Northwest Barrens Properties – Draft Master Plan

Burnett, Douglas, & Washburn Co, Wisconsin

Wildlife Areas

1. Namekagon Barrens
2. Douglas County

Wild River & Outstanding Resource Water

3. Totogatic Wild River

August 2016
Wisconsin Department of Natural Resources
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Northwest Barrens Properties
MASTER PLAN

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Cover photos – Douglas County Wildlife Area, Totogatic Wild River, Namekagon Barrens Wildlife Area Bird Dog Trial, Sharp-tailed Grouse (L Dau)**, Wood Lily** (M Nupen)

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CHAPTER 1: OVERVIEW OF PLAN AND PROPERTIES

Purpose and Management Authority

The purpose of this master plan is to guide management of the Northwest Barrens (NWB) properties towards fulfillment of an established Vision and Goals that will continue to provide high-quality natural resources, recreational experiences, and sustainable timber resources for present and future generations.

This plan builds upon the substantial foundation laid by previous master plans, wildlife program guidance, and habitat and biotic inventory work conducted over the last several decades. The planning process considers comments received during two public meetings (February 4, 2016 and August 30, 2016) and two 21-day comment periods, including involvement from the public, partner agencies and interest from local officials. The Vision and Goals for the NWB properties are the foundation for the management objectives and prescriptions listed in Chapter Two.

Property master planning, governed by ch. NR 44 Wis. Admin. Code, is the process that determines how a property will be managed and developed. Administrative code specifies the general planning process and content of a master plan. Chapter Four of this master plan, collectively with chapters Two, Three and Five, constitutes an Environmental Analysis (EA) for the NWB master plan. This EA meets the requirements of the Wisconsin Environmental Policy Act (WEPA) and Chapter NR 150 of Wisconsin Administrative Code. This code (NR 44) also establishes a uniform land management classification system to be applied in the master plan. By administrative code, the master plan is the controlling authority for all actions and uses on a property.

Wildlife Areas

Wildlife Areas are acquired and managed under the authority of Wis. Stat. s. 23.09 (2) (d) 3, and s. NR 1.51 Wis. Admin. 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 s. NR 1.51 and s. 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 Wis. 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. Special provisions apply to management of department lands bordering state designated wild rivers. The provisions are intended to limit the impacts of natural resource management activities on the river users, keeping their experience as well as the river "wild." They 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. State Natural Areas (SNAs) are managed under the authority of s. NR 1.32 Wis. Admin. Code, and 23.27 to 23.29 Wis. Statutes. SNAs are sites that protect outstanding examples of the state’s native natural communities. They are areas that are essentially unaltered by human-caused disturbances or that have substantially recovered from such disturbances. SNAs are considered the state’s best examples of native biodiversity. Protection and enhancement of these natural features will receive major consideration in management planning for SNAs; other recreational uses are permitted if they do not threaten these natural values.

The Northwest Barrens Properties

Properties in this planning group (12,816 acres) 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 State Hwy 35 and 11 miles west of the Village of Minong and State Hwy 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	Managed Acres
1. Namekagon Barrens Wildlife Area	6,438
2. Douglas County Wildlife Area	4,005
3. Totogatic Wild River Area	2,379

2. **Douglas County Wildlife Area** – located in southeast Douglas County, between the towns of Solon Springs and Gordon, it is easily accessible from State Hwy 53 by heading west on County Highway M. Recognized since 1935 as ***The Bird Sanctuary*** (including highway signage), it was established by the county to preserve sharp-tailed grouse habitat. DNR 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 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 lands** - located in northwestern Washburn County, 2 ½ miles southeast of Namekagon Barrens Wildlife Area, 1 mile north of State Hwy 77 and west of State Hwy 53 and the Village of Minong. The property includes six scattered parcels adjacent to the lowest reaches of the 70-mile Totogatic River. Four of the parcels are near the river’s confluence with the Namekagon River. The other two parcels border the Totogatic River upstream of the Minong Flowage in Douglas County.

Tribal Resources on Ceded Territory

The Northwest Barrens properties lie within the Ceded Territory of the state and are located near the St. Croix and Lac Courte Oreilles Bands of the Lake Superior Ojibwe, also known as the Chippewa.

Native American tribes are independent, sovereign nations, as they were prior to the arrival of Europeans in North America. The Ojibwe Tribes ceded lands in the northern one-third of Wisconsin to the United States government in the Treaties of 1837 and 1842. 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 by the Ojibwe Tribes within the Ceded Territory.

Significance of the Properties - History, Ecology and Conservation

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.

Prior to European settlement, the sedge marshes, jack pine-scrub oak, and prairie savanna in the Northwest Barrens landscape 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.

This Northwest Sands Ecological landscape is also known as Fire Landscape 15, and it is considered one of the highest forest fire risk landscapes in Wisconsin. It generally consists of continuous pine stands. Tight canopies of pine stands contribute to the potential for long fire runs through the crowns of the trees. The properties in this master plan serve as fuel breaks in the landscape. There is a regional partnership that 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.

The Totogatic River was officially designated as a State Wild River in 2009. As **one of only five rivers** in Wisconsin bestowed with this designation, it is protected by both state rule and state statute to be kept wild and free from development in order that people may enjoy the river in its natural and free-flowing condition. Graced with steep banks and an abundance of fish and wildlife, this relatively narrow river flows approximately 70 miles westward from the outlet of Totagatic 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. 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 G. Property infrastructure and vegetation details are represented on additional maps (Map Series C-E) and discussed later in this document.

There is one existing State Natural Area and there are three proposed State Natural Areas on the Northwest Barrens properties. The Natural Heritage Conservation program GAP analysis provides guidance on the number of State Natural Areas needed to meet the critical ecological reference area requirements for forest certification, ecosystem/species preservation, research, and education goals of the program. Natural Areas are generally open to fishing, hunting, trapping and other traditional outdoor activities.

Improved monitoring and control of invasive species will be a critical management activity. Control is a difficult task due to the tenacity of invasive species, the presence of multiple species on the properties, and the limited resources available to address this challenge.

Significance of the Properties - Recreation

The Northwest Barrens properties feature unique resources that attract visitors from Wisconsin and many other states, especially Florida and California. The region also contains diverse outdoor recreation opportunities provided by nearby federal, state and county recreation resources. While the region's population density is low, its recreational resources are used by an active resident base, in addition to many in-state and out-of-state visitors, especially from the Minneapolis-St. Paul metropolitan area.

Namekagon Barrens and Douglas County wildlife areas are prime destinations for professional and amateur field dog trialers in North America. Economic benefit to the region is close to $90,000 within Burnett, Douglas, and Washburn counties. Events generate over $8,000 in state and local tax revenue (UW, 2016). 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. An informational brochure produced by Douglas County is available on-line and by contacting Douglas County Forestry.

These properties are one of the few places in Wisconsin that occasionally offers sharp-tailed grouse hunting. Although sharp-tailed grouse populations occur only in a few isolated areas of the state and they are well below historic levels; sharp-tailed grouse are being managed to provide hunting opportunities through intensive land management activates, bolstered by a partnership approach with regional land managers. Public viewing of sharp-tailed grouse dancing during their spring courtship is a popular activity among the public, accommodated by a reservation system supported by the Friends' groups. The Friends' group and Wisconsin Sharp-tailed Grouse Society bought three new viewing blinds in 2013 to aid in viewing and surveying the population of these birds every spring.

Hunting and trapping opportunities are abundant and are major recreational activities on the Northwest Barrens properties, with opportunities to pursue white-tailed deer, turkeys, sharp-tailed grouse, ruffed grouse, woodcock, snipe, American black bear, bobcat, coyote, red and gray fox, fisher, American beaver, North American river otter, waterfowl (mallard, blue-winged teal, wood duck, Canada goose), raccoon, gray squirrel, snowshoe hare, and cottontail rabbits. Deer and turkey are *plentiful* on the northwest barrens properties and hunters here are provided some of the best opportunities in northern Wisconsin.

Abundant berry-picking opportunities exist in the early stage barrens, especially for blueberries, for which these properties have long been popular. Mushrooms are also favorite harvest foods. White sage (an herb) is commonly collected by tribal members.

A self-guided auto tour on Namekagon Barrens, with 19 stopping places is a popular attraction, with maps and instruction from a guidebook available on the Friends of Namekagon Barrens Wildlife Area web site. The tour offers an opportunity to observe multiple land management techniques and numerous watchable wildlife opportunities.

'Wild Rivers' such as the Totogatic River are uncommon in Wisconsin. It is one of only five Wild Rivers in Wisconsin, out of more than 53,000 streams and 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. 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. The Totogatic River is also among only 254 designated Outstanding Resource Waters of the state.

The lower portion of the Totogatic River receives a fair amount of fishing pressure. It is known for species such as northern pike, walleye, largemouth and smallmouth bass, and panfish. Lake sturgeon are also present during spawning season.

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/).

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/).

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.

North Country National Scenic Trail (National Park Service) and North Country Trail Association. The North Country National Scenic Trail (NCT) is considered a premier hiking path across the northern United States from New York through North Dakota. The trail association is the primary partner of the National Park Service that together with DNR and other Wisconsin county agencies and landowners, administers the NST segment in Wisconsin. The mission of North Country Trail Association is to develop, maintain, protect and promote the North Country Scenic Trail through a trail-wide coalition of volunteers and partners. The Association has maintained the certified portion of the trail passing through Douglas County Wildlife Area since at least 1980, when DNR formally approved the trail project boundary. Association members provide volunteer labor and supplies towards property and habitat management along the trail.

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 3,800 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: https://www.nps.gov/sacn/index.htm

Burnett County Forestry has been a key partner in in the protection and management of Namekagon Barrens Wildlife Area since the 1956 lease agreement that provided for 5,600 acres to be managed as pine/oak barrens habitat. In late 2015, Burnett County transferred ownership of 5,000 acres to DNR wildlife management, ensuring future protection for this wildlife area. Their involvement continues in work with the **Crex-Namekagon Barrens Partners** to incorporate priorities of the Burnett County Forest Fifteen Year Plan, the Northwest Sands Landscape Level Management Plan, 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 E, 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.

Lyme St. Croix Forest Company, LLC is a private timberland investment 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, in collaboration with The Conservation Fund, DNR purchased a working forest

conservation easement on approximately 67,000 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.

Namekagon Barrens - Moquah Barrens Corridor Partners collaborate with DNR and may use forest management practices that create ecologically-based stepping stones of oak/pine barrens habitat to link wildlife habitat from Namekagon Barrens Wildlife Area to Moquah Barrens. Working together, the goal is to improve wildlife species abundance and diversity representative of barrens habitats, by connecting the remaining habitat fragments that are otherwise too small to support long-term species survival. (Appendix E, Map G)

These proactive steps may prevent future federal management actions for species recovery. While individual property management supports barrens wildlife such as sharp-tailed grouse and upland sandpiper, their spiraling population decline is likely caused by deteriorating habitat quantity and quality on surrounding lands, with the result being an inability of these lands to provide demographic or genetic support for the wildlife area subpopulations. Reconnecting sharp-tailed 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 survival will also conserve the full range of wildlife species associated with the barrens ecological landscape, including American woodcock, golden-winged warblers and whip-poor wills, and possibly prevent federal listing of these species that are experiencing a significant population decline.

Investment in Public Lands, Recreation and Conservation

In Wisconsin, our natural resources are not just a part of our landscape; they are a part of our heritage. Wisconsin residents value their rich traditions of hunting, fishing, trapping, camping, hiking, and enjoyment of nature. We also value our access to public recreational land and wild places. Wisconsin is defined by our clean lakes and rivers, vast forests, and abundant fish and wildlife. Conserving these resources is an investment that pays many economic, social and environmental dividends, similar to our investments in other public infrastructure. A University of Minnesota study found that for every $1 invested in conserving natural areas in that state, there is a return of up to $4 (MEP 2011).

Our $12 billion/year tourism industry (*Tourism Federation of Wisconsin*) and $23 billion/year forest industry (WDNR 2009) are inextricably linked to our abundant natural resources and to our public lands. The Outdoor Industries Association indicates outdoor recreation accounts for 142,000 direct Wisconsin jobs, $3.6 billion in wages and salaries and contributed $844 million in state and local tax revenue (OIA 2011).

Our state owns and manages about 1.6 million acres of forests, wetlands, rivers, lakes and grasslands. Most of these lands are open to hunting, fishing, trapping, hiking, cross-county skiing, wildlife watching, and other outdoor, nature-based recreation. The economic impact of fishing, hunting and wildlife watching in Wisconsin is considerable. The U.S. Fish and Wildlife Service's *National Survey of Fishing, Hunting and Wildlife* Report (*2006*) indicates a total of 2.9 million residents and non-residents, 16 years old and older, fished, hunted and/or watched wildlife in Wisconsin, spending $3.7 billion in the process.

There is also a growing appreciation of resources being harvested sustainability from both public and private lands. DNR lands are certified as being sustainably managed by two third-party audit firms (source). Certification means the management practices meet the social, ecological, and economic rights and needs of the present generation without compromising those of future generations. This certification allows the DNR to market the timber as sustainably managed and enhances the market value.

Land conservation protects human health by keeping our drinking water clean and is a cost-effective tool in protecting water quality. A growing understanding of the role that forests and natural lands play in filtering pollutants and maintaining water quantity and quality has led many municipalities and water suppliers, particularly those in growing communities, to consider land protection as part of a multiple-barrier approach to providing safe drinking water. A study conducted by the Trust for Public Land and the American Water Works Association showed that forestland in particular greatly reduces the cost of treating drinking water. For every 10 percent increase in the source area's forest cover (up to 60 percent), treatment and chemical costs decreased approximately 20 percent (Ernst 2004).

Wetlands provide natural flood insurance by acting as sponges, storing rain that runs off the land and slowly releasing it to the atmosphere, groundwater, and adjacent lakes, rivers and streams. Strategic wetland protection and restoration can help reduce flood peaks and damage, protect human health and safety, and reduce the need for expensive projects such as levees, detention ponds, and the reconstruction of flood-damaged roads.

The estimated value of basic "ecosystem services" for the US Fish and Wildlife Service National Wildlife Refuges in the contiguous United States amounted to $2,900/acre/year (*Ingraham and Foster, 2008*). The "ecosystem services" include the value they provide for wildlife, carbon sequestration, disturbance prevention (e.g. flood control), freshwater management and supply, nutrient regulation and waste management. Using the same approach, Wisconsin's public lands provide a total return of $3.33 billion/year or $2,400/acre/year.

Our public lands also provide cultural and historical connections. They invoke a sense of place in the landscape and are important habitats for people as well as wildlife. The majority of Americans agree that preserving undeveloped land for outdoor recreation is important (*Outdoor Foundation, 2011*).

Evidence suggests that children and adults benefit from contact with nature, therefore land conservation can be viewed as a public health strategy (*Frumkin and Louv, 2007*). They also play an important role in providing access to the outdoors for people with varied physical abilities, support environmental education, and build a public commitment to environmental conservation.

Concerns over the cost of purchasing and managing public land need to be balanced with the long-term recreation, economic, environmental, human health and cultural benefits. Conservation expenditures are best considered as investments that pay increasingly valuable dividends long into the future (*Gies, 2009*).

Proposed Real Estate Actions

Summary: *The proposed modifications to this property group result in a 6-acre increase in department project boundary and acquisition goal.*

Namekagon Barrens Wildlife Area – South Unit (map C-5) (net reduction in department acres)

A boundary **contraction** is proposed for Namekagon Barrens Wildlife Area (South Unit) that will result in a net reduction of 25 acres to the overall project boundary and an equal reduction to the acquisition goal from 9,312 to 9,287 acres. This revision is a 'house-keeping' change to the project database that results from a 2015 department land exchange with Burnett County; a previous action that occurred outside this master planning process.

Douglas County Wildlife Area (map D-1) (no net gain in department acres)

No changes to the existing real estate project boundary (map D-1) and acquisition goal previously approved (1985) are proposed for the Douglas County Wildlife Area. However, earlier DNR documents state that the project boundary and acquisition goal encompassed 4,036 acres. The figure presented here (4,126 acres) is based on more accurate GIS mapping. This plan reflects that by changing the acreage goal from 4036 to 4126 acres; however, there is no net increase to the 1985 project boundary and corresponding acreage goal.

Totogatic Wild River Lands (map E-5)

Re-designation of a DNR Parcel from Statewide Habitat to Totogatic Wild River. (no net gain in department acres)
A re-designation is proposed for an 80-acre parcel (30 acres land; 50 acres water) from Statewide Habitat Area to Totogatic Wild River. The parcel proposed to be re-designated is in Douglas County, sandwiched between two 80-acre parcels of Totogatic Wild River lands. The statewide habitat area parcel was purchased twenty years ago, prior to recent establishment of the Totogatic Wild River project. The parcel consists mostly of the Totogatic River water, with 30 acres of wetlands and conifer. Management practices fit the vision and goals of the Totogatic Wild River project, and the parcel would be managed as part of the Braided River Channel in the Scenic Resources Management Area of this master plan.

