and shall preside at meetings of the board and the membership.
- b. Vice President. The vice president shall be a member of the Board of Directors and shall preside in the absence of the president.
- c. Secretary. The secretary shall be a member of the Board of Directors and shall keep minutes of all meetings of the board and of the membership.
- d. Treasurer. The treasurer need not be a member of the Board of Directors and shall not be an employee of the DNR. Unless a member of the board, the treasurer shall have no vote in actions taken by the board. The treasurer shall administer the finances of the corporation and supervise the keeping of the corporation's financial records. The treasurer shall submit an audited annual financial statement to the board for presentation and approval at the annual meeting.

Section 5. The Board of Directors shall formulate all the operational policies of the corporation and shall coordinate its activities through the property manager or assigned liaison. The powers of the board shall be limited only by law, the Articles of Incorporation, these bylaws, and the policies of the DNR.

Section 6. The property liaison shall be the property manager or such other person as the property manager shall appoint to this position. Nancy Christel is the current property liaison.

The property liaison shall serve as the DNR representative to the Board of Directors and shall advise the board on all program needs. The property liaison shall meet with the board, but shall have no vote on actions taken by the board. The property liaison shall not sign checks or legal contracts as a representative of the corporation. The property liaison shall supervise the day-to-day business activities of the corporation, submit to the board such reports of its affairs as may be requested, and submit an annual report to the Board of Directors at each annual meeting. Any impasses between the Board and the property liaison shall be settled by the NBWA property manager or his/her immediate supervisor if property liaison is the property manager.

Section 7. The Board of Directors may select and appoint advisory committees of interested scientists, historians, or professionals to the FNBWA, available for consultation on matters of the corporation and technical questions as needed. Committee members should represent the principal fields of the corporation's endeavor and should be invited and encouraged to offer suggestions and criticisms of the policies and work of the corporation.

Article IV Meetings

Section 1. The corporation shall hold an annual meeting in an appropriate place during the months of September through November. Notice of the time and place of such meetings and its agenda shall be given by mail to all members of the corporation. Other meetings may be called by the Board of Directors or by the written request of ten percent of the members of the corporation.

Section 2. A quorum shall consist of more than 50% of the total number of board members and is required at annual meetings.

The president shall conduct meetings. Only voting members present may vote on the election of directors or other motions made at the meetings. Voting members do not have to present at the annual meeting to cast their votes. The newsletter may be one such way to list candidates and ballots for voting.

All meetings will be conducted according to Roberts Rules of Order.

Section 3. At the annual meeting, the president shall present the annual report of the corporation's activities and its plans for the future. The treasurer shall present a financial report.

Directors shall be elected by the conclusion of the annual meeting in accordance with Article III, Section 1 of these bylaws. Nominations for such positions shall have been made by a committee on behalf of the Board of Directors and included in the notice of the annual meeting. Other nominations may be made from the floor at the meeting. Those nominees receiving the highest number of valid votes cast will be elected; a tie vote will be broken by a coin toss or both serve if there are less than fourteen directors.

Article V Property, Funds, and Assets

Section 1. All property, funds and assets of any nature received or acquired by the corporation shall be taken, held, disposed of, and expended in the following manner: All monies received from membership fees and the sale of publications, or derived in any manner from the business operations of the corporation, shall be deposited in an operations fund and shall be used for the support of the FNBWA or the NBWA property activities. Money received by donations for specific purposes shall be expended only for the purposes specified by the donor.

Section 2. The corporations shall maintain all funds in any bank or savings and loan association whose deposits are insured by an agency of the United States. The Board of Directors shall determine the financial institutions used for this purpose. All checks drawn from checking accounts and withdrawals from savings accounts shall require the signature of the treasurer for amounts up to \$250.00. Checks exceeding \$250.00 require the secretary and president's approval.

Section 3. No income of the corporation shall be distributable to its directors or officers.

Section 4. Upon dissolution of the FNBWA all funds shall be placed in a gift account for the sole use in the management of the NBWA.

Article VI Miscellaneous

Section 1. The principle place of business of the Friends of the Namekagon Barrens Wildlife Area shall be in Spooner, Wisconsin.

Section 2. The Board of Directors may adopt a corporate seal as it sees fit.

Article VII Amendment of Bylaws

Section 1. Power to repeal or amend these bylaws and to adopt additional bylaws is hereby delegated to the Board of Directors, and may be executed at any meeting of the board, provided that proper notice has first been given to the individual directors by mail at least one week before the meeting. Such action must be executed by a two-thirds vote of the directors present. These bylaws also may be amended by a majority vote at any duly noticed meeting of the members at which a quorum is present.

Article VIII Dissolution

Section 1. In the event of the dissolution of the FNBWA, or any change to the bylaws which allows engagement in activities not directly related to the missions and activities of the FNBWA, all net assets shall be transferred to a gift account for use on the NBWA. Any portion of funds donated for specific purposes to the FNBWA will be so designated to the extent possible.

a. The rights and benefits conferred by this agreement shall be subject to the laws of the State of Wisconsin governing the DNR and the rules and regulations promulgated thereunder, whether now in force or hereafter enacted or provided; and the mention of specific restrictions, conditions, and stipulations herein shall not be construed as in any way impairing the general powers of supervision, regulation, and control by the DNR.

b. All parties agree to keep this agreement in force when signed by all three parties hereto until terminated by mutual agreement or at the option of any party upon three months' notice given in writing upon any anniversary date hereof. The agreement shall be reviewed by DNR and FNBWA every three years and at such other times as may be required by either party on 30 days written notice. The DNR or FNBWA may terminate this agreement upon 30 days written notice to the other party if, after reasonable effort by said party to correct a default, it is determined that conditions still exist contrary to this agreement. In the event of a termination, FNBWA's net assets shall become the property of DNR gifts and donations account.

APPENDIX D : TRI-PARTNERSHIP AGREEMENT

TRI-PARTNERSHIP AGREEMENT AMONGST THE WISCONSIN DEPARTMENT
OF NATURAL RESOURCES, DOUGLAS COUNTY,
AND THE
FRIENDS OF THE BIRD SANCTUARY, INC.

RECEIVED
OCT 24 2005
DNR - SUPERIOR

This agreement (Agreement) is amongst the Wisconsin Department of Natural Resources (hereinafter referred to as the "DNR"), Douglas County (hereinafter referred to as the "County"), and the Friends of the Bird Sanctuary, Inc. (hereinafter referred to as "FOTBS").

WITNESSETH:

WHEREAS, it is the purpose of the DNR to preserve, interpret, and manage its properties for the benefit, education, and enjoyment of the people of the state; and

WHEREAS, the DNR and the County desire to extend their program and services at the Douglas County Wildlife Management Area (hereinafter referred to as "the property"); and

WHEREAS, FOTBS has incorporated to assist the DNR and the County in extending their respective programs and services at the property,

NOW, THEREFORE, pursuant to authority contained in Chapter 27, Wis. Stats., and in consideration of the mutual benefits which will accrue to the DNR, the County, and FOTBS, the parties agree as follows:

1. AUTHORIZATION

The DNR and the County authorize FOTBS to provide, and FOTBS agrees to provide when able, the hereinafter described services to the visiting public for a period of ten years commencing on the day following the ratification of this Agreement by the DNR. The Agreement shall be renewed for an additional consecutive ten-year periods if mutually agreeable by the DNR, the County and the FOTBS. The County, DNR or FOTBS reserve the right to terminate this Agreement or any part thereof, at any time upon 30 days written notice without the necessity of any legal process.

An evident and distinct separation shall be maintained among the management and decision-making activities of FOTBS, the DNR, and those of the County. All steps shall be taken to avoid even an appearance that the DNR or the County directs the management or decision-making process of FOTBS and vice versa.

The management and operation of FOTBS is subject to all applicable Wisconsin Statutes and the Wisconsin Administrative Code.

2. DNR RESPONSIBILITIES
 - A. The DNR shall designate the property manager or the property manager's designee as liaison with FOTBS.
 - B. Monies donated by FOTBS to the DNR shall be expended to support the mission and activities of the property as determined by the DNR.
 - C. The DNR shall promote FOTBS in publications, web site, and announcements where the DNR deems appropriate.
3. COUNTY RESPONSIBILITIES
 - A. The County shall designate the Director the Forestry Department or the Director's designee as liaison with FOTBS.
 - B. The County shall allow FOTBS to use facilities at the property. FOTBS shall follow the reservation and payment policies established by the County.
 - C. Monies donated by FOTBS to the County shall be expended to support the mission and activities of the property.
 - D. The County shall promote FOTBS in publications, web site, and announcements where the County deems appropriate.
4. FRIENDS RESPONSIBILITIES
 - A. Exclusive Support
 - (1) FOTBS shall limit its official activities to the support of the property.
 - (2) FOTBS may use facilities and equipment within the property at the discretion of the County for its programs and activities for the benefit of the visiting public.
 - B. Organization
 - (1) FOTBS' bylaws shall comply with the requirements of the State of Wisconsin. Once achieved, nonprofit status shall be maintained in accordance with state laws and FOTBS shall make documents demonstrating nonprofit status available for inspection, at the request of DNR. This Agreement shall automatically terminate if nonprofit status is lost, or if the bylaws are amended in such a way as to alter the intent of this Agreement.
 - (2) DNR employees may be members of FOTBS, but shall not serve on the board of directors or as treasurer. DNR employees shall not represent FOTBS in any matter between FOTBS and the DNR.