The proposed re-designation results in an 80-acre project boundary and acreage goal increase to the Totogatic Wild River; however there is no net gain in department ownership acreage.

Boundary modification (expansion/contraction) to acquire key parcels of river corridor. (6 ac gain in acquisition goal & project boundary)

The department is proposing a small boundary modification to remove 54 acres of land from the current project boundary that are not needed by the department for conservation purposes. These parcels will be sold under the authority of s. 23.15 and the proceeds from the sale of these parcels will be used to acquire two areas of land (84 acres and 1 acre) being added to the project boundary to provide improved access to the river and management from a public road. The net change in acreage as a result of this boundary modification will be an increase of 6 acres, considering the ‘credit’ of 25 ac from the reduction in boundary from NBWA (described above). Recreational utility will be significantly improved and land not needed by the department for conservation purposes will be returned to the tax roll. None of these parcels contain commercial farm lands or high-value improvements. Properties would be acquired from willing sellers only.

Chapter 2: Management, Development and Use

This chapter contains three sections of instructions to achieve an overarching vision and goals:
Section One provides universal management elements that generally apply to all NWB properties**.**
Section Two presents the real estate transactions proposed in this draft master plan.
Section Three contains a brief description of the individual properties with property-specific management elements.
Factors considered when developing the management objectives and prescriptions include habitat distribution and quality, habitat needs of species of greatest conservation need, game species life cycle requirements, recreational use and trends, land use patterns and trends, and public input.

Vision Statement

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. In addition, this landscape plays a major ecological role in enhancing and protecting unique water resources. 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 attracts visitors who appreciate not only the wildlife, but also the grand scale of oak/pine barrens and the rare 'wild river' experience found here. The variety of nature-based uses and education, supported in part by The Friends of the Namekagon Barrens Wildlife Area, the Friends of the Bird Sanctuary, and the Wisconsin Sharp-tailed Grouse Society, enhance public appreciation and support for wildlife and wildlife management for current and future generations.

Goals

- Provide recreational opportunities for hunting, trapping, fishing, gathering, wildlife viewing, scenic enjoyment, and other nature-based uses that are compatible with the property's capabilities and habitat management goals.
- Restore, manage and perpetuate the oak/pine barren and wetland habitats that support an intact Northwest Sands (barrens) ecological landscape.
- Maintain and enhance ecological connectivity between terrestrial communities, especially barrens, and on a landscape scale, promote their sustainability in association with other nearby town, county, state, federal and tribal lands.
- Provide habitat for wildlife that are dependent on oak/pine barrens, such as the sharp-tailed grouse, and for wildlife associated with the wetlands and rivers.
- Manage the properties using principles of ecosystem management and sustainable forestry.
- Contribute to the local and regional economies through management of wildlife recreational opportunities and sustainably produced forest products.
- Collaborate with partners to provide a wildlife conservation education program that generates a land and wildlife ethic into perpetuity.
- Protect the wild nature of the Totogatic River through bank protection and sound property and watershed management practices. Work with partners and the public to promote sustainable use and "leave no trace" river recreation.
- Cont'd on next page…

- Manage in ways that contribute to the protection and preservation of the groundwater and surface water quality and quantity for current and future uses. The Outstanding and Exceptional Resource Waters, wetlands, lakes, and the state and national Wild Rivers in this area (the Totogatic, Namekagon, and St. Croix Rivers) depend on clean and abundant groundwater recharge.

- In consultation with tribal governments, provide for the availability and enhancement of treaty resources.

Section 1: Universal Elements for All Properties

Resource Management by Land Management Classifications

Management of these properties is generally described by a specific land management classification (per ch. NR 44 Wis. Admin. Code) that describes the primary management objectives for a property or management unit within a property. These classifications are determined during the master planning process and help identify the preferred set of actions to achieve short and long-term objectives. Only management activities or techniques identified or referenced in this master plan and compatible with the site's ecological capability may be pursued in these management areas. Property parcels purchased after master plan approval will be classified and managed according to the surrounding land management areas. If different interests warrant another classification, a master plan amendment will be made.

The Northwest Barrens properties combined have ten land management areas, with six Land Management Classifications. These management areas and classifications are listed in Table 2-1 and described as follows:

Habitat Management Area (NR 44.06(5)) - The primary objective for this classification is to provide integrated upland, wetland and/or aquatic habitat management that supports a variety of plant and animal species. Typically the emphasis is to provide habitats needed to sustain productive game species populations. Although the production of forest products is not the primary focus, harvesting of forest products will occur at some locations. Areas that initially do not have desired habitat conditions, but have a high potential to be restored may be included under this classification.

Scenic Resources Management Area (NR 44.06(7)) - This classification protects, maintains and enhances for long-term public enjoyment, waters and lands having unique aesthetic qualities or outstanding scenic beauty, protected due to significant or special public use of the area. It is typical of lands with high value for water-based recreation and to scenic rivers and streams. Vegetation management may vary from passive to active depending on the long-term scenic objective and ecological capability. Examples of potential vegetation management include timber harvesting, planting, herbicide application, mowing, burning, installation of fish habitat improvement devices and erosion control.

Wild Resources Management Area (NR 44.06(10)) – Wild Resources Management areas have an objective to provide and maintain water and land areas where natural ecological processes predominate and evidence of human impact is low; there is little or no visible resource management activity and facility development is limited to primitive recreational uses. This classification is for undeveloped areas or areas that have the potential to be restored to a substantially wild appearing condition. Management activities are limited to protecting or enhancing the outstanding natural or aesthetic values of the area or restoring the wild character of the area.

Native Community Management Area (NR 44.06(6)) - Native Community Management areas are managed to perpetuate pre-settlement plant and animal communities, whether upland, wetland or aquatic, and protect the biological diversity of the native ecosystems. A Native Community is a distinct and reoccurring assemblage of indigenous flora and fauna associated with similar physical settings. Areas that initially do not have the desired community conditions, but have a reasonable potential to be restored may be included in this classification. All of the traditional recreational uses, such as fishing, hunting, trapping and nature enjoyment are allowed on the Native Community Management Areas, except if the area needs to be closed during breeding season or to protect a very fragile habitat.

Recreation Resources Management Area and **Recreational Use Setting sub-classifications** (NR 44. 06-07) - This classification and sub-classification describe land areas and facilities for outdoor public recreation or education. Four sub-classes further delineate the general level of use and development, with Level 1 representing a wilderness setting and Level 4 being highly developed.

Special Management Area (NR 44.06(7)) – This designation is to provide and maintain areas and facilities for special uses not included under other land management classifications, such as administrative or service facility areas, and cultural use areas.

Overlay Zones – Sometimes overlay zones are included for a property. An overlay zone is a descriptive planning tool that accommodates application of management considerations to only a portion or to a combination of management areas. For example, it may delineate the boundary of a State Natural Area, Wildlife Refuge, or simply an area that has short term management considerations. Additional management objectives/prescriptions may or may not be necessary.

Table 2-1 lists ten management areas for the Northwest Barrens (NWB) properties, including acreage, and six land management classifications applied from ch. NR 44, Wis. Admin. Code.

Table 2-1 Land Management Classifications for NWB Properties

Area	Classification (% of total)	Acres (GIS)
Habitat Management Areas (92%)		
1	Namekagon North Unit - Barrens and Wetlands*	5,663
2	Namekagon South Unit - Barrens and Wetlands*	753
4	Douglas Co WA – Barrens and Wetlands*	3,985
8	Totogatic - Barrens and Wetlands	1,526
Scenic Resources Management Area (5%)		
7	Wild River Backland Protection Zone (150-400')*	354
10	Braided River Channel	240
Wild Resources Management Area (2%)		
6	River's Edge Protection Zone (0-150')*	212
Native Community Management Area (1%)		
9	Totogan Pines and Wetlands*	140
Recreation Management Area (0.2%)		
5	Douglas County Special Events Area	20
Special Management Area (0.04%)		
3	Multipurpose Area (NBWA)	5

** Includes designated or proposed State Natural Area*

Universal Objectives and Prescriptions

The following universal objectives, prescriptions and management actions that support them apply to all the Northwest Barrens properties. Additional management objectives and prescriptions for specific habitats and management areas on individual properties are included by individual property, in Section 3 of this chapter. Universal objectives and prescriptions will be applied contingent upon availability of staff and material resources, or modified as needed to respond to unpredictable or catastrophic events (e.g., storm damage or severe insect/disease infestations).

Vegetation Management Actions

The primary management actions used to implement the objectives and prescriptions in the actively managed portions of the NWB properties focus on land management. Land management will maintain a diversity of cover types and age classes for forest health, wildlife habitat and aesthetic appeal. This will be accomplished through different management approaches, depending on habitat type, site-specific goals and recreational or aesthetic considerations.

Management actions include:

- Mechanical (e.g., mow, brush, bulldoze) or manual (e.g. cut, pull) control
- Chemical control of vegetation or pests using approved products and application techniques.
- Bio-control measures may be used as deemed appropriate, safe and effective.
- Commercial timber harvests, including biomass harvests that follow approved Wisconsin Biomass Harvesting Guidelines, and firewood permits.
- Seeding or planting native woody and herbaceous species for forest regeneration and barrens management.
- Prescribed burning.

Wildlife management tools that may be used include:

- Use of nest boxes, platforms or similar devices to enhance reproduction of desired wildlife.
- Beaver and muskrat population control.

Invasive Species Actions

The threat of exotic and/or invasive species, including plants, animals, insects and diseases represent a significant and growing threat to our native plant and animal communities. To address this concern, invasive species inventory, monitoring and control actions shall be included in the annual property planning for each property. Inventory, monitoring and control efforts shall follow the guidance provided in the Department's *Property Managers Handbook* and reference the DNR website www.dnr.gov key words: invasives, control, and by 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, developed by the Wisconsin Council on Forestry (http://council.wisconsinforestry.org/).

Priority activities include:

- Monitor properties to detect new infestations and target these for rapid response. Annual property-wide inspections are ideal, but not always practicable. At a minimum, annual inspections should be conducted at entry points such as trails, roads, waterways, rights-of-way, and areas where soil has been disturbed.
- Control new or existing invasive species as practicable, using manual, mechanical and chemical vegetation management methods noted above. Mowing should be timed to avoid dispersal of invasive plant seeds and mowing equipment should be cleaned as appropriate.
- Monitor control activities to assess effectiveness and determine if follow-up is needed.

Invasive plant species are generally restricted to trails, roadsides, and low quality habitats, although a few are well-established in some areas of the Northwest Barrens (NWB) properties. Many of the high-quality areas and areas managed for wildlife habitat are not heavily infested. Invasive plant species that are present on the NWB and have the greatest impact to native species diversity, rare species habitats, or high-quality natural communities are:

1. spotted knapweed (*Centaurea biebersteinii*)
2. leafy spurge (*Euphorbia esula*)
3. black locust (*Robinia pseudoacacia*)
4. cyprus spurge (*Euphorbia cyparissias*)
5. orange hawkweed (*Pilosella aurantiaca*)
6. bird's foot trefoil (*Lotus corniculatus*)
7. tansy (*Tanacetum vulgare*)

Informing property users of required and voluntary actions will help slow the spread of aquatic and terrestrial invasive species. Examples include cleaning and disinfecting boats and equipment; not transporting live fish or spawn away from their indigenous waters; not transporting bait species between water bodies, not using *Phragmites* and narrow leaved cat-tail in waterfowl blinds, and hunters/hikers cleaning boots and clothing to reduce the spread of seed.

Universal Outreach Actions

Staff and volunteers collaborate to inform, educate and share information with users and private landowners, especially on parcels adjacent to department properties, as time and resources allow. Outreach priorities include:

- Monitoring and control of invasive species.
- Habitat management to protect/enhance critical habitat for game species, and Endangered, Threatened and Species of Greatest Conservation Need.
- Using community partnerships to advance the Northwest Barrens properties Vision and Goals.

Management by Habitat and Forest Type

The department uses several habitat classification systems when planning and performing management activities. The two systems used in this plan are natural communities and forest cover types. Each has a different purpose, function, and scale. The natural community system is broader and ecologically defined, based on assemblages of plant and animal species that are repeated across the landscape in an observable pattern. It is a particularly useful tool for identifying interconnected, functional natural elements. The forest cover type system was developed as a forest management tool, used to identify and apply management to different timber types and other types of vegetation. Specifically, a forest stand is designated as a certain cover type if ≥50% of its basal area is dominated by a particular tree species. Sites with <10% trees are considered non-forested and are classified (e.g., grassland, lowland brush, etc.) according to the predominant vegetation present. Forest reconnaissance data are collected using these cover types, and are stored in the Wisconsin Forest Inventory & Reporting System (WisFIRS).

A forest cover type system focuses on specific vegetation types and is useful for directing and carrying out vegetation management activities. However, both natural communities and the forest cover types are essential components in planning and management to assure that the overall integrity and function of managed resources are maintained.

The **Vision and Goals** listed above for the NWB properties include these basic land management principles that provide a framework for the resource management provisions in this chapter:

- Maintain, restore, and enhance the oak/pine **barrens** at a landscape scale to benefit wildlife species.
- Maintain, restore, and enhance the quality and extent of the **wetlands, rivers and regional groundwater** to benefit wildlife species.

The barrens and wetlands management objectives and prescriptions below apply to all properties covered under this plan. Additional site-specific objectives and prescriptions are included in section two of this chapter.

Barrens

The pine/oak barrens natural community type is considered imperiled globally because of rarity, as defined by the Wisconsin Natural Heritage Inventory Program. This community is typically characterized by scattered jack pines, or less commonly, red pines, sometimes mixed with northern pin and bur oaks. Scattered trees or groves are interspersed with openings in which shrubs such as hazelnuts, sand cherry and prairie willow are prominent, along with prairie grasses and forbs. The ground layer often contains species characteristic of "heaths", such as blueberries, bearberry, and sweet fern. Other characteristic plants include dry sand prairie species (June grass, little bluestem, Pasque flower, hoary puccoon, wood lily, lupine, blazing-stars, silky and azure asters, and western sunflower).

This description of a barrens community highlights the critical early stages of open barrens habitat, regardless of the size and age of the trees present. A late stage barrens community made up of mature northern pin oak and jack pine can be viewed as a forest community. However, in the Northwest Sands Ecological Landscape, it is a late stage barrens habitat waiting to renew its life cycle. It is in the early stages of development that a barrens community serves its most ecologically important function by providing critical habitat for many area-sensitive species. This early barrens habitat is the globally impaired habitat on which many species depend.

Wisconsin's Comprehensive *Wildlife Action Plan* (2015c) identifies 28 vertebrate Species of Greatest Conservation Need (declining in Wisconsin and or throughout their range) as moderately or significantly associated with pine barrens. Numerous invertebrate species are also dependent on this community type including the federally endangered Karner blue butterfly, the state endangered phlox moth, and the state threatened frosted elfin. Barrens openings provide habitat for many game species such as white-tailed deer, American woodcock, wild turkey and sharp-tailed grouse.

Land management in areas of oak/pine barrens primarily focuses on simulating the natural disturbances that historically functioned to maintain structure and diversity in these communities.

Objectives

- Maintain, restore, and enhance the ecological function of the Northwest Sands barrens community by providing a core of early successional barrens habitat.
- Manage barrens as a shifting mosaic of habitat by following the principles and general framework described in the Northwest Sands Habitat Corridor Plan (Reetz et. al, 2013).
- Protect, maintain, and increase barrens ground layer vegetation with specific emphasis on rare plants.
- Protect and maintain wildlife associated with barrens habitat, with specific emphasis on rare birds, herptiles and invertebrates.
- Allow large savanna legacy trees in rare circumstances (oak and pine), to provide savanna structure, mast crops and seed trees.

Barrens Partnership Corridors – Appendices D & E

Regional partners such as Douglas, Washburn, Bayfield and Burnett County Forestry, Lyme Timber Co., Steigerwaldt Land Services, Chequamegon-Nicolet National Forest, The Conservation Fund, and other conservation groups may voluntarily collaborate with DNR and use forest management practices to create stepping stones of habitat that link wildlife sub-populations from Crex Meadows Wildlife Area to Namekagon Barrens Wildlife Area to Douglas County Wildlife Area, up to the federally managed Moquah Barrens. Working together, the goal is a landscape scale effort to prevent further loss and improve wildlife species abundance and diversity representative of oak/pine barrens habitats, by connecting fragments that are otherwise too small to support long-term species survival.