- (3) The role of the property liaison is to represent the interests of the County and DNR and to provide cooperative assistance to FOTBS. The liaison's responsibility to FOTBS shall be limited to providing assistance to FOTBS activities and serving as liaison between the County, DNR and FOTBS.
- C. Interpretive Activities

Interpretive activities engaged in by FOTBS must meet DNR standards and be approved in advance by the property manager.
- D. Publications and Sales Items

FOTBS shall allow publications to be reviewed by the DNR for editorial and design quality. FOTBS shall not sell any item that has not been approved by the property manager or designee.
- E. Fund-raising

Fund-raising events and activities sponsored by FOTBS on the property shall be submitted for approval at least two weeks in advance to the property manager or property manager's designee.
- F. Facilities
 - (1) FOTBS shall exercise reasonable care to prevent damage to any County or DNR property used by it during its operation and shall, insofar as possible, protect all such property.
 - (2) The erection of signs or display structures and materials relating to FOTBS is not allowed unless authorized by DNR and the County. All signs or displays and display materials, and all publications, stationery, and other promotional material issued or used exclusively by FOTBS shall be paid for by FOTBS.
 - (3) The clubhouse, barns, kennels, restrooms, and related improvements are County owned and operated. The County reserves the right to rent the facilities to other parties and the DNR, County, and FOTBS acknowledges the public's right to use the facilities.
- G. Records and Accounting
 - (1) FOTBS shall conduct its fiscal operations in accordance with accepted business practices, using purchase orders, receipts, invoices, and inventory records.

- (2) FOTBS shall submit to the DNR and County a complete financial report detailing, as a minimum, all income and expenditures to the property manager, annually within 90 days following the end of FOTBS' fiscal year. The report is not required to include a list of donors or itemized donations. The report shall be accompanied by a written summary of FOTBS activities for the year.
- (3) The DNR and County may review and/or audit the records of FOTBS at any time during the term of this Agreement with reasonable notice.
- (4) FOTBS shall maintain a checking account in its name, and shall deposit proceeds from memberships, donations and other revenue into the account.
- (5) FOTBS shall be responsible for collection and remitting all applicable state sales tax for its sales.
- (6) FOTBS shall provide notice of its public meetings in a manner that is reasonably likely to apprise interested persons.
- (7) FOTBS shall provide notice of its annual meeting to the County.

H. Personnel

- (1) FOTBS shall designate one member or employee who is authorized to act as liaison with the DNR and County.
- (2) All FOTBS volunteers involved in visitor contact shall be oriented in the property's visitor service programs and shall be approved by the property manager before assuming such responsibilities.
- (3) FOTBS personnel are not DNR or County employees and are not authorized to undertake any DNR or County functions or activity on behalf of the DNR or County beyond routine visitor information services and participation in interpretive programs. FOTBS employees and members shall not engage in activities that would reasonable lead the visiting public to conclude that they are DNR or County employees. No FOTBS employee or member shall wear a DNR or County uniform. All FOTBS employees and volunteers involved in public contact shall wear some easily observable and readily identifiable indicia of FOTBS affiliation while at the property on FOTBS business. If the DNR specifies volunteer uniforms or indicia, FOTBS employees and volunteers shall wear them while on duty.
- (4) Where applicable, FOTBS shall furnish full worker's compensation coverage for its employees and shall comply with all social security and withholding tax laws and rules. A person claiming that the coverage is not required under Chapter 102, Wis. Stats., shall upon request, provide the basis for such opinion in writing to the DNR

and County. When required to furnish full worker's compensation coverage for its employees, FOTBS shall provide a copy of the insurance certificate to the property manager. Any changes in insurance coverage shall require immediate notification to the DNR and County.

(5) Nondiscrimination

In connection with the performance of work under this Agreement, FOTBS agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical condition, developmental disability as defined in s. 51.01(5), sexual orientation or national origin. This provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

FOTBS further agrees to take affirmative action to ensure equal employment opportunities. If the annual work force is less than 10 employees, FOTBS is exempted from this requirement.

5. INDEMNIFICATION AND INSURANCE

A. General

FOTBS shall not be required to purchase liability insurance as long as it is engaged only in assisting DNR and/or County interpretive programs, or in assisting DNR and/or the County in minor grounds maintenance projects.

B. Exception

In the event of FOTBS sponsorship of events, programs, and projects beyond the scope of those noted in Paragraph A, FOTBS shall purchase public liability insurance to be effective during a period of time specified by DNR and County to provide adequate protection of the state's interests. The liability insurance shall name the State of Wisconsin, Department of Natural Resources and its employees, Douglas County and its employees, and Friends of the Bird Sanctuary, Inc., as insureds in an amount not less than \$1,000,000 so that the DNR and County shall be protected from any liability arising out of the activities of FOTBS. FOTBS shall furnish the DNR and County with a copy of the insurance policy or a certificate of insurance, to be placed in a file with the Agreement, at least two weeks before FOTBS begins such events, programs, or projects. FOTBS shall indemnify the DNR and County against any cause of action, claim, damage, cost of expense, including reasonable attorney's fees, arising from its management or operation, or from any breach or default by FOTBS in the performance of this Agreement, or from any negligence of FOTBS during such events, programs, or projects. If any action or proceeding is brought against the DNR and/or County by reason of any

such cause or claim, FOTBS, upon notice from the DNR and County, shall defend the DNR and/or County by counsel satisfactory to the DNR and/or County. If insurance is required, this Agreement shall be conditioned on the DNR's and County's approval of the insurance policy. Any notice of cancellation of the insurance policy shall require immediate notice to the DNR and County.