Partners have the flexibility to create habitat patches (stepping stones), approximately three miles apart and possibly use long-term lease or conservation easement options to preserve core barrens patches. If partners choose, specific land agreements may be determined for each core through partner consultation with landowners. The corridors were determined based on ecological landscape attributes (Reetz et al) for habitat restoration potential.

Prescriptions – Barrens Management

- The property manager shall develop an annual barrens management fire plan for the NWB properties, developed in consultation with area biologists, foresters, natural heritage conservation (NHC) and fisheries staff.
- Develop and maintain structural diversity including open treeless areas, shrub savanna, savanna, near-closed and closed canopy woodlands of jack pine and/or oak.
- To provide optimal wildlife habitat: maintain, enhance, and expand oak/pine barrens (and retain aspen where practicable and it does not conflict with other property objectives), to benefit both common wildlife species such as American woodcock, ruffed grouse, and white-tailed deer and uncommon species such as golden-winged warbler, black-billed cuckoo, and sharp-tailed grouse.
- Enhance and create open areas with commercial timber harvesting (including biomass), mechanical brushing, prescribed burning, and selective use of herbicides.
- Coordinate barrens management with regional partners. Follow the principles and general framework described in the Northwest Sands Habitat Corridor Plan (Reetz et. al, 2013).
- In rare circumstances, retain scattered large oaks and large pines to serve as savanna legacy trees.
- When harvesting timber, implement large regeneration/conversion harvests where possible, to mimic natural disturbance patterns.

Wetlands

Wetlands, primarily unforested types, including sedge marshes (some with wild rice), deep-water marshes, alder thickets, springs and bogs, cover approximately 6% of the combined properties. A Wild Rice Advisory Committee (DNR, tribal representatives, stakeholders) serves as the resource for guiding wild rice management.

Wetland forests also exist on the NWB properties. Swamp conifer areas contain tamarack and black spruce. Swamp hardwood areas consist primarily of black ash, green ash and red maple.

Objectives:

- Maintain and restore the hydrology, extent and quality of the sedge meadow, emergent marsh and deep water marsh community types on all sites where they occur, for benefit of common species such as mallard, blue-winged teal, wood duck, trumpeter swans, beaver, muskrat, otter; for uncommon species such as king rail, American bittern, least bittern, black tern, willow flycatcher, and sharp-tailed grouse; and for migratory species such as shorebirds, water birds, and passerines.
- Provide maximum wildlife benefits on wetlands, particularly habitat for waterfowl nesting, brood rearing, and migratory stopover.
- Protect and enhance avian and herptile nesting opportunities.
- Follow guidelines outlined in the DNR Silviculture and Forest Aesthetics Handbook for limited harvest activities to regenerate merchantable timber forest stands.
- Maintain swamp hardwood forest health and protect wetland water quality from Emerald Ash Borer (EAB) as practicable, using alternative management strategies outlined by DNR Forestry management guidelines for EAB.

Prescriptions:

- Conduct timber harvests only under frozen ground or very dry conditions, using techniques and equipment that prevent rutting.
- Use prescribed fire to maintain the health of vegetative communities.
- Adjacent to sedge meadows, manage timber to expand open areas and enhance habitat for both area-sensitive wildlife species and those that depend on both wetlands and adjacent uplands; avoid leaving buffer strips of trees along wetland edges.
- Inventory and monitor herptile populations to document and evaluate their habitat needs. Implement appropriate management actions to support herptile populations, using plan variance if necessary.

Forested Habitats

Objectives:

The primary management objective for forest habitat is to manage for early successional forest found within barrens habitat for the benefit of species that depend on open habitats like sharp-tailed grouse, upland sandpiper and other grassland nesting birds. A secondary objective on these properties is to manage forest habitat compartments to provide optimal forest wildlife habitat throughout the rotation cycle that produces sustainable forest products. Jack pine is a species in decline and acreage should be maintained or increased in areas outside of burn units. The DNR Silvicultural Handbook will be used as a management guide.

All forest management activities, except for site-specific objectives, follow the guidelines in the *WDNR Silviculture and Forest Aesthetics Handbook* (2431.5), *Public Forest Lands Handbook* (2460.5), *Timber Sale Handbook* (2461), and *Old-growth and Old Forests Handbook* (2480.5). Consult these handbooks for additional details and management

considerations (http://dnr.wi.gov key words forest handbook). Handbooks provide silvicultural guidance that applies to all forest properties owned by the Department of Natural Resources (DNR), all county forest lands as specified in the comprehensive county forest land use plan, and private forest tax law lands.

The general forest prescriptions and the more specific prescriptions listed below are for the principle forest types found throughout the NWB (see land cover maps). These prescriptions include an overview of the general management methods and guidance from the *Silviculture Handbook* and some additional considerations to be applied to this group of properties. **These prescriptions are used to manage toward the land cover objectives as noted in the current and projected forestry-based cover tables for the management areas listed in section 2-3 of this chapter.**

Prescriptions – General Forestry:

- Require loggers to utilize established best management practices for all aspects of conducting timber harvest and removal. (e.g. *Best Management Practices for Water Quality*, FR-093)
- Retain snags and coarse woody habitat whenever their retention does not conflict with other management objectives or pose a danger to loggers.
- Leave long-lived reserve trees as individuals or in groups to provide timber, wildlife, and aesthetic value when retention does not conflict with regeneration and other forest management objectives.
- Conduct timber sales earlier than standard rotation timelines, when site objectives are compatible.
- Salvage trees damaged by wind, ice, fire, insects, and disease as long as the salvage meets the overall objectives for the site and is economically feasible.
- Maintain site hydrology for lowland forest types (bottomland hardwood, swamp hardwood, tamarack); restore where feasible.
- Use intermediate forest treatments, such as release or crown thinning, where appropriate to develop young stands or improve composition (e.g., oak).
- Follow Wisconsin's Forestland Woody Biomass Harvesting Guidelines when conducting forest management where biomass harvesting is compatible with site objectives. Exceptions to the biomass guidelines may be used if they fit the site objective.

Prescriptions – by Forest Species:

When creating 'stepping stones' or rolling patches of barrens habitat, do not follow the Green Tree Retention Guidelines or other standard Silviculture guidelines that create viewshed barriers. Create open vistas when managing for area sensitive species that prefer open habitats.

1. Aspen: use coppice harvest at approximately 50 years, with earlier treatment for lower quality stands to regenerate. Allow some quality stands to mature 60+ years before harvest. Maintain a variety of age classes and stand sizes to benefit a variety of wildlife species. Manage some areas for young forests using 30-year rotation to promote the benefits of young forests for a variety of wildlife. Manage large cuts for early successional barrens when adjacent to barrens. On remote island or edges of flowages, modify standard management or apply no management, based on accessibility. When promoting barrens habitat, mowing, prescribed fire, herbicide use or other methods may be used to reduce aspen prevalence.

2. Scrub Oak: cut at a rotational age of 50 – 70 years to regenerate scrub oak stands. In higher quality stands, rotational age may be extended out to 80 – 90 years. In areas not managed for early successional barrens, convert some oak to jack pine to offset jack pine decline. In stands mixed with aspen promote aspen for its value as a young forest. When promoting barrens habitat, prescribed fire, brushing, mowing and herbicide use will be used to maintain an early successional stage oak forest.

3. Jack Pine: manage through commercial timber harvest at a rotation age of 40-60 years. Regenerate through a combination of natural seed sources, tree planting, aerial seeding and by using various site preparation methods including prescribed burning, mechanical and herbicide. Retain sentinel jack pines where possible, for aesthetic purposes, and maintain or increase jack pine outside of burn units.

4. White Pine: maintain naturally occurring stands and manage through selective harvest. Regenerate stands predominantly through natural reproduction, although site preparation, seeding or planting may be used. Manage for rotations of 100-160 years. Thin to maintain health and vigor throughout rotation. Allow some trees to live over 200 years in areas protected from fire. Maintain presence in forests for aesthetics and size diversity.

5. Red Pine: maintain naturally occurring stands. In plantations, thin to mimic visual aspects of naturally occurring stands elsewhere on the property. Allow some natural regeneration during plantation phase-out. When mixed with jack pine, manage for jack pine and maintain a few red pines for sentinel trees and age/size diversity.

Recreation Management on the Northwest Barrens Properties

The Northwest Barrens properties feature unique resources that attract visitors from within Wisconsin and from across the United States. The region also contains diverse outdoor recreation opportunities provided by nearby federal, state and county 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 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 NWB properties are known to be among the best dog trialing locations in the country. 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 (also at Namekagon Barrens Wildlife Area) organized by kennel clubs and bird dog organizations. An informational brochure produced by Douglas County is available on-line and by contacting Douglas County Forestry.

'Wild Rivers' such as the Totogatic River are uncommon, and as such 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.

Funds primarily from sales of Wisconsin hunting and trapping licenses, from the Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act), and donations from many of the groups listed previously under, "Community Involvement and Partnerships," contribute to the purchase and management of the NWB properties. Some of these lands are protected by statutes and federal regulations that 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.

The properties provide an important recreational resource and economic benefit to the region. They are an integral component of an ecotourism corridor that exists from the Twin Cities, MN to Bayfield, WI. Both Namekagon Barrens Wildlife Area and Douglas County Wildlife Area are national destinations for bird dog trials, bird dog training and hunting, and for bird watchers. Economic benefit to the region from bird dog trials is close to $90,000 for Burnett, Douglas, and Washburn counties. Events generate over $8,000 in state and local tax revenue (UW, 2016; Appendix F). In Wisconsin, bird watching ranks second in the nation in popularity, with 1.7 million residents participating. Sharp-tailed grouse viewing blinds are a popular national tourist destination offering approximately 200 viewing days every spring. 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 Friends of Namekagon Barrens Wildlife Area, Friends of The Bird Sanctuary and Wisconsin Sharp-tailed Grouse

Society provide significant support and contributions for public awareness, education, and hands-on opportunities for recreation, conservation and enjoyment of the properties. There are endless opportunities for expanding these types of property uses.

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 consistent with NR 44 Wis. Admin. Code 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.

All department-owned lands within wildlife areas and state natural areas are open to traditional outdoor recreational uses, including fishing, hunting, trapping, walking, and nature study; however, wildlife refuges are usually closed to all entry unless otherwise stated, and fish refuges closed to entry during fish spawning periods, (s. NR 1.61 Wis. Admin. Code). Asparagus, berry, and mushroom picking and nut-gathering are also permitted.

The **Vision and Goals** listed above for the NWB properties include **four recreation management principles** as a framework for the recreation management provisions:

- Provide recreational opportunities for hunting, trapping, fishing, gathering, wildlife viewing, scenic enjoyment, and other nature-based uses, compatible with the property's capabilities and habitat management goals.
- Collaborate with partners to provide a wildlife conservation education program that generates a land and wildlife ethic into perpetuity.
- Contribute to the local and regional economies through management of wildlife recreational opportunities and sustainably produced forest products.
- Protect the wild nature of the Totogatic River through bank protection and sound property and watershed management practices. Work with partners and the public to promote sustainable use and "leave no trace" river recreation.

The recreation management objectives and prescriptions below apply to all properties covered under this plan. *Site-specific objectives and prescriptions are listed in section three of this chapter*.

Recreation Objectives for NWB Properties

- Increase the percent of public who know and embrace the NWB management Vision & Goals.
- Increase the number of youth (and adults) who participate in workshops, programs, field trials, and events offered through the partnership collaborations, and who recreate on the NWB properties.
  Increase environmental awareness and understanding of ecological processes, wildlife and natural resource conservation and management, and of species of interest found on the NWB properties, among Wisconsin residents.
- Encourage research, educational activities, and workshops consistent with the primary management purposes and user safety.
- Continue collaboration with the Friends of Namekagon Barrens Wildlife Area, Friends of The Bird Sanctuary, and Wisconsin Sharp-tailed Grouse Society in support of recreation, management, and education goals.
- Partner in developing a NW Wisconsin Ecotourism Corridor with groups such as: Villages of Minong, Webb Lake, Danbury, Solon Springs, and Grantsburg; Friends of Crex Meadows Wildlife Area; Washburn County Lakes and Rivers Association, Northern Great Lakes Visitor Center; county departments of tourism in Polk, Burnett, Washburn, Douglas, and Bayfield counties, US Forest Service, National Park Service and US Fish & Wildlife Service Region 3.

Recreation Prescriptions for NWB Properties

- Utilize educational presentations, exhibits and messages to enhance visitors' experience and appreciation for the northwest barrens landscape, and the diversity of the wildlife and plant species in these environments.
- Offer skills programs as feasible and use volunteers and mentors to organize and lead training events.
- Provide information to support communication about NWB properties/programs on the Friends of Namekagon Barrens and Friends of the Bird Sanctuary web pages. Collaborate especially to maintain the sharp-tailed grouse viewing calendars for public reservations.
- Revise/update visitor property maps for each property.
- Auto Tour with 19 stopping points: update the popular 14-mile self-guided Namekagon Barrens auto tour, with a guidebook available at information kiosks on the property, on the Friends of Namekagon Barrens web site (www.fnbwa.org), and in the future, develop a downloadable application for smart phones.
- In collaboration with regional friends groups, develop an auto tour (to observe variety of management techniques and watchable wildlife) that includes all NWB properties *and* other properties in the northwest sands that are managed for oak/pine barrens. A unified, comprehensive 'guidebook' that allows people to choose a segment or do all-day or multi-day trips across the region is envisioned.
- Expand and link recreational opportunities within the Northwest Sands by working with National Park Service, US Forest Service, USFWS, and other federal, state, and county partners to establish connections to similar destinations, trails, and amenities.
- Evaluate handicap accessible access on a regular basis and make improvements as feasible.
- Improve and/or install information kiosks and amenities at trail heads to provide maps and information about recreational opportunities, management policies, and alerts about issues such as wildfire or weather safety, or invasive species.
- Maintain an MOU with Friends of Namekagon Barrens and Friends of The Bird Sanctuary (Appendices B & C, Property Manager lead contact)
- Additional details are listed in sections below; in Map Series 2 for each property; and in Appendix G.

a. Hunting, Trapping, Fishing, and Gathering on Land and Water

Hunting and trapping opportunities are abundant and are major recreational activities on the NWB properties, with opportunities to pursue white-tailed deer, turkeys, sharp-tailed grouse, ruffed grouse, woodcock, snipe, American black bear, bobcat, coyote, red and gray fox, fisher, American beaver, North American river otter, waterfowl (mallard, blue-winged teal, wood duck, Canada goose), raccoon, gray squirrel, snowshoe hare, and cottontail rabbits. Deer and turkey are abundant on the northwest barrens properties and hunters here are provided some of the best opportunities in northern Wisconsin. Trappers have opportunities for just about every furbearer known in Wisconsin. Northwest Barrens properties, such as Namekagon Barrens Wildlife Area, provide the only remaining lands in Wisconsin that offers opportunities for sharp-tailed grouse hunting when populations are large enough to issue permits. Sharp-tailed grouse populations in Wisconsin are well below historic levels, and have been declining since 1998, according to the Wisconsin Sharp-tailed Grouse Survey and Status. (WDNR 2013b).

Hunters desire wildlife habitat capable of producing good populations of wildlife, while staying free from excessive human disturbance. It is important to provide multiple opportunities and to disperse hunters as much as possible for safety, to enhance users' experience and to avoid user conflicts. The NWB properties will continue to accommodate hunting throughout all of the open hunting seasons. Regulations governing hunting and trapping are outside the scope of the master plan.

Abundant berry-picking opportunities exist in the early stage barrens, especially for blueberries, for which these properties have long been popular. Mushrooms are also favorite harvest foods. White sage (an herb) is commonly collected by tribal members.

Fishing opportunities are available on each of the properties. The lower portion of the Totogatic River receives a fair amount of fishing pressure. It is known for species such as northern pike, walleye, largemouth and smallmouth bass, and panfish. Lake sturgeon are also present during spawning season. In addition, a spring-fed tributary of the Totogatic River, Fivemile Creek, supports a Class II trout fishery; however most of the trout habitat lies further north of the state property. On Namekagon Barrens Wildlife Area, Clemens Creek is a Class I trout stream with limited opportunities. In the northeast corner of the Douglas County Wildlife Area, fishing is available at Leo Creek, a Class II trout stream.

Objectives

- Maintain and enhance habitat that offers abundant hunting and trapping opportunities for big and small game.
- Support opportunities for sustainable water access on the wildlife area properties.
- Provide conditions where users of the barrens and rivers areas may feel they are in a secluded setting.