- C. No Director, member, employee, agent, contractor or subcontractor of the FOTBS may perform or authorize to be performed any lienable work or service on property owned by Douglas County without the prior written authorization of the Director of Forestry and Natural Resources and the Douglas County Forest, Parks & Recreation Committee. The FOTBS expressly agrees that it will be financially responsible for any such lienable work or service performed on Douglas County property unless specifically agreed upon by the Douglas County Forestry Committee. The FOTBS expressly agrees that it's financially responsible for any such work or service performed without prior authorization.

6. ASSIGNMENT

No transfer or assignment of this Agreement or of any part thereof or interest therein, directly or indirectly, voluntary or involuntary, shall be made unless such transfer or assignment is first approved in writing by the DNR and County.

7. APPROPRIATIONS

Nothing herein contained shall be construed as binding the DNR or County to expend any sum in excess of appropriations made by the Legislature or County Board of Supervisors, or administratively allocated, for the purpose of the Agreement, or to involve the DNR or County in any contract or other obligation for the future expenditure of money in excess of such appropriations or allocation.

8. MISCELLANEOUS

The rights and benefits conferred by this Agreement shall be subject to the laws of the State of Wisconsin governing the DNR and Douglas County and the rules and regulations promulgated thereunder, whether now in force or hereafter enacted or provided; and the mention of specific restrictions, conditions, and stipulations herein shall not be construed as in any way impairing the general powers of supervision, regulation, and control by the DNR and/or Douglas County.

IN WITNESS WHEREOF, the Friends of the Bird Sanctuary, Inc., has caused this Agreement to be executed this 21 day of October, 2005.

Friends of the Bird Sanctuary, Inc.

By: Dain P. Beigel
President, Board of Directors

Attested: W. Kaye Sawyer

Position: Notary Public, Dane County
My Commission Expires 1/6/2008

IN WITNESS WHEREOF, the Department of Natural Resources has caused this Agreement to be ratified this 15th day of December, 2005.

Department of Natural Resources

By: Scott Hansen
Secretary

IN WITNESS WHEREOF, the Douglas County has caused this Agreement to be ratified this 15th day of September, 2005.

Douglas County Forestry Department

By: Jeffrey L. Weatherly
Director

Douglas County Board

By: Douglas J. Jensen
Chairman

APPENDIX E: NATURAL RESOURCES USED BY LOCAL NATIVE AMERICAN TRIBES

The Ojibwe¹ had long lived in the Lake Superior region (portions of modern-day Minnesota, Wisconsin, Michigan, and Canada) by the time European explorers first entered the area. At that time, the Ojibwe lived a semi-nomadic lifestyle, moving seasonally from camp to camp, harvesting from the earth (aki²) vital foods, medicines, utility supplies, and ceremonial items.

As more Europeans moved into the Lake Superior region in search of timber and minerals, the United States government obtained vast parcels of land from the Ojibwe through cession treaties. In many of these treaties, the Ojibwe retained the rights to hunt, fish, and gather in the ceded territories to meet economic, cultural, spiritual, and medicinal needs - in essence, to sustain their lifeway. Tribal negotiations for these rights were fastidious and purposeful, and only through the guarantee of these rights, did the tribes agree to sign the treaties. Today, these reserved usufructory rights are often referred to as treaty rights.

Treaties that reserved these rights include the Treaty of 1836, ceding land in Michigan's Upper and Lower Peninsulas and parts of the Upper Great Lakes; the Treaty of 1837, ceding land in north central Wisconsin and east central Minnesota; the Treaty of 1842 ceding land in northern Michigan and Wisconsin and the western part of Lake Superior; and the Treaty of 1854, ceding land in northeastern Minnesota and creating reservations for many Ojibwe tribes.

For many years following the ratification of these treaties, the Ojibwe continued to hunt, fish, and gather as always. However, over the years, as states passed various conservation laws, state game wardens enforced these laws against tribal members. Members exercising their treaty rights off reservation within the ceded territories were frequently cited and convicted in state courts. Many members paid fines, endured the confiscation of their rifles and fishing gear, and suffered incarceration.

Though the Ojibwe have always believed in the continued existence of their treaty rights, it was not until the 1970's, as part of a general resurgence of tribal self-determination, that Ojibwe governments and their members more aggressively and more formally challenged state conservation laws and enforcement activities. These challenges gave rise to many federal and state court decisions which reaffirmed Ojibwe off reservation treaty rights on public lands in the ceded territories³.

The courts confirmed the Ojibwe's understanding of their treaty rights: The treaties provide a "permanent" guarantee "to make a moderate living off the land and from the waters by engaging in hunting, fishing and gathering as they had in the past."⁴ In essence, the courts found the Ojibwe treaties to be legally binding agreements to be respected within the framework of the United States Constitution, which defines treaties as the "supreme law of the land."

In addition, the courts recognized that by reserving the rights to engage in hunting, fishing, and gathering, the Ojibwe also retained their sovereignty to regulate tribal members exercising these treaty rights. Sovereignty refers to the right of inherent self-government and self-determination. Thus, tribal self-regulation is a requisite of treaty rights implementation. As the courts reaffirmed the Ojibwe's ceded territory treaty rights, a number of tribes⁵ in Michigan, Minnesota and Wisconsin chose to enhance their self-regulatory infrastructures through the formation of the Great Lakes Indian Fish and Wildlife Commission (GLIFWC)...[GLIFWC] assists its member tribes with issues such as the application of tribal self-regulation within the off-reservation ceded territories, identification and condition assessment of treaty resources, negotiations and consultation with state and federal government agencies regarding the management of treaty resources within the ceded territories, and litigation pertaining to the treaties of member tribes.

Excerpted from: Danielsen K.C. and J. H. Gilbert. 2002. Ojibwe off-reservation harvest of wild plants. E.T. Jones, R. J. McLain and J. Weigand. Eds. In Non-timber forest products in the United States. University of Kansas Press, Lawrence, KS. Pg 282-292. Footnotes:

1 There are several terms used in reference to the Ojibwe people. The Ojibwe people often call themselves Anishinaabe which in their language means Indian person or original people. The anglicized word for Ojibwe is Chippewa.

2 Ojibwe language

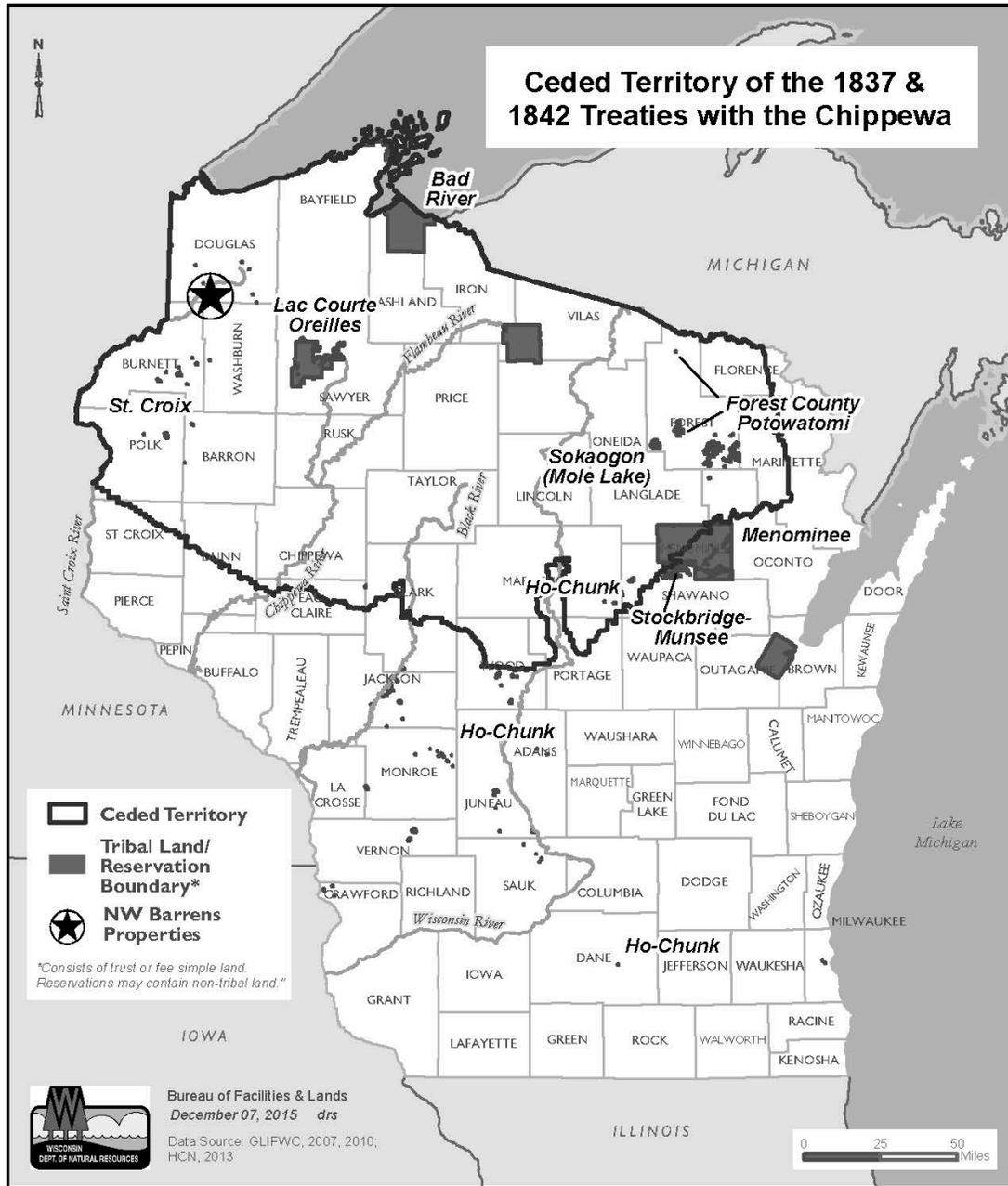
3 See People v. Jondreau, 384 Mich 539, 185 N.W. 2d 375 (1971); State of Wisconsin v. Gurnoe, 53 Wis. 2d 390 (1972); U.S. v. Michigan, 471 F.Supp. 192 (W.D. Mich. 1979); Lac Courte Oreilles v. Voigt (LCO I), 700 F. 2d 341 (7th Cir. 1983), cert. denied 464 U.S. 805 (1983); Lac Courte Oreilles v. State of Wisconsin (LCO III), 653 F.Supp. 1420 (W.D. Wis. 1987); Lac Courte Oreilles v. State of Wisconsin (LCO IV), 668 F.Supp. 1233 (W.D. Wis.1987); Lac Courte Oreilles v. State of Wisconsin (LCO V), 686 F.Supp. 226 (W.D. Wis. 1988); Lac Courte Oreilles v. State of Wisconsin (LCO VI), 707 F.Supp. 1034 (W.D. Wis. 1989); Lac Courte Oreilles v State of Wisconsin (LCO VII), 740 F.Supp. 1400 (W.D. Wis. 1990);