Prescriptions

- Provide optimal public access for hunting, trapping, gathering and wildlife viewing.
- Collaborate with the township to provide safe river access at nearby boat landings and road crossings. Seek to improve canoe and kayak access points at road crossings.
- Provide opportunities for non-motorized, remote hunting experiences, both for upland game and waterfowl.
- Provide information about hunting rules and opportunities at information kiosks, in publications or online, taking care not to over-promote specific locations.

b. Bird dog trialing and Bird dog training

Fall field dog trials have a long history (since 1925) of being held on Douglas County and Namekagon Barrens wildlife areas, organized by kennel clubs and bird dog organizations. Economic benefit to the region is close to $90,000 within Burnett, Douglas, and Washburn counties. Events generate over $8,000 in state and local tax revenue (UW, 2016). Special event 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. No birds or mammals may be released. There is a designated Class 2 bird dog training area on over 300 acres in the southwest portion of DCWA (s. NR 17.05(2) Wis. Admin. Code).

Objectives

- Permit and provide opportunities that support a long tradition of hosting annual bird dog trials on Namekagon Barrens and Douglas County wildlife areas, including issuance of permits for use of horses exclusively to support the registered field trial participants.
- Provide conditions where both participants and observers can together enjoy this activity on the barrens landscape and feel they are in a secluded setting.

Prescriptions

- Issue dog trial permits that allow this special use to occur while protecting the resources.
- Help educate the public about this special use and the economic values to the local communities.

c. Birdwatching, Wildlife Viewing, Nature Study and Scenic Viewing

Birdwatching, wildlife viewing and nature study of rare, abundant and diverse species on the oak/pine barrens and river and wetlands habitat are popular activities on the NWB properties. Visitors from throughout the U.S. come for sharp-tailed

grouse and upland sandpiper viewing, a rare opportunity draws people from as far as California and Florida, and heavily from the Minneapolis/St. Paul area. Visitors range from the casual observer to serious birder and naturalist. Birdwatching is more popular than hunting and fishing both in Wisconsin and nationally, and is a growing recreational activity (USFWS and USCB, 2011). Wisconsin ranks second nationally in the proportion of citizens considered birders, with one-third of residents age 16 and older reporting they travel to watch birds, or actively watch and identify birds around their home (USFWS, 2011).

Over 100 species of birds use the NWB properties. The Namekagon / Solon Springs Barrens are recognized as an Important Bird Area (IBA; WDNR 2007) due to its importance for barrens habitat that supports uncommon breeding birds such as sharp-tailed grouse, upland sandpiper, northern harrier, brown thrasher, and Connecticut warbler. A portion of the Totogatic Wild River was identified as part of the larger Namekagon – Solon Springs IBA. This site is considered a pine/oak barrens core habitat. For further information, see the Wisconsin Bird Conservation Initiative web page for Namekagon / Solon Springs Barrens at:

http://wisconsinbirds.org/iba/sites/NamekagonBarrens.htm

Raising public awareness and understanding of wildlife conservation happens on public lands where visitors can see for themselves the connections between people, wildlife, habitat, and land management. Well-designed interpretive signs and exhibits explain wildlife's needs and DNR management actions. While helping to instill a land ethic, these properties also demonstrate to landowners how to make sustainable use of lands that benefit both humans and wildlife.

The NWB master plan maintains and enhances opportunities for the public to study and observe natural communities, scenery, plants and wildlife throughout the properties. The variety of plants on the properties includes well over 300 species, including many with prairie affinities. Mammals include nearly every mammal found in Wisconsin, with a good variety of reptiles, amphibians, and invertebrates found on the properties. These properties are near Brule River State Forest and tens of thousands of acres of county forests. The Great Wisconsin Birding and Nature Trail system includes these properties among their highlights.

Objective

- Provide opportunities for birding and wildlife watching, scenic viewing, photography and nature study.

Prescriptions

- Provide at least three sharp-tailed grouse breeding observation blinds every spring.
- Collaborate with the NWB friends groups for them to maintain the sharp-tailed grouse public viewing reservation calendars.
- Provide interpretive resources on the internet and at property kiosks as feasible, including wildflower and wildlife species lists, and maps.
- Identify and designate additional vistas or scenic overlooks at sites along roads or trails at suitable locations. Include parking for 3-5 vehicles, permanent benches for sitting, and information kiosks at each location. Maintain existing scenic overlooks.

c. Camping

The department encourages use of campgrounds at nearby state parks, state forests, county forests adjacent to the properties, and federal locations; campsite density here in the northwest barrens region is above average for Wisconsin. The NWB properties have an abundance of county lands adjacent to them that offer year-round camping opportunities, easily reserved by permits. (see Chapter 3).

Objectives

- Provide limited dispersed camping opportunities at Namekagon Barrens Wildlife Area to support traditional bird dog trialing events or nature study, such that they do not interfere with the primary purpose of the property.
- Inform users of Douglas County Wildlife Area that limited camping opportunities (permits granted and managed by Douglas County) are available at the Recreation Management Area, and inform users of the North Country Scenic Trail that one primitive site (managed by the North Country Trail Association) exists at Rovers Lake in the Barrens and Wetlands Habitat Management Area.
- Direct Totogatic Wild River users to camping opportunities on nearby public lands, outside the project boundary.

Prescriptions

- Accommodate dispersed camping opportunities for special events by permit within Special Management Area 3, at appropriate locations determined by the property manager. No camp sites will be designated.
- Advise users of Douglas County Wildlife Area how to apply for dispersed camping permits and recreational facility use, as authorized by a Douglas County forest permit on Douglas County Wildlife Area, Management Area 5.
- Provide a primitive campsite at Rovers Lake with a fire ring for use by North Country Scenic Trail hikers, available by first come, first served basis. Advise users how to obtain a camping permit, as needed, from the National Park Service though the North County Trail Association.

d. Snowshoeing, Cross-Country Skiing, Skijoring, Dog-sledding and Hiking

Snowshoeing, cross-country skiing, skijoring, dog-sledding, and hiking may all be pursued, with little impact on the property or other recreational uses.

Snowshoeing

Snowshoeing has become a popular sport in recent years throughout Wisconsin, including the NWB properties. While all areas of the properties are open to snowshoeing, including roads and trails, there are many opportunities on nearby public lands with trails that are specifically marked and designated for this use.

Hiking, Dog-sledding, Cross-Country Skiing, and Skijoring

Opportunities exist for hiking, dog-sledding, skijoring, cross-country skiing, and snowshoeing; however, groomed trails on the properties are not provided. Nearby groomed trails include: Voyager Village located on Kilcare Road Between County Road A (North Sand Lake) and Webb Lake; Webb Lake Ski Trail 13 miles east of Danbury on North Bear Lake Road; Douglas County Forest ski trail less than 1 mile east of DCWA; and Totagatic Ski Trail, with information about the region being the 'Mecca' of Wisconsin ski trails found at http://minongflowage.org/skiing/

Objective

- Encourage and support these public uses; however no amenities or groomed trails are provided.

e. Bicycle Riding and Horseback Riding

Bicycle riding and horseback riding are permitted on township roads. In general, the physical limitations of the properties such as highly erodible sands or wet soils are not conducive to this type of trail use. However, horseback riding to a limited extent is authorized on designated Class C trails on Douglas County Wildlife Area and by permit during dog trials on Namekagon Barrens and Douglas County wildlife areas. There are significant established trail opportunities for these forms of recreation on many nearby public lands in the region, including mountain biking on the extensive regional CAMBA trail network (http://www.cambatrails.org/). Both the Brule River State Forest and Governor Knowles State Forest provide horseback riding opportunities. Additional information horseback riding information may be found on county web pages such as: http://www.burnettcounty.com/index.aspx?NID=339,

http://www.washburncounty.org/what-to-do/horseback-riding# and http://www.co.washburn.wi.us/departments/forestry/equestrian

Objectives

- Encourage visitors to learn about the properties as they bicycle for exercise on town roads throughout the properties. This nature-based activity provides another way to experience the dynamic wildlife and barrens vegetation found on the properties.
- Maintain the traditional horse trail opportunities provided at Douglas County Wildlife Area. Unsustainable segments will be realigned or closed as needed for ease of management and resource protection, or may be closed due to trail/weather conditions.
- Allow equestrian use by special event permit at Namekagon Barrens Wildlife Area.

Prescriptions

- Consider having friends and partner groups coordinate nature-based bicycle rides on town roads through the properties.
- During fall field trial events, permit use of horses exclusively to registered bird dog trial participants on both Namekagon Barrens and Douglas County wildlife areas. On Namekagon Barrens, include restrictions that reduce the threat of spreading invasive species in the special event permit.
- Maintain approximately 14 miles of primitive horse trails (Class C: MC 8605.1) on Douglas County Wildlife Area, as funding allows, to continue this Douglas County equestrian tradition.

f. Designated Recreation Trails

The phrase "designated trails" refers to trails that are designed, maintained, and limited to specific uses and are shown on the infrastructure maps. Hunter walking trails may be found on each property from seasonal use by hunters; however, they are neither designated nor maintained. Given the extensive town road access within the NWB properties, adequate opportunities exist there for recreating on the properties via bicycle and wintertime snowmobile and ATV.

Objective

- Provide areas that offer nature-based recreational activities. Some designated trails may be managed by partner liaison groups (e.g. North Country Trail, Wild Rivers State Trail).

Prescriptions

- Maintain primitive, interpretive trails and infrastructure.
- Provide barrier-free ADA accessible trail opportunities where feasible and practicable.

g. Motorized Sports

Snowmobile and winter ATV riding is available from December to March on county snowmobile trails and routes. Across the properties, 22 miles of designated trails accommodate this shared use after close of firearm deer season and when weather and trail conditions allow. ATVs and other vehicles are prohibited off designated snowmobile and ATV trails. Erosion and spread of invasive species has occurred from use of off-road vehicles on prohibited areas. A snowmobile trail provides scenic riding opportunities along each property. Trails are maintained by the counties and local snowmobile clubs. Nearby state properties, county forest lands, the Wild Rivers State Trail and the Gandy Dancer State Trail provide additional mileage. Burnett, Douglas, and Washburn counties regulate the opening and closing of all snowmobile trails.

The trails connect to regional snowmobile trails and are part of the statewide snowmobile trail system. For example, Douglas County alone has over 300 miles of groomed snowmobile and winter ATV trails. Spring, summer and fall ATV riding is available throughout Washburn County's ATV trails on over 100 miles of leisure riding, connecting to the Hayward and Sawyer County area to the East, Douglas County to the North, Burnett County to the West and Barron County to the South. Washburn County is home to the 100-mile ATV Scenic Tour. Trail maps are available on the county websites; most townships allow ATVs on their roads

Objective

- Allow the existing snowmobile/winter ATV trails to provide connectivity between local and regional trail networks.

h. Day Use Areas

Day use areas are generally rustic in nature and are usually located at recreational trail heads and parking access points. The sites are popular locations for birding and wildlife viewing, berry picking and hunter/walking access. Amenities are minimally developed with a map board kiosk and informational brochures.

Upgrading amenities would meet several needs. Additional signage and information facilities would strengthen a sense of place, and reinforce the regional northwest barrens identity.

Providing amenities at popular access points and day-use areas would enhance user experience for a key recreation niche – nature observation, scenic and wildlife viewing. The popularity of a particular day use location, or access to unique scenic or recreational values, will determine the level of development. Improvements will be designed to provide appropriate public access and necessary amenities, such as parking, and interpretive information.

Objectives

- Provide lightly developed recreational day-use areas where visitors can rest or pursue outdoor interests in an attractive outdoor setting at suitable locations throughout the NWB properties.
- Identify and designate additional vistas or scenic overlooks at sites along roads or trails at suitable locations. Collaborate with local townships to provide parking for 3-5 vehicles, permanent benches for sitting, and information kiosks at each location. Maintain existing scenic overlooks.

i. Parking Areas

Objective

- Provide parking facilities throughout the properties to support public access.

Prescriptions

- Develop and maintain primitive parking areas as appropriate for use and demand.
- Install information facilities and signage at up to five public access points throughout the properties to enhance visitor experience and appreciation for their Northwest Barrens identity.

State Natural Areas

The primary purpose of State Natural Areas (SNAs) is to protect outstanding examples of Wisconsin's native natural communities, significant geological formations, and archeological sites.

SNAs are valuable for research and educational use, the preservation of genetic and biological diversity, and for providing benchmarks for determining the impact of use on managed lands. They also provide some of the last refuges for rare

plants and animals. Sections 23.27-23.29 Wis. Statutes provide legislative authority and direction for the acquisition, designation, dedication, and management of SNAs. 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 natural areas as SNAs, and Section 23.29 provides authority to legally dedicate and protect SNAs in perpetuity.

SNAs may be either stand-alone properties or embedded within another property type, such as a State Wildlife Area. In the latter case, the SNA is an overlay designation.

Existing SNA Overlay

The NWB Master Plan includes 1 existing SNA overlay on lands owned by the Douglas County Wildlife Area.

- Solon Springs Sharptail Barrens State Natural Area (240 acres) is embedded within the county property and managed by department staff.

New SNA Overlays

This master plan proposes 3 new SNA overlays in section three of this chapter:

- one within Namekagon Barrens Wildlife Area
- two within the Totogatic Wild River Area.

General Administration, Management Policies and Provisions

The following section describes general property administration, and the management policies and provisions that apply to all state managed lands.

Funding Constraints

Implementation of the master plan is dependent upon staffing and funding allocations that are set by a process outside of the master plan. Operational funding for the department is established by the state legislature. Development projects also follow an administrative funding and approval process outside of the master plan. Many of the initiatives contained within the plan are dependent upon additional funding and staffing support. Therefore, a number of legislative and administrative processes outside of the master plan will determine how quickly portions of this master plan will be implemented.

Properties purchased or managed with funds from the Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act) or the Federal Aid in Sport Fish Restoration Act have additional management constraints that must be considered. Wisconsin statutes and 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.

Facility Management Authority

Property managers may relocate or temporarily close road and trail segments or other public use facilities as deemed necessary after appropriate authorization by normal department approval processes. The new road or trail (or other facility) location and design must be consistent with the land classification requirements (NR 44) and the management objectives for the management area in which it is located.

Public Health and Safety

All facilities will comply with federal, state, and local health and sanitation codes. The property manager has the authority to close trails and other facilities on the property when necessary due to health, safety, or environmental damage concerns. In designated public use areas, such as designated parking lots and designated trails, trees or other natural elements that are deemed public hazards will be removed. Safety inspections are done at least twice per year.

Minor pull-off parking areas

Where vehicle parking along a public roadway poses a safety hazard or conflict, the property manager is authorized to establish small, 2 to 3 vehicle-sized primitive, undesignated “pull-off” areas for parking at locations frequently used by the public. These “pull-off” areas shall not be located within the Totogatic River Protection Zone.

Refuse Management

Visitors are required to carry out any refuse they bring in because no designated refuse or recycling receptacles are available. Burying of refuse is not allowed anywhere on the properties.

Road Management Plan and Public Vehicle Access Policy

Pursuant to Wis. Stat. 23.116, the planning process considered the status and evaluated the network of public access, service and habitat management roads on the properties. Part of the evaluation process was to determine which roads may be open to the public for the use of motorized vehicles. A network of approximately 91 miles of road access, including township, county and department-owned roads exists within the three NWB properties. This includes approximately 15 miles of department-owned primitive service roads that are closed to the public. The recreation objectives (section 2-1) are designed to increase overall public use and increase recreation access where needed and appropriate. Closed service roads are gated, bermed or signed. (Maps Cn-2a, Cs-2a, D-2a, D-3a, E-2a and Appendix G)

Department-maintained service roads that are not open to public vehicles and access roads that are open will be maintained as primitive roads (NR 44.07(3), Wis. Admin. Code). Primitive roads may not be negotiable by ordinary highway vehicles; they are seasonal and not regularly maintained; ruts and downed trees may be present. Maintenance is done on primitive roads as needed, or as time and resources allow.

The following management prescriptions apply to department managed roads:

- Maintain permanent service roads and public access roads in a sustainable condition according to Wisconsin Forestry's Best Management Practices for Water Quality.
- Maintain parking areas.
- Regularly inspect active roads, especially after heavy storm events. Clear debris as needed from the road surfaces, culverts and ditches to decrease unsafe conditions and prevent damage.
- Maintain stable road surfaces to facilitate proper drainage and reduce degradation from traffic during wet or soft conditions; or close the road when these conditions exist.
- Monitor soil disturbance and take measures to prevent excessive damage.
- Restore roads used in timber harvests to non-erosive conditions, in accordance with Wisconsin Forestry's Best Management Practices for Water Quality.

Road and Trail Standards Roads and trails are classified as follows in NR 44.07(3), Wis. Adm. Code:

(a) ***Primitive road.*** A primitive road shall be a temporary or permanent seasonal road with a maximum sustained cleared width normally not exceeding 12 feet, little or no roadbed grading, minimal cut and fill, a surface of primitive or native material. **Note:** Due to their unimproved, rough condition, primitive roads commonly are only suitable for H/ohci's and other off-highway vehicles, and may not be negotiable by ordinary highway vehicles.

(b) ***Lightly developed road.*** A lightly developed road shall be a temporary road, a permanent seasonal road or a permanent all-season road which is primarily a single lane with a maximum sustained cleared width normally not exceeding 16 feet, is lightly to well-graded with minimal cut and fill, is surfaced with primitive, native or aggregate materials except in limited special use situations where asphalt may be used, and has a maximum speed design of 15 mph. **Note:** Due to the variability of roadbed conditions at different times and places, some lightly developed roads might not be negotiable by ordinary highway vehicles.

(c) ***Moderately developed road.*** A moderately developed road shall be a permanent seasonal road or a permanent all-season road which typically is 2-lane, but may be one-lane, have a maximum sustained cleared width normally not exceeding 45 feet for 2-lane and 30 feet for one-lane, a well-graded roadbed and may have moderate cuts and fills and shallow ditching, has a surface of aggregate, asphalt or native material, and a maximum design speed of 25 mph.

(d) ***Fully developed road.*** A fully developed road shall be a permanent all-season road with a cleared width normally of 50 feet or more, a roadbed with cuts and fills as needed, an aggregate, asphalt or other paved surface and be designed for speeds exceeding 25 mph.

(e) ***Primitive trail.*** A primitive trail shall be a minimally developed single-file trail with a maximum sustained cleared width normally not exceeding 8 feet and a minimal tread width for the intended use, have a rough, ungraded bed where large rocks, stumps and downed logs may be present. It primarily follows the natural topography, has no or few shallow cuts and fills, and is surfaced with primitive or native materials, except for limited distances where environmental conditions require the use of other materials. Modifications to the natural trail surface are limited to that which is minimally necessary to provide essential environmental protection.

(f) ***Lightly developed trail.*** A lightly developed trail shall be a trail with a maximum sustained cleared width normally not exceeding 16 feet, a moderately wide tread width for the designated uses, a rough-graded base to remove stumps and

large rocks, and a surface of primitive or native materials, except where other materials are required due to environmental conditions or where the trail also serves as a lightly developed road where other types of surfacing materials are used.

(g) ***Moderately developed trail.*** A moderately developed trail shall be a trail with a maximum sustained cleared width normally not exceeding 8 feet, a minimal tread width for the intended use, a relatively smooth graded base with a compacted surface composed of stable materials such as aggregate. Where practicable and feasible, a moderately developed trail shall, at a minimum, meet the standards for recreational trails accessible to persons with a disability.

(h) ***Fully developed trail.*** A fully developed trail shall be a trail with a smoothly graded base and a stable, hard surface composed of materials such as asphalt, aggregate or frozen earth. The trail's cleared width, tread width and cuts and fills are not limited, but shall be appropriate for the trail's intended use. To the degree practicable and feasible, fully developed pedestrian trails shall be fully accessible by persons with physical disabilities.

Public Access on Service Roads

The public may walk service roads and dikes to gain access on properties for hunting, trapping, wildlife watching, nature appreciation, etc. These are not designed or maintained as hiking trails, but people are free to walk anywhere on properties unless posted closed to the public.

Disabled Accessibility

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 NR 44 Wis. Admin. Code standards of the land use classification of 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 also may allow the use of power-driven mobility devices (PDMDs) on trails consistent with a federal law for PDMDs located in 28 CFR s.35.137.

Endangered, Threatened and Species of Special Concern Protection

Individuals of all endangered, threatened, special concern species and populations of SGCN will be protected. All known critical habitat for these species will be protected or maintained through management which incorporates guidance from staff specialists, research and current literature, and consultation with the Bureau of Natural Heritage Conservation. The Natural Heritage Inventory (NHI) will be checked prior to any management activity to ensure that any adverse impacts associated with listed species are avoided or minimized to the greatest extent practical.

Archaeological Resource Protection

Property managers will prevent physical disturbance of archaeological features on properties. This includes controlling woody species invasion. Managers will follow DNR guidelines outlined in "Burials, Earthworks and Mounds Preservation Policy and Plan". 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 from the late 1800's to 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).

Water Quality

All forest management activities will comply with the most recent version of Wisconsin Forestry's BMPs for water quality.

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 (Totagatic) 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.

Forest Certification

In 2004, Wisconsin State Forests gained dual Forest Certification from the Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI). In 2009, State Forests were re-certified under FSC and SFI and the balance of DNR-owned land was added to the certification. Independent, third-party certification means that management of Wisconsin's DNR-owned land meets strict standards for ecological, social, and economic sustainability. Forest certification helps Wisconsin remain competitive in global markets that increasingly demand certified raw materials. Management of multi-use lands involves balancing the goals of conserving forestland, supporting economic activities, protecting wildlife habitat, and providing recreational opportunities. Forests and other lands on fish and wildlife properties are managed to meet the Forest certification principles.

Prescribed Fire

Prescribed burns are a management tool used to mimic natural fire disturbance and help control many woody plants and invasive weeds, improve the quality of wildlife habitat, reduce fuels to lessen fire hazard, and liberate nutrients tied up in dead plant material. Upland nesting cover used by sharp-tailed grouse, upland sandpiper, waterfowl and songbirds is more productive if periodically burned. Wetlands also benefit from fire. Regular use of prescribed fire reduces fuel loads, which ultimately reduces the risk of wild fires. Prescribed fire and special burning permits are allowed on department managed lands when regular burning permits are suspended, due to specialized resource needs and risk mitigation consideration. Prescribed fire may be used as a management tool where feasible and safe, except when restricted by management area prescription.

Fire Suppression

As stated in Wisconsin Statutes 26.11, "The Department is vested with power, authority and jurisdiction in all matters relating to the prevention, detection and suppression of forest fires outside the limits of incorporated villages and cities in the state except as provided in sub (2), and to do all things necessary in the exercise of such power, authority and jurisdiction." Wildland fire suppression actions will consider the property management goals and the threats of the fire to life and property. Appropriate techniques will be used in each event to provide effective fire suppression while minimizing resource damage.

Forest Pest Control

As stated in Wisconsin Statute 26.30, "It is the public policy of the state to control forest pests on or threatening forests of the state…" Any significant forest pest events will be evaluated with consideration given to the property management goals and the potential threat of the pest to other landowners. Infestations will be managed according to the respective management plan, if they exist. Responses to significant infestations from other pests, including but not limited to the

emerald ash borer, may include timber salvage or pesticide treatments. Any response to a significant pest outbreak or threat of a significant pest outbreak will be evaluated by an interdisciplinary team of scientists and communicated through press releases and notices to interested parties. If necessary, an immediate emergency response to prevent a major outbreak may be authorized by the State Forester.

Authorized Response to Catastrophic Events

Catastrophic events are rare, but allowances must be made to provide management flexibility when such events occur. These events may include severe flooding, ice and wind storms, insect and disease infestations, wildfires or other catastrophic occurrences. The immediate management responses to these events will follow existing department protocols. If the management objectives need to be revised, an amendment to the master plan must be approved by the Natural Resources Board. If only management prescriptions need revision, a variance to the master plan must be approved by the department's division administrator.

Wildfires, tree diseases and insect infestations shall be controlled to the degree appropriate to protect the values of each management area. However, emergency actions may be taken to protect public health and safety, or as directed by the State Forester to prevent a catastrophic incident from spreading to adjacent forest lands.

Management responses to catastrophic events are determined on a case-by-case basis. Salvage of trees damaged by wind, fire, ice, disease, or insects may occur if consistent with the objectives and prescriptions for the management area. Salvage may also occur as part of an emergency response plan authorized by the State Forester. See specific management areas for site-specific response prescriptions.

Chemical Use

Herbicides and pesticides may be used on these properties for purposes such as controlling invasive plants, limiting plant competition in restoration areas, and controlling insects, except as restricted in the property-specific management prescriptions in this master plan. All chemical applications shall follow applicable department procedures and herbicide and pesticides label requirements.

Non-Metallic Mining Policy

The department may use gravel, sand, fill dirt, or other fill material from department-owned lands for department use. Under certain circumstances other government bodies or agencies may also have access to these materials. Section 23.20 of the Wisconsin Statutes states, "the department may permit any town, county, or state agency to obtain gravel, sand, fill dirt or other fill material needed for road purposes from any department-owned gravel pit or similar facility if this material is unavailable from private vendors within a reasonable distance of the worksite. The department shall charge a fee for this material commensurate with the fee charged by private vendors."

Any nonmetallic mining is regulated under the requirements of NR 135 Nonmetallic Mining Reclamation, Wis. Adm. Code, except for sites that do not exceed one acre in total for the life of the mining operation. Site reclamation under NR 135 is administered by the county. NR 135 requires mining sites to be located appropriately, operated in a sound environmental manner, and that all disturbed areas be reclaimed according to a reclamation plan. New sites will not be considered if they will impact significant geological or ecological feature or sites within any designated State Natural Area.

Department of Transportation (DOT) projects are exempt because DOT projects have their own reclamation requirements.

Real Estate Management

Acquisition Policies

It is the policy of the Natural Resources Board and the DNR to acquire lands from willing sellers only. As required by state and federal laws, the department pays just compensation for property, which is the estimated market value based on an appraisal. Staff may periodically contact landowners within the property boundary to explain the department's land acquisition program and determine if they have an interest in selling their property. Acquisition priorities for the properties vary from year to year and are based on a number of factors, such as resource management or recreation needs and the availability of funds from various governments, non-profit and private sources.

It may be in the interest of the landowner and the department to acquire only part of the rights to a property, or an easement. The department has a number of easement options available to address these situations. Fisheries easements provide access for anglers, protection of riparian habitat and control of land to conduct habitat development or management projects. This option should be pursued on streams and rivers to protect critical or unique habitat when fee acquisition is not feasible due to costs, local concerns, or an owner's desire to retain fee title to the land.

Land Acquisition Guidelines

Criteria, such as the following, have been used to assess the conservation and recreation merits of property being offered by willing sellers.

1. Lands greater than 40 acres with no or low-value improvements.
2. Lands that could provide high quality wildlife habitats or contain critical habitat for Species of Greatest Conservation Need and/or contain Natural Communities identified as rare within the Northwest Sands and Superior Coastal Plain Ecological Landscapes.
3. Lands that can provide access to high-quality fishing, hunting, and trapping experiences as well as opportunities for other compatible nature-based outdoor activities.
4. Lands adjacent to current state lands or other protected lands, particularly if they can provide a buffer from existing or future incompatible land uses.
5. Lands that currently affect the hydrology of important conservation lands.
6. Lands affected by the restoration of wetlands (e.g., restoration efforts are constrained by flooding impacts on surrounding private lands).

Portions of properties not needed for conservation purposes may be sold/leased back for agricultural or other compatible uses, though the state may retain development and public access rights.

Adjusted project boundaries often follow roads or natural features (e.g., streams or rivers). This approach ensures adequate access is available for lands that may be acquired in the future and it is easier to portray where the boundaries are located. Project boundaries often encompass more land than their respective acreage goals. This provides the department and partners with flexibility when negotiating the purchase, sale or trade of land for recreation and conservation purposes.

Using roads as boundaries will bring developed parcels (e.g., homes, farmsteads and other improvements) into the project boundary. The department does not seek to acquire parcels with improvements. Acquisition criteria reduce the scores of parcels with substantial improvements. When buildings are purchased as part of a larger land holding, the buildings are typically split from the larger parcel and sold according to and consistent with local ordinances. An occasional purchase/easement may be needed for public access (e.g., upland parking area on a wetland dominated property).

Funding for land acquisition can come from a variety of federal (e.g., Pittman-Robertson and others), state (e.g., Stewardship), local and private (e.g., land trusts) sources as well as land donations.

Future Boundary Adjustments

Adjustments in property boundaries are occasionally needed. In some cases parcels of land are removed from the boundary to allow alternative uses with public benefits. Other times small parcels adjacent to the property need to be added so they may be purchased for resource protection or to meet expanding recreational needs. Property boundary changes of more than 40 acres require approval by the Natural Resources Board. Wisconsin Administrative Code Ch. NR 44 provides a plan amendment process that may be used to make adjustments in the property boundary after the master plan is approved.

Where land purchase or easements are being considered, the department can acquire land under the various authorities in State Statute 23.09.

Payment in Lieu of Taxes

State law requires the Department of Natural Resources to make payments in lieu of property taxes (PILT). The department uses an automated process for collecting information and calculating PILT payments. The process is determined by statute with little room for interpretation or calculation by the department. There are two separate statutes and several formulas under each statute that dictate the amount of each individual payment.

Wisconsin statute s. 70.113 Stats. applies to land acquired by the department prior to January 1, 1992. Payments under this statute are made directly to the taxation district in which the land is located. Schools, VTAE and counties do not receive any payment under this law.

Wisconsin statue s. 70.114 Stats. governs payments in lieu of property taxes for all lands purchased by the department after January 1, 1992. This law has been amended several times so the specific formula used by the department to determine each specific payment varies depending on when the property was acquired and how. Payments are made to each taxing district in January, similar to the way a private citizen would pay their property taxes and each taxing district then makes payments to all taxing jurisdictions in the taxing district.

For detailed information on how the department pays property taxes, visit dnr.wi.gov and search “PILT”.

Conveyed Easements and Other Land Use Agreements

Easements, access permits, land use agreements and leases across department land require consultation and joint action by the affected program and the Bureau of Facilities and Lands Real Estate staff. While such situations may serve a public purpose (e.g., a utility corridor or a road) they can adversely affect a management unit by:

- Restricting the department's future management options,
- Limiting the public's full use and enjoyment of a property,
- Preventing natural succession of cover types,
- Introducing exotic and invasive species to the property,
- Introducing additional herbicides and other contaminants to the property, and
- Creating liability concerns.

The conveyance of easements and other agreements is subject to sections NR 1.48 and NR 1.485, Wis. Adm. Code. Before any rights are conveyed, the Bureau of Facilities and Lands Real Estate staff must determine if federal funds were used to acquire the land and, if so, obtain the appropriate approvals.

Master Plan Implementation and Public Communications

An annual report on implementing this master plan will be drafted and used to monitor the progress made in meeting the plan's management objectives. Annual reports will be available to the public on the WDNR Internet Web site and linked to the respective property descriptions. The report will provide information on how the public can become involved in master plan implementation and when significant, new property management issues arise.

The annual report will summarize the following:

- Management and development activities completed,
- Significant issues addressed,
- Planned management and development activities for the upcoming year, and
- Potential changes to management actions or approaches.

The annual report may also include information on topics related to property management and uses. Examples include: the status of forest insect or disease problems, storm damage, updates on endangered or threatened species, recreation management issues, and recreational use trends.

In the event the department considers a substantive change to the master plan (i.e., a plan variance or amendment) the public will be informed of the proposal and the review and comment process. As appropriate, news releases will be used to announce master plan amendment/variance proposals and review procedures. The department will also maintain a contact list of persons, groups, and governments who have requested to be notified of potential plan changes.

The following department staff may be contacted regarding questions about the Northwest Barrens properties. At the time of this publication, their contact information is:

Nancy Christel 715-635-4091 nancy.christel@wisconsin.gov Manager, Namekagon Barrens Wildlife Area

Greg Kessler 715-372-8539 greg.kessler@wisconsin.gov Manager, Douglas County Wildlife Area

Note: contact Douglas Co Forestry: 715-378-2219 forestry@widouglascountywi.org and www.douglascountywi.org for information about clubhouse or camping recreation facility reservations on Douglas County Wildlife Area

Jeff Pennucci 715-365-8948 jeff.pennucci@wiscosin.gov Manager, Totogatic Wild River Area

Section 2: Real Estate Actions for NWB Properties

Summary: *The proposed modifications to this property group result in an 6-acre increase in department project boundary and acquisition goal.*

Namekagon Barrens Wildlife Area – South Unit (map C-5) (net reduction in department acres)

A boundary **contraction** is proposed for Namekagon Barrens Wildlife Area (South Unit) that will result in a net reduction of 25 acres to the overall project boundary and an equal reduction to the acquisition goal from 9,312 to 9,287 acres. This revision is a 'house-keeping' change to the project database that results from a 2015 department land exchange with Burnett County; a previous action that occurred outside this master planning process.

Douglas County Wildlife Area (map D-1) (no net gain in department acres)

No changes to the existing real estate project boundary (map D-1) and acquisition goal previously approved (1985) are proposed for the Douglas County Wildlife Area. However, earlier DNR documents state that the project boundary and acquisition goal encompassed 4,036 acres. The figure presented here (4,126 acres) is based on more accurate GIS mapping. This plan reflects that by changing the acreage goal from 4036 to 4126 acres; however, there is no net increase to the 1985 project boundary and corresponding acreage goal.