Lac Courte Oreilles v. State of Wisconsin (LCO VIII), 749 F.Supp. 913 (W.D. Wis. 1990); Lac Courte Oreilles v. State of

Wisconsin (IX), 758 F.Supp. 1262 (W.D. Wis. 1991); Lac Courte Oreilles v. State of Wisconsin (X), 775 F.Supp. 321 (W.D. Wis. 1991); U.S. v. Bresette, 761 F.Supp. 658 (D. Minn. 1991); Mille Lacs Band v. State of Minnesota, 861 F.Supp. 784 (D. Minn. 1994); Mille Lacs Band v. State of Minnesota, 952 F.Supp. 1362 (D. Minn. 1997); Mille Lacs Band v. State of Minnesota, 124 F.3d904 (8th Cir. 1997); State of Minnesota v. Mille Lacs Band, 119 S.Ct. 1187 (1999).

4 LCO III, 653 F.Supp. 1420, 1426 (W.D. Wis. 1987).

5 GLIFWC's current member tribes include: in Wisconsin -- the Bad River Band of the Lake Superior Tribe of Chippewa Indians, Lac du Flambeau Band of Lake Superior Chippewa Indians, Lac Courte Oreilles Band of Lake Superior Chippewa Indians, Red Cliff Band of the Lake Superior Chippewa Indians, St. Croix Chippewa Indians of Wisconsin, and Sokaogon Chippewa Community of the Mole Lake Band; in Michigan -- Bay Mills Indian Community, Keweenaw Bay Indian Community, and Lac Vieux Desert Band of Lake Superior Chippewa Indians; and in Minnesota -- Fond du Lac Chippewa Tribe and Mille Lacs Band of Chippewa Indians.



APPENDIX F: CREX-NAMEKAGON BARRENS PARTNERSHIP CORRIDOR (SEE MAP F)

Optimal protection of the recreation and conservation values of the imperiled barrens ecosystem of the Northwest Sands Ecological Landscape requires adopting management regimes on a scale beyond that of individual properties. While the needs of many area-sensitive wildlife species can be met by appropriate management on large parcels of public land, the continued presence of some species requires improved management and restoration of barrens habitat at the landscape scale.