Totogatic Wild River Lands (map E-5)

Re-designation of a DNR Parcel from Statewide Habitat to Totogatic Wild River. (no net gain in department acres)
A re-designation is proposed for an 80-acre parcel (30 acres land; 50 acres water) from Statewide Habitat Area to Totogatic Wild River. The parcel proposed to be re-designated is in Douglas County, sandwiched between two 80-acre parcels of Totogatic Wild River lands. The statewide habitat area parcel was purchased twenty years ago, prior to recent establishment of the Totogatic Wild River project. The parcel consists mostly of the Totogatic River water, with 30 acres of wetlands and conifer. Management practices fit the vision and goals of the Totogatic Wild River project, and the parcel would be managed as part of the Braided River Channel in the Scenic Resources Management Area of this master plan.

The proposed re-designation results in an 80-acre project boundary and acreage goal increase to the Totogatic Wild River; however there is no net gain in department ownership acreage.

Boundary modification (expansion/contraction) to acquire key parcels of river corridor. (6 ac gain in acquisition goal & project boundary)

The department is proposing a small boundary modification to remove 54 acres of land from the current project boundary that are not needed by the department for conservation purposes. These parcels will be sold under the authority of s. 23.15 and the proceeds from the sale of these parcels will be used to acquire two areas of land (84 acres and 1 acre) being added to the project boundary to provide improved access to the river and management from a public road. The net change in acreage as a result of this boundary modification will be an increase of 6 acres, considering the 'credit' of 25 ac from the reduction in boundary from NBWA (described above). Recreational utility will be significantly improved and land not needed by the department for conservation purposes will be returned to the tax roll. None of these parcels contain commercial farm lands or high-value improvements. Properties would be acquired from willing sellers only.

Section 3: Individual Property Elements

Unless specifically addressed in each management area below, follow the "Universal Elements for All Properties" including "Management by Habitat and Forest Type" and "Recreation Management" provided in Section One of this chapter.

A variety of DNR, federal and county sources were used to estimate the cover types and land uses on or adjacent to the NWB properties. They include existing DNR Wildlife and Facilities and Lands records, Forestry WISFIRS data base, Water Division Wetland acreages and WISCLAND cover types. These data sources use different criteria for assessing habitat types and land uses, so different estimates may be developed depending on the source(s) used. Small inclusions of different cover types may be embedded within a more dominant cover type in the acreage descriptions and related maps.

1. NAMEKAGON BARRENS WILDLIFE AREA (Map A & Map Series C)

Managed Land:	**6,438 acres**
Acquisition Goal:	9,312 acres
Project Boundary:	9,312 acres
Proposed Project Boundary:	9,287 acres
Proposed Acquisition Goal	9,287 acres

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 and grassland-dependent wildlife species, including the state-threatened upland sandpiper and the state-listed special concern sharp-tailed grouse; the latter a popular game bird. It has been managed as a wildlife area since 1956. The wildlife area is made up of two units located a few miles apart. The north unit is 5,668 acres, and the south unit is 753 acres. Clemens Creek, a Class 1 trout stream and tributary to the St. Croix River, flows across the north unit of the property. In 2013, the Conservation Fund donated 1,400-acres specifically for barrens management. Most of the property was leased from Burnett County until late 2015, when the state acquired it through a land trade.

Facilities and Public Access

Infrastructure (current and proposed) for the north and south units of Namekagon Barrens Wildlife Area is shown on Maps Cn-2, Cn-2a, Cs-2, and Cs-2a, and Appendix G. Recreational opportunities are described in section one of this chapter.

The wildlife area is approximately 7 miles east of State Hwy 35 and 11 miles west of the Village of Minong and State Hwy 53. The north unit is located along St. Croix Trail Rd; the south unit 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, fire control, 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 small 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 from Friends of Namekagon Barrens Wildlife Area. Historically it was a deer hunting shack on county forest property, from when counties leased sites for an annual fee. Now, its use is for meetings by the Friends of Namekagon Barrens Wildlife Area, the bird 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 20 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 kiosks on site, and from the web pages of the Friends of Namekagon Barrens Wildlife Area (http://www.fnbwa.org/). 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.

Sharp-tailed grouse viewing blinds are reservable by using the web page calendar managed by the Friends of Namekagon Barrens Wildlife Area. http://www.fnbwa.org/blinds. There are three blinds on the north unit, each with room for up to three viewers. Regular and first time users travel from all over the country to view the largest Wisconsin population of sharp-tailed grouse on leks (courtship display territories).

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.

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.

Management, Challenges, & Constraints

Namekagon Barrens Wildlife Area is managed to provide opportunities for public hunting, trapping, fishing, bird watching, nature study and other compatible forms of outdoor recreation. As is the case with most wildlife areas, management is funded primarily by hunters and trappers through their purchase of licenses and payment of a federal excise tax on firearms and ammunition. Friends of Namekagon Barrens Wildlife Area, Wisconsin Sharp-tailed Grouse Society, and Bird Dog Trialers (Amateur Field Trial Clubs of America, Northwest Field Trial Association, Chippewa Valley Grouse Dog and AKC Breed Clubs) contribute financially and volunteer labor and supplies towards property and habitat management. and land acquisition.

The property is also managed to protect and perpetuate a unique mix of natural communities and their associated plant and wildlife species that are representative of properties managed for barrens communities in the Northwest Sands Ecological Landscape (Map B). Intensive oak/pine barrens management and restoration practices are employed to a greater degree here than at most other wildlife areas in Wisconsin. Barrens management objectives and prescriptions are described in Section One of this chapter.

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 include reduction in permanent staff over the last several decades that has negatively impacted the ability to conduct habitat management and maintenance activities on all northwest barrens properties. To mitigate this, local staff have expanded fire breaks and combined burn units to allow for efficient and safe management. For example, what was previously managed with 34 units are now managed with 25, with gained efficiency for staff to capably manage the recent

1,400-acre addition. Property staff increasingly relies on community involvement and partnerships and are grateful for their assistance.

Sharp-tailed grouse are managed by objectives and population recovery activities that are determined outside of this master plan effort. However, their management success is influenced greatly by the habitat and recreation management goals, objectives, and prescriptions for these 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), and they are small and isolated. However, Namekagon Barrens Wildlife Area presently has the largest population of sharp-tailed grouse in the state. The property falls within game unit 8, which In 2015 and 2016, was the only unit open to hunting. Given the extremely high hunting pressure, the department goal is to manage the land so that its sharp-tailed grouse population will increase to levels that more comfortably support ample hunting opportunities. Maintaining, expanding and connecting management areas within the Northwest Sands Ecological Landscape would provide the large-scale, open-landscape habitat the sharp-tailed grouse need. Working with partners in land management (Appendices D & E) offer good opportunities for success, and long-term research continues to be important. Beginning with the 2016 hunting season, sex and age information will be collected from each harvested bird.

Oak and Pine Barrens 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. Burn units are managed through a 5 to 8 year prescribed burn rotation, to maintain early successional barrens. In addition to the department communication specialists who inform the public about annual prescribed burns, at NBWA, wildlife management staff maintains an email contact list for all neighbors interested in knowing when prescribed burns are conducted on the north unit. Fire control dispatch sends an email to the contact list every day a burn is conducted. Wildlife management sends an email every spring and fall informing them of the potential that prescribed burns will occur.

This property is located in the Northwest Sands Ecological landscape, also known as **Fire Landscape 15**, 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 with different age classes of oak and pine stands around permanent open (young) barrens cores (Appendices D & E). 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.

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, like the Namekagon Barrens Wildlife Area, 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.

Both the Crex-Namekagon Barrens Partnership Corridor and the Namekagon-Moquah Barrens Partnership Corridor (Appendices D & E) represent effort to incorporate priorities of county forest fifteen-year plans, the Lyme-St. Croix conservation easements, the Northwest Sands Landscape Level Management Plan, Wildlife Action Plan, Sharp-tailed Grouse Management Plan, NW Sands Habitat Corridor Plan, and Land Legacy Report. Collaboration will offset dwindling wildlife populations (especially for sharp-tailed grouse), benefit outdoor recreationists, better address established conservation goals, enhance local partnerships, and support the local timber industry.

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 a challenge that poses 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.

Wildlife populations are monitored using a variety of surveys to determine harvest levels, evaluate management practices, and determine levels of public use. Invasive species threats and control opportunities are described in section one of this chapter.

Friends of Namekagon Barrens Wildlife Area, Inc. established in 2007, is a 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 (Appendix B). For more information, visit Friends of Namekagon Barrens Wildlife Area (http://www.fnbwa.org/).

Wisconsin Sharp-tailed Grouse Society, Inc. established in 1990, is a volunteer group who also support property management. They support research 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/)

Land Management Classifications (Map Cn-4 & Map Cs-4)

The Namekagon Barrens Wildlife Area consists of the following land management areas (ch. NR 44):

- Area 1: Habitat Management Area
- Area 2: Habitat Management Area
- Area 3: Special Management Area

Area 1: Barrens & Wetlands Habitat Management Area Namekagon North Unit (5,663 acres)

This management area is predominantly open jack pine/oak barrens, with lesser extents of red and white pine, and aspen. In 2013, approximately 1,400 acres were acquired, covered by varying stages of pine plantations and jack pine/oak barrens. This recent acquisition contains a large stand of mature jack pine that is presumed to be good habitat for the federally endangered Kirtland's warbler. Although none were detected during a 2015 bird survey, monitoring for them will continue. 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.

Wetlands are small and uncommon throughout the management area, representing approximately 5% of the land cover; however, they are high quality and add significantly to the diversity of the plant and wildlife species on the property. (see Wetlands, p. 25) Clemens Creek, a tributary to the St. Croix River, originates here.

Over the years, 34 units have been converted to 25 burn units on this north unit of the property. By modifying burn unit boundaries, staff is protecting the natural function of wetlands and creating safer burn units. Conducting prescribed fire on fewer burn units also is more efficient, as more acres are burns in less time.

Past disturbances, especially fire, contributed to the natural and abundant species diversity present here. Jack pine and scrub oak barrens will continue to dominate this area, with barrens-associated herbaceous ground flora well-represented. Throughout the management area, ground vegetation is diverse and consists of many barrens-associated grasses and forb species such as dwarf milkweed, wood lily and bearberry, in part because sufficient sunlight reaches the forest floor. Many rare and common wildlife species are associated with this habitat including brown thrasher, vesper sparrow, deer and wild turkey. Ideally management of the property would rotate between open jack pine barrens and jack pine forests; however, there is not enough land to manage for all stages of this forest type. Instead management favors the early stages of more open canopy, because partial and full-canopy forests surround the property. Wild turkey populations in northwest Wisconsin are highest on this property because of the benefits from having both the open and partial canopy on the landscape. This habitat management area is recognized both nationally and in Wisconsin's Land Legacy Report as important for native barrens ground layer plants, for the globally imperiled oak/pine barrens plant community, and for wildlife species diversity (WDNR 2006b, 2015b). Barrens-dependent wildlife including many Species of Greatest Conservation Need (SGCN) have been documented here, such as upland sandpiper, sharp-tailed grouse and Connecticut warbler (see Appendix A).

This area will be maintained to provide a high quality, ecologically functional, community continuum of early stages of open barrens habitat for the species that depend on this community. (see Barrens, p. 23). The high quality barrens ground flora will be maintained during all management treatments.

Recreation opportunities include bird-dog training and trialing, hunting, trapping, hiking, nature study, gathering, bird watching and other wildlife viewing (described in section one of this chapter). There are 3 traditional and well-used leks (where birds display for mating purposes) on this unit. Viewing blinds are placed for two months of the year for public use. These well-known lek locations may contribute to the species being especially vulnerable during the hunting season. Construction of a new sharp-tailed grouse hunters' reporting station will contribute to improved data collection with additional critical information about the harvest of these birds.

Table 2-2 shows approximate acreage of current and projected forestry-based cover for Area 1 public land (Map Cn-3).

Table 2-2: Area 1 – Barrens & Wetlands (Namekagon North); Current & Projected Cover

	Current			Change Predicted in 50 years	
Cover Type	Acres	% Cover		Acres	% Cover
Oak	4,704	83		5102	90
Upland Conifer	737	13		283	5
Swamp Hardwood	113	2			
Non-Forested Wetland	65	1			
Water	49	1			
Total	**5,668**	**100**		**5,668**	**100**

Objectives and Prescriptions

Follow "Universal Elements for All Properties" including "Management by Habitat and Forest Type" and "Recreation Management" provided in Section One of this chapter, with additional management below.

Objective

- Gather sharp-tailed grouse harvest information to inform management decisions that will lead to increased numbers of this rare, special concern game species.

Management Prescription

- Construct and place a sharp-tailed grouse hunters' reporting station

Barrens Transition Zone

A 1,400-acre barrens transition zone overlays a portion of the Barrens and Wetlands Management Area. The land within this zone was acquired in 2013 with help from The Conservation Fund, specifically to convert the pine plantation to early stage oak/pine barrens, thereby gaining wildlife habitat by restoring the natural barrens community. Transition management is anticipated to last from 10-15 years. The timber sale and first prescribed burns have been completed on 600 acres.

Transition Zone Objective

- Convert existing pine plantations to early stage pine/oak barrens.

Transition Zone Prescriptions

- Conduct the transition in ways that allow existing merchantable timber to be most economically productive, and recently planted pines to be removed early to maximize wildlife habitat benefits. Older stands furthest from the existing managed barrens on the property will be converted last.
- Maintain a buffer of 100 feet or more of large tree management, between the firebreak and the adjacent residential housing along Big Sand Lake.

State Natural Area

The **Namekagon Barrens State Natural Area** is proposed to overlay most of this management area. The management objectives and prescriptions remain the same for this overlay.

Area 2: Barrens & Wetlands Habitat Management Area Namekagon South Unit (753 acres)

This management area is very similar in habitat and public use to that of the north unit of the property (see above). It is predominantly open jack pine/oak barrens, with lesser extents of red and white pine, and aspen. The rolling topography of the south unit distinguishes it from the north unit and also makes the land more challenging to manage. This topography may also provide more useable habitat per acre of land, by providing the perception of a larger landscape and more surface

area. It is visually pleasing and adds physical challenge and enjoyment for property visitors. A high quality spruce bog adds to its diversity and importance. There are two burn units on the south unit.

Opportunities for bird-dog training and trialing, for hunting, trapping, hiking, nature study, gathering, bird watching and other wildlife viewing are available. There are no known annual leks on this unit and presumably not sufficient numbers of birds to establish a consistent one; however, that is a desirable goal. No viewing blinds are placed for public viewing.

Table 2-3 shows current and projected forestry-based cover for Area 2 public land (Map Cs-3). Projected forestry-based cover is not anticipated to change.

Table 2-3: Area 2 – Barrens & Wetlands - Namekagon South

	Current & Projected Cover	
Cover Type	Acres	% Cover
Oak	691	95
Non-Forested Wetland	29	4
Swamp Conifer	7	<1
Water	1	<1
Total	**728**	**100**

Objectives and Prescriptions

Follow "Universal Elements for All Properties" including "Management by Habitat and Forest Type" and "Recreation Management" provided in Section One of this chapter, with additional management below.

Objective

- Provide a scenic overlook with information facilities.

Management Prescriptions

- Maintain the parking area and scenic viewshed at the overlook.
- Install up to two benches for study and observation.
- Update the information kiosk to provide maps and information about the property.

State Natural Area

The **Namekagon Barrens State Natural Area** is proposed to overlay all of this management area. The management objectives and prescriptions remain the same for this overlay. Being globally rare, the oak/pine barrens habitat and many of the species present make the entire south unit of the property valuable as a State Natural Area. The high quality spruce bog adds to its diversity and importance.

Area 3: Multi-purpose Use, Special Management Area (5 acres)

This day use area is located at the intersection of St. Croix Trail and Gomulak Fire Lane. It includes a small cinder block cabin restored in 2011 by staff and volunteers, with efforts led by bird dog trialers from the Northwest Field Trial Association and from Friends of Namekagon Barrens Wildlife Area. Historically it was a hunting shack on county forest

property, from an era when counties leased sites for an annual fee. It provides a gathering place for special events such as meetings of the Friends of Namekagon Barrens Wildlife Area, bird dog trialers, wildlife researchers and educational activities.

The Friends of Namekagon Barrens Wildlife Area (FNBWA) is a dedicated group 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 at this wildlife area. For more information, visit Friends of Namekagon Barrens Wildlife Area (http://www.fnbwa.org/) and Appendix B.

This 'special management area' includes an outhouse and solar electricity for the cabin, provided and installed by FNBWA volunteers. When using a generator, non-potable well water is available.

Limited dispersed camping is allowed in the area at appropriate locations determined by the property manager. Campers must register with the property manager at the DNR Service Center located in Spooner.

This area is characterized by northern pin oak and jack pine surrounding an open grassy area near the cabin.

Long-awaited plans include construction of an unheated storage building for equipment, further improvements to the cabin, construction of a picnic shelter for visitor programs, and improvements to existing educational kiosks, all of which will help promote and accommodate increased property use.

Table 2-4 shows approximate acreage of current and projected forestry-based cover for Area 3 public land (Map Cn-3). Projected forestry-based cover is not anticipated to change.

Table 2-4: Area 3 – Multi-purpose Special Management Area

	Current & Projected Cover	
Cover Type	Acres	% Cover
Oak	2	40
Jack pine	2	40
Developed	1	20
Total	**5**	**100**

Objectives and Prescriptions

Follow "Universal Elements for All Properties" including "Management by Habitat and Forest Type" and "Recreation Management" provided in Section One of this chapter, with additional management below.

Objectives

- Provide an area and facilities to support operations and delivery of public services and educational programming to implement the vision and goals (Chapter 2, Section 1) related to Namekagon Barrens Wildlife Area.
- Provide a designated area for barrens-related special interest groups to meet and host events on NBWA.
- Provide limited dispersed camping opportunities to support traditional bird dog trialing events or nature study, such that they do not interfere with the primary purpose of the property.

Management Prescriptions

- Maintain facilities, including the cabin, for special events.
- Expand and mow the area used for special events.

- Continue to allow vehicle access with limited unimproved parking during special events at the cabin.
- Continue to allow public access to non-potable well for dog trialing.
- Provide restroom facilities appropriate for use levels.
- Oversee construction of new unheated storage building (30 ft. x 50 ft.).
- Install a picnic shelter with capacity for up to 60 people.
- Develop and maintain interpretive materials, indoor/outdoor benches, grill, tables, displays, and picnic tables.
- Maintain solar electricity.
- Accommodate dispersed camping opportunities for special events by permit, at appropriate locations determined by the property manager. No camp sites will be designated.
- Maintain the grounds (turf, trees, etc.) as appropriate to enhance building maintenance and protection from wild fire or storm damage and to ensure visitor safety. Away from buildings, manage the landscape to sustain existing native habitat and provide for visitor education through interpretation.
- Host a wildlife festival in collaboration with FNBWA and other partners, when staff time and finances allow.

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

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
Remeasured Boundary:	4,126 acres
Remeasured Acquision Goal:	4,126 acres

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.

Located in southeast Douglas County, between the towns of Solon Springs and Gordon, it is easily accessible from State Hwy 53 by heading west on County Highway M. Recognized since 1935 as ***The Bird Sanctuary*** (including highway signage), 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 alone manages the 20-acre developed recreation site within the project boundary.** Public use 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. Trials here were one of the first established in the nation and are one of the longest running field trials today. 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.

The sandy uplands of the wildlife area were historically covered by a jack pine and oak savannah or barrens. The vegetation consisted of large jack and red pine widely scattered throughout an open expense of prairie grasses and wildflowers and a variety of woody vegetation including sweet fern, hazel, willow, blueberry and oak brush. The plant community was maintained by natural and human caused fires that frequently swept through the area.

Facilities and Public Access

Infrastructure (current and proposed) is shown on Map D-2, D-2a and Appendix G. Recreational opportunities are described in section one of this chapter.

Over 50 miles of road access (including 30 miles of department-managed, unimproved, seasonal service roads) provide property access for public recreation. County Hwy 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 County Hwy M, and parking is permitted seasonally along the shoulders of most town and county roads.

A 5-mile segment of the North Country National Scenic Trail (NCT) passes through the property. This multi-state hiking trail is a project of the National Park Service, and it is recognized as a state trail in Wisconsin though a project boundary established and approved in 1980. The trail through Douglas County Wildlife Area is a certified segment of this trail system. Certification indicates the segment is developed and managed in accordance with the National Trails System Act and the comprehensive management plan for the trail. Certification entitles the trail to be marked with the official trail emblem and supplemented by other types of markings, such as paint blazes, and signs that provide distance and directional information.

Management, 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.

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, open (young) 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), embedded within the county-owned property, was designated in 1968. It 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/).

Land Management Classifications (Map D-4)

The Douglas County Wildlife Area (DCWA) consists of the following types of land management areas (ch. NR 44):

- Area 4: Habitat Management Area
- Area 5: Recreation Management Area (county-managed)

Area 4: Barrens & Wetlands Habitat Management Area (3,985 acres)

Found near the middle of the Northwest Sands Ecological Landscape, this management area contains primarily a pine and oak barrens community. This area includes the Solon Springs Sharptail Barrens SNA (240 ac). Management is primarily for sharp-tailed grouse and grassland birds, with emphasis on an early-successional barrens habitat that provides a sparse canopy cover (1% or less) dominated by jack pine, red pine, northern pin, bur 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 Rovers Lake. Much of the site is owned by Douglas County with the remainder owned by Wisconsin DNR. A bird dog Class 2 training area is identified on the southwest corner of the property; however, it has the same management objectives and prescriptions as this habitat management area.

Table 2-5 shows approximate acreage of current and projected forestry-based cover for Area 4 public land (Map D-3). Projected forestry-based cover is not anticipated to change.

Table 2-5: Area 4 – Barrens & Wetlands (DCWA)

	Current & Projected Cover	
Cover Type	Acres	% Cover
Oak	3,585	90
Aspen	139	3
Non-Forested Wetland	131	3
Upland Conifer	45	1
Swamp Conifer	33	<1
Water	30	<1
Swamp Hardwood	22	<1
Total	**3,985**	**100**

Objectives and Prescriptions

Follow "Universal Elements for All Properties" including "Management by Habitat and Forest Type" and "Recreation Management" provided in Section One of this chapter, with additional management below.

Objectives

- Partner with the North Country Trail Association to support and maintain the certified Wisconsin segment of the North Country National Scenic Trail (NCT) within its project boundary through the property.
- Maintain native vegetation along Leo Creek to provide high quality in-stream and riparian trout habitat.

Management Prescriptions

- Provide a primitive campsite at Rovers Lake for use by NCT hikers to be maintained by NCT.
- Maintain a fire break to exclude prescribed fire and ensure an aesthetic forest buffer for the NCT camp site at Rovers Lake.
- Use appropriate fire suppression techniques to effectively minimize resource damage along the NCT trail.
- Reserve, identify and protect trees blazed for NCT trail markings and remove slash and maintain smooth trail tread along the NCT during timber sales. (Note: there are no current of future timber sales planned anywhere along the current trail location.)
- Monitor the NCT for new or existing invasive species and use appropriate vegetation management methods.
- Maintain the existing system of primitive equestrian trails with slight alignment alterations as needed to provide improved sustainability. Note: the property manager may close a trail to equestrian use if the conditions are not suitable for riding.
- Reroute and/or close approximately 0.5 miles of primitive road to all vehicle access.

State Natural Area Designation

Solon Springs Sharptail Barrens Natural Area (240 acres) was designated in 1968 within the Douglas County owned portion of the property. It lies within Management Area 4: Barrens and Wetlands, and has the same management objectives and prescriptions as this habitat management area. 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.

Area 5: Douglas County Special Events - Recreation Management Area (20 acres)

A 20-acre developed recreational area located on Bird Rd is included in the lease to DNR; however this area is entirely managed (including recreation use and landcover) by Douglas County Forestry Department, and its management is not controlled by authority of this master plan. Public 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.

Note: contact Douglas County Forestry: 715-378-2219 forestry@widouglascountywi.org and www.douglascountywi.org for more information about this management area and for details about clubhouse or camping facility reservations.

3. TOTOGATIC WILD RIVER LANDS (MAP A & MAP SERIES E)

Managed Land:	**2,379 acres**
Acquisition Goal:	2,379 acres
Project Boundary:	2,379 acres
Proposed Acquisition Goal	2,379 acres
Proposed Project Boundary	2,379 acres
Draft Feasibility Study & EA:	2011
Previous Master Plan:	None

The Totogatic Wild River is the third property in this master plan group that is within the Northwest Sands Barrens Priority Conservation Area (Appendix A). Four of its six unconnected parcels are adjacent to the lowest reaches of the 70-mile Totogatic River, only a few miles before its confluence with the much larger Namekagon River (Map E-6). Two other small parcels border the Totogatic River upstream of the Minong Flowage in Douglas County. However, most of the property is situated in northwest Washburn County, west of the Village of Minong and State Hwy 53, and one mile north of State Hwy 77 (Map A).

The Totogatic River was officially designated as a State Wild River in 2009. As **one of only five rivers** in Wisconsin bestowed with this designation, it is protected by both state rule and state statute to be kept wild and free from development in order that people may enjoy the river in its natural and free-flowing condition. Graced with steep banks and an abundance of fish and wildlife, this relatively narrow river flows approximately 70 miles westward from the outlet of Totagatic Lake in Bayfield County through portions of five counties, and eventually empties into the Namekagon River in Burnett County. It is a tributary to the Namekagon and St. Croix National Wild and Scenic Riverway. The shoreline is relatively wild for much of the river's length. The property land cover is 87% upland pine/oak barrens and 13% floodplain and wetlands. 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 those reference materials.

In 2010, DNR acquired the first parcels (non-contiguous) of this project from Wausau Paper Company, in partnership with The Conservation Fund, utilizing state Stewardship funds and a donation from the Doris Duke Foundation. In 2013 a second acquisition occurred. Washburn County Lakes and Rivers Association received private donations and together with The Conservation Fund, utilized Stewardship program funds to acquire 259 acres which they donated to DNR.

A draft Feasibility Study and Environmental Analysis (WDNR 2011a), and public meetings/comments recommended that a project boundary expansion connect the fragmented parcels; however agency workload at that time prevented advancement to the stage of a property master plan. Interim management has focused on posting property boundaries, providing public recreation access, performing erosion control, and conducting timber harvests that replicate natural disturbances such as fire or wind events.

The overarching **Property Management Goal** as intended by both the wild river statute and administrative code is to:

- **Provide opportunities for river users to experience the solitude and enjoyment of a natural, wild appearing, remote setting, by maintaining the Totogatic River in its natural, free-flowing, and unaltered condition.**

It is worth restating the three Northwest Barrens goals listed in Chapter One, that specifically provide a framework for the resource management provisions described in this chapter:

- Protect the wild nature of the Totogatic River through bank protection and sound property and watershed management practices. Work with partners and the public to promote sustainable use and "leave no trace" river recreation.
- Manage in ways that contribute to the protection and preservation of the groundwater and surface water quality and quantity for current and future uses.
- Provide habitat for wildlife that are particularly dependent on oak/pine barrens such as the sharp-tailed grouse, and for wildlife associated with the wetlands and rivers.

Secondary to its purpose as a Wild River project, this property has noteworthy features that contribute to conservation of biodiversity in the region. It is adjacent to other publicly-owned parcels, forming a corridor between uplands and riparian zones. In a regional context, the Totogatic parcels present opportunities for pine/oak barrens management across multiple successional stages, benefitting area-sensitive species such as the sharp-tailed grouse, and enabling a wide array of management options. The landscape context of its proximity to the Namekagon Barrens State Wildlife Area (2 ½ miles), county forest lands, and the Brule-St. Croix Legacy Forest offers an important opportunity for barrens restoration and to provide connecting corridors for wildlife and plant species.

Facilities and Public Access

Infrastructure (current and proposed) is shown on Map E-2 and Appendix G. There are no buildings on the property. Recreational opportunities are described in section one of this chapter and supplemented below.

Access is primarily from perimeter roads. 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 lands can be accessed from Smith Bridge Rd (from the west) and from a walk-in 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) parking areas available, one off Kimball Lake Road, the other off County Line Road. Recreation within these parcels is primarily by foot or small watercraft. Due to the highly erodible steep banks and the natural vegetated state of the river shoreline, access to the river from many of these parcels is not recommended. Better access is available to the river from other points in the county (noted below).

Two developed river access landings with parking are available for river recreationists: one located on the north side of County Highway I (county-owned and maintained) and another landing with parking and a restroom located on National Park Service property, approximately 15 river miles downstream below the confluence with the Namekagon River. In-between these areas, it is also common for users to access the river at two bridge intersections with town roads, carrying canoes and kayaks down the banks off Nancy Lake Rd and Bridge Rd. The slopes and river banks are susceptible to erosion, so care should be taken when walking up and down them. Additionally, a third primitive river access site exists on the north bank of department land off County Line Rd, only two miles from the NPS landing.

A county-maintained snowmobile trail traverses a portion of department property in Washburn County, connecting from Sleepy Eye Rd to Forest Legacy Easement lands to the south. This trail is also open to winter ATV use per county regulations and pedestrian use at other times of the year.

Proposed Infrastructure: This master plan includes several project proposals to enhance recreation opportunities, while protecting the scenic and wild landscape along the Totogatic River. For river access, the department proposes to develop one access area off County Line Rd. With regard to trails, the department proposes maintaining a walking trail off Banks Lake Rd that passes adjacent to the river corridor and through the Totogan Pines State Natural Area. A snowmobile trail near Sleepy Eye Rd would be relocated further away from the river, while still providing connectivity to the overall trail network. With regard to parking, the department will monitor use of the property and, as needed, establish up to four additional parking areas, as authorized in the General Administration, Management Policy and Provisions section of this master plan. These parking areas would be screened from the river by vegetation and topography and located beyond the protection zone of the river (beyond 400 feet landward from the river or beyond the visual horizon, whichever is greater as required by ch. NR 302 Wis. Admin. Code).

Management Partnerships

The Totogatic Wild River includes over 70 miles of river corridor. Management of this extensive riverway is through an informal collaboration of partners to preserve and protect the Totogatic Wild River in a wild and free-flowing natural state.

Partners include five counties, state and federal governments, private landowners, and nonprofit groups that work together to prevent incompatible uses adjacent to the river and to restore sections of the river to an undeveloped condition (Totogatic River Watershed Map E-6).

This master plan applies only to the DNR managed lands located along the lower reach of the Totogatic Wild River, from just upstream of the Minong Flowage to the Burnett County line.

Land Management Classifications (Map E-4)

The Totogatic Wild River property is divided into five land management areas (ch. NR 44):

- Area 6: Wild Resources Management Area
- Area 7: Scenic Resources Management Area
- Area 8: Habitat Management Area
- Area 9: Native Community Management Area
- Area 10: Scenic Resources Management Area

Wild River Protection Zone

Special provisions apply to management of department-managed lands bordering state designated wild rivers. These are prescribed by ch. NR 302 Wis. Admin. Code. This code establishes a ¼ mile zone along both banks of the river as the area of primary interest for wild river lands managed by the department. The provisions specific to department lands are intended to limit the impacts of natural resource management activities and recreational use development on the river users, keeping the experience, as well as the river "wild". There are distinct management zones within this ¼ mile corridor, with the protections increasing closer to the river. Development is restricted to a few specified exceptions including walk-in access for launching watercraft. Set back from the river, beyond the "protection zone" (defined below) and up to ¼ mile from the river, development is permitted only if "necessary to accommodate the users of the wild river areas" (see ss. NR 302.03(1) and (2)).

The area of land within 400 feet or to the visual horizon whichever is greater from either side of a wild river is defined in s. NR 302.02(4) as the wild river "protection zone". Within the first 150 ft. from the river, land management is limited to activities such as erosion control and restoration. Moving farther back from the river, from 150 feet out to 400 feet (or visual horizon whichever is greater), land management, including timber cutting, with an emphasis on aesthetics may be conducted.

The lands within the wild river protection zone on the Totogatic are comprised primarily of steep, sandy banks dominated by jack and red pine, with lesser amounts of oak and silver maple in the floodplain. Even beyond the initial streambank, soils are highly erodible. The steep slopes and bluffs along the river should be protected from activities that could increase erosion and harm water quality and all BMPs should be strictly followed. Ground layer vegetation contains characteristic wetland species such as bluejoint grass, false dragonhead, and poison ivy.

In this plan, the wild river protection zone as defined in NR 302.02(4) is divided into two separate land management areas, Management Areas 6 and 7; each describes management unique to the respective portion of the protection zone. The two areas have been assigned distinct land management classifications per ch. NR 44 Wis. Admin. Code based on the best fit for the stated objectives and prescriptions.

Table 2-6 shows the approximate acreage of current and projected forestry-based cover for Management Areas 6 & 7 public land (Map E-3).