The voluntary approach below creates and preserves forest habitat diversity for species characteristic of barrens: ruffed grouse, sharp-tailed grouse, American woodcock, wild turkeys, deer, golden-winged and Kirtland's warblers, upland sandpiper and whip-poor-will, many of whose numbers are rapidly declining. The sharp-tailed grouse (*Tympanuchus phasianellus*) is an area-sensitive species dependent on the presence of large (>1000 ac) patches of suitable habitat that are interspersed throughout the landscape so as to allow movement and genetic exchange. This popular game bird also provides a regional boost to ecotourism. Both hunters and wildlife viewers come here to reserve observation blinds in order to experience spring courtship behaviors of males dancing on their territories. Currently, the Wisconsin sharp-tailed grouse population is segregated into isolated subpopulations that are primarily associated with intensively-managed barrens on Crex, Namekagon Barrens, and Douglas County Wildlife Areas, with smaller remnant populations elsewhere. Recent genetic studies suggest that these subpopulations are genetically isolated, meaning that each subpopulation exhibits unique genetic structure and reduced genetic variability. Sharp-tailed grouse conservation depends upon our ability to link habitat areas that have become isolated, and improve habitat quality on the surrounding landscape.

Wildlife species abundance and diversity would be substantially improved by connecting remaining pine/oak barrens fragments that are too small and isolated by themselves to ensure long-term presence of sharp-tailed grouse (Reetz et. al, 2013, WDNR 2011b). While Crex is managed to support sharp-tailed grouse, their spiraling population decline is likely caused by deteriorating habitat quality on surrounding lands, resulting in a landscape unable to provide demographic or genetic support for the Crex subpopulation. Reconnecting grouse subpopulations to insure their presence into the future requires their movement between areas to allow genetic exchange. The sharp-tailed grouse is an umbrella species. Management practices that ensure their persistence will conserve the full range of wildlife species associated with the barrens ecological landscape.

In planning for sustainable wildlife populations within this barrens landscape, one considers the landscape habitat (described by Reetz et. al. 2013) in the context of its biological, economic, cultural, and recreational values. Within this landscape (Map F), management actions involve stakeholders as partners and develop stepping stones* to facilitate dispersal between existing barrens (Figures 1 & 2). *stepping stone: a barrens habitat patch created by rotational harvest methods

Forest management may be tailored (see 'Prescriptions') to increase the habitat value for barrens wildlife species, while meeting or enhancing Burnett County Forest and private lands timber sale and forest regeneration goals. This approach adapts standard silvicultural guidelines, using options described for barrens habitat management (e.g. WDNR Silviculture Handbook, 2014). Once stepping stone areas are identified, area forestry plans may be amended, if necessary, to incorporate their implementation.

The Barnes Barrens (*Forestry*) Plan utilized on the Bayfield County Forest (Bayfield Co, 2011) provides an existing model for establishing 'rolling barrens' around a core barrens habitat patch (Figure 2).

Within the Crex-Namekagon Barrens Partnership Corridor (Map F), regional partners have the flexibility to collaborate and use forest management practices to provide regular rotational harvests that optimize:

- 1) **barrens wildlife habitat and**
- 2) **timber management**

Conservation easements and leases developed by a partnership of government and non-government organizations are tools that may be used to help establish stepping stones of oak/pine barrens management within this corridor.

DNR staff will collaborate with the Burnett County Forestry staff, local forest managers, and private landowners to identify forested areas where timber harvests can be synchronized across current stand boundaries to create temporary open blocks. Barrens cores adjacent to the blocks may be established within the stepping stones in areas less favorable to forest growth. DNR staff will assist as needed, in management of any open barrens core habitat patches.

The Crex-Namekagon Barrens partnership corridor may be similar in management to the strategy used by Bayfield County in their Barnes Barrens Plan. It will incorporate priorities of the Burnett County Forest Fifteen Year Plan, the Northwest Sands Landscape Level Management Plan, DNR Wildlife Action Plan, Sharp-tailed Grouse Management Plan, NW Sands Habitat Corridor Plan, and DNR Land Legacy Report. Collaboration will benefit outdoor recreationists, better address established conservation goals, enhance local partnerships, and support the local timber industry. The partnership corridor provides recreational opportunities described in Chapter 2-1 of this plan, for hunting, trapping, hiking, nature study, bird watching and other wildlife viewing on public lands.

The principles below serve as guidance. In addition, some “Universal Elements for All Properties” including “Barrens Management” and “Recreation Management” in Section One of this chapter may be applied.

Objectives

- Re-establish wildlife habitat connectivity between Crex Meadows Wildlife Area and Namekagon Barrens Wildlife Area with five barrens habitat patches (stepping stones) approximately 3 miles from one another. (Reetz et al, 2013) (Figures 1 and 2 illustrate this concept.)
- Optimize timber regeneration goals while enhancing barrens wildlife habitat, by working with partners from Burnett County Forestry and other government and non-government organizations (see insert), to identify and establish forested barrens management blocks with potential core areas, using conservation easement and lease options, as determined by the partners involved.

Partners

Burnett County Forestry
 Friends of Crex
 Friends of the NW Sands
 Friends of the Namekagon Barrens Wildlife Area
 St. Croix River Association
 St. Croix Watershed Conservation Collaborative
 Steigerwaldt Land Services
 West Wisconsin Land Trust
 Wisconsin Department of Natural Resources
 Wisconsin Sharp-tailed Grouse Society

Prescriptions

- Collaboratively establish five barrens stepping stones to be managed by Burnett County Forestry and other working forest partners.
- Each barrens stepping stone would consist of forest blocks that have a prescribed harvest rotation and interval between harvest (eg. 12-yr interval; 48-yr rotation) (Figure 2)
 - Forest blocks would consist of 500-1000 acres each, with a combined total of 2,000-4,000 acres (Reetz et al, 2013).

- Each barrens stepping stone may have an identified barrens core, as determined by the partners. Core establishment would target areas typically less desirable for forest production (see below). Manage barrens cores (~500 acres) for open, early successional habitat.
- Facilitate establishment of the five barrens stepping stones by harvesting some stands earlier or later than standard Silviculture guidelines (DNR Silviculture handbook).
- Harvest blocks completely, as preferred by wildlife species adapted to open barrens. Do not provide tree retention or leave visual barriers that block the viewshed. (WDNR, 2011b; Sample and Mossman, 1997)
- Use woody biomass/whole tree harvesting options to achieve barrens management and regeneration objectives. (Bronson et al, 2014; Rothstein and Spaulding, 2010)
- Favor jack pine during regeneration (USDA, 2013) and shorter rotations of red pine; use cost-sharing incentives from DNR when available.

Lands (Map F)

The specific locations of the barrens stepping stones will be determined through collaboration with Burnett County forestry staff. Lands that may be considered for establishing core barrens include: 1) areas previously disturbed by storm or wild fire, 2) 'unproductive forest lands' (e.g., managed fuel breaks, sedge meadows) or 3) problem sites (e.g., oak wilt disease). Core barrens would have less fuel load and may simultaneously reduce risk and/or management costs for Burnett County. Although local forest managers may embrace having barrens cores, purchase of conservation easements or long term leases by partners may be desirable to offset concerns about potential lost timber revenue. The process for establishing a barrens core will be addressed on a case-by-case basis, through consultation with individual forest managers and partners.

Thoughtful planning for only a small portion of land within the corridor is required to achieve the recreation, conservation and timber productivity goals of this master plan.

Figure 1. The Crex-Namekagon Barrens stepping stones will provide connections for wildlife to properties with barrens habitat, eliminating a prominent gap in the Northwest Sands Ecological Landscape.

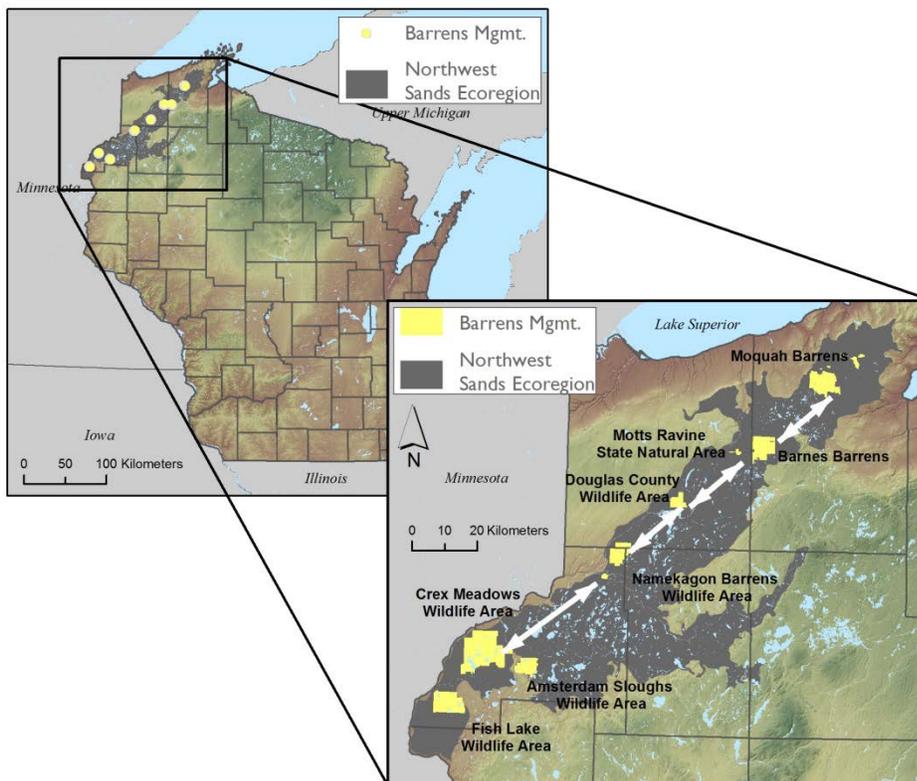


Figure 2. This example illustrates the rolling barrens concept from Bayfield County’s Barnes Barrens Plan. Four blocks of barrens ‘roll’ around a permanent barrens core. Blocks are harvested at 12-year intervals on a 48-year rotation.