Table 2-6: Areas 6 & 7 – Wild River Protection Zone (Totogatic); Current & Projected Cover

	Current			Change Predicted in 50 years	
Cover Type	Acres	% Cover		Acres	% Cover
Upland Conifer	282	50		300	53
Bottomland Hardwood	143	25			
Water	70	12			
Aspen	42	7		12	2
Oak	23	4		35	6
Non-Forested Wetland	3	1			
Swamp Conifer	3	1			
Total	**566**	**100**		**566**	**100**

Area 6: Wild River Protection Zone; River's Edge (212 acres)

(That portion of the Wis. Admin. Code ch. NR 302 protection zone within 150 ft. of the river)

Classification: Wild Resources Management Area, Type 1 Recreational Use Setting

Follow "Universal Elements for All Properties" provided in Section One of this chapter, including "Management by Habitat and Forest Type" and "Recreation Management", except as directed below.

Objective

- Maintain the river's edge portion of the protection zone in a wild, undeveloped and somewhat remote condition; an area where natural ecological processes predominate and evidence of human cultural impact is low, with no motorized access except for management activities authorized by NR 302.03. There is no public motorized access. Development is limited to primitive walk-in watercraft launching sites supported by primitive access trails.

Management Prescriptions

- Passively manage vegetation (i.e. no management) in this zone, except as detailed below for the control of invasive species or to restore and maintain native vegetation. Do not salvage following natural disturbances, unless required under an emergency response plan authorized by the state forester as described in the Authorized Response to Catastrophic Events clause in the General Administration, Management Policies and Provisions section of this plan.
- Maintain or restore native barrens habitat areas with prescribed fire if appropriate to the site and if consistent with the management objectives for lands adjacent to the River Protection Zone. Prior to conducting any prescribed burn, the property manager shall consult with an interdisciplinary staff team from Wildlife, Forestry, Natural Heritage Conservation, and Water Quality to determine whether a burn is appropriate for the site and evaluate and minimize potential impacts to river users.
- Control invasive plant species to maintain the natural visual quality of the area and to protect the area's ecological values. Prescribed fire, manual removal, and when necessary, herbicides may be used. Care should be taken to minimize the visual appearance of management activities.

- Restore to a natural appearance all sites or areas that were previously developed or otherwise modified by human disturbance. Restore human-caused eroded areas to a natural appearing condition. Limited vegetation may be removed if needed when conducting restoration activities. The disturbed area should be minimized to the degree practicable. Only natural materials that are common to the local environment and native species may be used in restorations.
- Restrict all public motorized access. Limited motorized access is permitted when conducting activities authorized by ch. NR 302 Wis. Admin. Code.

Area 7: Wild River Protection Zone; Backland (354 acres)

(That portion of the Wis. Admin Code NR 302 protection zone that is 150 to 400 ft. from the river or to the visual horizon, whichever is greater)

Classification: Scenic Resources Management Area, Type 2 Recreational Use Setting

Follow "Universal Elements for All Properties" provided in Section One of this chapter, including "Management by Habitat and Forest Type" and "Recreation Management", except as directed below.

Objectives

- Provide conditions where users of the wild river may feel they are in a secluded, natural setting. Maintain the area in an undeveloped, natural appearing condition with low evidence of management activity, to maintain a remote, wild setting.
- Allow no public motorized access and limit development to primitive trails for walk-in river access.
- Consistent with site capability and management objectives on adjacent lands, maintain or restore the representative natural community types, including Tamarack (poor) Fen, Bog Lake, Pine/Oak Barrens and Northern Dry Forest. Provide "soft" transitions between the river's edge passive management area and the adjacent habitat management area. Maintain older age classes of native white and red pine.

Management Prescriptions

- Passively manage wetlands, including bottomland hardwoods.
- On appropriate sites, promote the growth and retention of large trees, favoring species such as white and red pine for their high aesthetic value. Under-planting may be used to increase stocking levels of key species. Retain and promote coarse woody habitat (snags and dead downed trees) to promote old growth characteristics.
- Design management activities, including timber harvests, to limit audible and visual impacts to river users and to prevent erosion into the river's edge protection zone.
- Establish timber sale boundaries that are irregular and harmonize with natural occurring shapes and topography. Use techniques such as removing or chipping slash, or treat slash to lie within 24 inches of the ground. Limit harvesting to the period between October 15th – May 31st. If site-specific circumstances or events require harvesting outside this time window, authorization may be granted by the director of the program administering the management of the property.
- Locate all logging roads and decking sites outside of the river protection zone. Minimal, temporary skid trails are allowed. Following completion of timber sales, close all skid trails and logging roads. Where such roads are not needed for future management activities, conduct restoration activities for the first 50 feet of the closed trails and roads (including planting with native trees and shrubs, using rocks & berms) to restore them.

- As is practicable, restore (re-vegetate) past management roads and restore other sites or areas that have previously been modified by humans using native vegetation or materials not foreign to the immediate surroundings. Place a priority on restoring sites most visually obvious or that have illegal motorized use.
- Generally do not salvage following natural disturbances. Limited salvage and restoration actions may be done when necessary to maintain the visual quality of the area; or as may be required under an emergency response plan authorized by the state forester as described in the Authorized Response to Catastrophic Events clause in the General Administration, Management Policies and Provisions section of this plan. Plant with native vegetation to be effective if natural regeneration would be too slow.
- Manage pine/oak barrens without sharp contrast to the adjoining habitat management area. Use tools such as prescribed fire, and tree and brush removal to mimic natural disturbance patterns.
- Control new or existing invasive species as practicable, using manual, mechanical and chemical vegetation management methods.
- Prevent access of unauthorized motor vehicles and ATVs.

Public Access Prescriptions for the Wild River Protection Zone - Applies to both Areas 6 & 7

- Do not develop or maintain roads, parking areas and motorized trails within the River Protection Zone. Abandon and restore any that currently exist.
- Provide and maintain a small, primitive walk-in river access site on the north side of the river, off County Line Rd. Access will be from a primitive trail, as defined by NR 44.07(3)(e). Specifically, this primitive access trail shall be maintained (cleared) only to the minimal width necessary to allow single-file pedestrian passage. Any downed trees or logs across the trail that can be stepped over may be left in place. They are a common characteristic of primitive trails. Modifications to the natural trail surface are limited to that which is minimally necessary to provide essential environmental protection. Minimize clearing streambank vegetation to that adequate for launching a canoe or kayak. Restore native vegetation along the primitive walk-in river access trail from the County Line Rd. access parking lot.
- Work with the Town of Minong to continue their town road management of County Line Rd only to the proposed DNR parking area back at least 400’ from the river. Close the existing primitive seasonal road (sloping and sandy) to vehicles and restore as noted above.
- Work with the Town of Minong to implement erosion control and safer river access down the banks on the right-of-way off Nancy Lake Rd near the bridge. Monitor and evaluate use of river access at this location. If deemed necessary, provide and maintain a small, primitive walk-in trail for access to the river on adjacent department land outside the right-of-way. Access will be from a primitive trail, as defined by NR 44.07(3)(e). Specifically, this access trail shall be maintained (cleared) only to the minimal width necessary to allow single-file pedestrian passage. Any downed trees or logs across the trail that can be stepped over may be left in place. Modifications to the natural trail surface will be limited to that which is minimally necessary to provide essential environmental protection. Clear streambank vegetation only to that adequate for a canoe or kayak.
- Work with Minong Township to evaluate potential for placing signs at up to 3 locations that indicate scenic viewpoints at town road river crossings (Bridge Rd, Nancy Lake Rd, Trout Dr).

Area 8: Barrens & Wetlands (Totogatic) Habitat Management Area (1,526 acres)

This habitat management area provides an opportunity for managing jack pine, a globally declining species, and providing a full range of pine/oak barrens successional stages, through providing shifting mosaics and diverse habitats in the landscape

context. Techniques may include short rotation, large scale timber harvesting, and using prescribed burns where feasible to select against fire intolerant forest species, keeping some areas in an early stage pine/oak barrens condition.

Because of their close proximity to the Namekagon Barrens Wildlife Area, two sites (identified as primary sites in Chapter 3) have significant opportunities for barrens management to support the sharp-tailed grouse, an early successional barrens-dependent species. One site lies east of Kimball Lake Rd, the other is on the west side of Fivemile Creek.

Because this region of the state sees frequent fire events, early successional barrens can play an important role as a fuel break in the landscape. This management area provides another opportunity to create a landscape dotted with 'rolling' or transitional barrens, with different age classes of oak and pine stands around a permanent young barrens core. 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. An early successional pine/oak barrens landscape provides benefits by offering patches of fuel breaks that support prescribed burning, while enhancing ecological diversity and supporting area-sensitive species such as the sharp-tailed grouse. In the event of a forest fire, fuel breaks increase the safety and effectiveness of forest fire suppression operations.

Wetlands are an important ecological feature throughout the property parcels and in much of the Northwest Sands Ecological Landscape. Wetland areas and 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.

Table 2-7 shows the approximate acreage of current and projected forestry-based cover for Area 8 public land (Map E-3).

Table 2-7: Area 8 – Barrens & Wetlands (Totogatic)

	Current & Projected Cover	
Cover Type	Acres	% Cover
Upland Conifer	1,030	67
Oak	270	18
Aspen	180	12
Bottomland Hardwood	23	1
Non-Forested Wetland	15	<1
Swamp Conifer	8	<1
Water	<1	<1
Total	**1,526**	**100**

Objectives and Prescriptions

Follow "Universal Elements for All Properties" provided in Section One of this chapter, including "Management by Habitat and Forest Type" and "Recreation Management", except as directed below.

Objectives

- Manage for jack pine and a full range of pine/oak barrens successional stages, providing shifting mosaics and diverse habitats in the landscape context. Protect and maintain the quality and extent of wetland habitats. (See the Universal Elements in Section 1 of this chapter for a complete set of objectives and prescriptions.)

- Provide an area within ¼ mile of the river that is free of public use developments and motorized uses and with minimal audible impacts on river users. Exceptions include the county snowmobile trail, and limited development permitted by ch. NR 302 to support river user access.

Management Prescriptions

- As is practicable, design timber sale boundaries to be irregular and harmonize with natural occurring shapes and topography to maintain a more natural appearing landscape, particularly near public highways, and access roads and trails.
- Following completion of timber sales, close all skid trails and logging roads. Where such roads are not needed for future management activities, conduct restoration activities for the first 50 feet of the closed trails and roads (including planting with native trees and shrubs, using rocks & berms).
- On lands beyond the protection zone and within ¼ mile of the river, to the degree practicable, design and conduct management activities, including timber harvests, so as to minimize audible impacts to river users, particularly between June 1st and October 15th.
- As is practicable, restore (re-vegetate) past management roads and restore other sites or areas that have previously been modified by humans using native vegetation or materials not foreign to the immediate surroundings. Place a priority on restoring sites most visually obvious or that have illegal motorized use.
- Develop and maintain a small, primitive to lightly developed 4-6 vehicle parking lot and a walk-in primitive access trail to the river off of County Line Rd. Locate the parking lot outside of the Wild River Protection Zone and screened by vegetation or topography.
- Work with the Town of Minong to continue their town road management of County Line Rd to the proposed DNR river access parking area, beyond which the road will be closed and abandoned. Actively restore the closed portion of the road to a primitive trail.
- Provide no motorized access other than for river users and as is minimally necessary to accommodate the county snowmobile trail. Reroute the snowmobile trail closer to the southern boundary line of its DNR parcel, (across from Sleepy Eye Rd) to better accommodate the ¼ mile restricted motorized access along the riverway (ch. NR 302). Allow early rotational harvest as necessary to accommodate this change.
- Prevent or control unauthorized access by motor vehicles and ATVs.
- Maintain the primitive road easement to the property from Middle Dr. for department vehicle access for management purposes. This easement also provides pedestrian access for the public

State Natural Area

The **County Line Barrens and Forest State Natural Area** (207 acres) is proposed to overlay a portion of this management area. The management objectives and prescriptions remain the same for this overlay.

Area 9: Totogan Pines & Wetlands Native Community Management Area (140 acres)

This management area has three distinct zones: a native red pine forest; oak/pine barrens; and a small, ecologically significant wetland complex in the northwest portion of the site. This management area consists of the second acquisition to the Totogatic Wild River project that occurred in 2013, which notably intended to provide nature-based recreation along a primitive hiking trail already present at this location.

The most significant feature of this area is a stand of mature Northern Dry-mesic Forest dominated by native red pine; a very rare occurrence in the state. The forest also contains occasional white pine and scattered to moderate density northern pin oak and red maple. Widely scattered individual bigtooth aspen and paper birch also occur. White pine regeneration is present in some areas. The understory contains American hazelnut, patches of blueberries, cow-wheat, mayflower, whorled loosestrife and starflower. Coarse woody debris is sparse.

The barrens landscape contains scattered red pine, aspen, northern pin oak saplings, and hazelnut shrubs. Open barrens patches include vegetation such as big bluestem, little bluestem, hoary puccoon, rough blazing star, western sunflower, long-leaved bluets, butterfly weed and harebell. Some areas are dominated by non-native grasses, particularly in disturbed sites, which should be monitored and controlled.

The northwest portion of the site contains a 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, black spruce, balsam fir, black ash, and alder. The Oxbow Lake occurs in the river floodplain, partially separated from the wetland complex by a high ridge of red pine. Half of oxbow lies in the adjacent Wild River Corridor. It should be surveyed for backwater fishes, aquatic invertebrates, and additional herptiles. The site has the potential to support rare species, including Blanding's turtle. There is an active seep flowing off the forested slope into the Oxbow Lake and Forested Seeps are known to support rare plants. A Spring coursing through the small sedge meadow is likely to harbor pickerel frog and/or northern leopard frogs while the Alder Thicket and Tamarack Swamp could support four-toed salamanders.

Table 2-8 shows the approximate acreage of current and projected forestry-based cover for Area 9 public land (Map E-3).

Table 2-8: Area 9 – Totogan Pines & Wetlands; Current & Projected Cover

	Current			Change Predicted in 50 years	
Cover Type	Acres	% Cover		Acres	% Cover
Upland Conifer	61	44		70	50
Oak	34	24		28	20
Aspen	17	12		14	10
Swamp Conifer	12	9			
Non-Forested Wetland	10	7			
Bottomland Hardwood	4	3			
Water	2	1			
Total	**140**	**100**		**140**	**100**

Objectives and Prescriptions

Follow "Universal Elements for All Properties" provided in Section One of this chapter, including "Management by Habitat and Forest Type" and "Recreation Management", except as directed below.

Objectives

- Provide an area within ¼ mile of the river that is free of public use developments and motorized uses and with minimal audible impacts on river users.

- Protect the areas of natural community types, including Springs and Spring Runs, Forested Seeps, Tamarack (poor) Swamp, Bog Lake, and Northern Mesic Forest.
- Where appropriate, manage towards a mixed forest of long-lived species, maintaining older age classes of natural–origin red and white pine.
- Where appropriate, convert stands to red and white pine over time.
- Inform the public about the unique wild river attributes and improve public access for enjoyment its riverine environment via use of a primitive hiking trail that leads to the river protection corridor.

Management Prescriptions

- Passively manage the forested and unforested wetlands to protect and enhance the quality of the bog lake and tamarack community. Ensure adequate buffer zones exist to protect them from soil compaction and erosion.
- Retain cover for the Oxbow Lake, springs, and spring runs and avoid negatively impacting their hydrology.
- Allow and encourage research and monitoring, especially for herptiles.
- In pine-dominated stands, thin where needed and use extended rotation techniques to retain matrix of older forest characteristics.
- Use under-burning, if needed, for conifer stand regeneration.
- As is practicable, design timber sale boundaries to be irregular and harmonize with natural occurring shapes and topography to maintain a more natural appearing landscape, particularly near public highways, and access roads and trails.
- On lands beyond the protection zone and within ¼ mile of the river, to the degree practicable, design and conduct management activities, including timber harvests so as to minimize audible impacts to river users, particularly between June 1st and October 15th.
- In non-pine stands, attempt to convert to mixed pine-oak composition where possible following the general forest management prescriptions in the Universal Elements Section of this chapter.
- Following completion of timber sales, close all skid trails and logging roads. Where such roads are not needed for future management activities, conduct restoration activities for the first 50 feet of the closed trails and roads (including planting with native trees and shrubs, using rocks & berms) to restore them.
- As is practicable, restore (re-vegetate) past management roads and restore other sites or areas that have previously been modified by humans using native vegetation or materials not foreign to the immediate surroundings. Place a priority on restoring sites most visually obvious or that have illegal motorized use.
- Salvage operations due to catastrophic wind, ice, fire, disease or insects may take place. Prior to salvage, consult an interdisciplinary team from Wildlife, Forestry, Natural Heritage Conservation, and Water Quality to determine whether salvage should occur, considering the original objectives of the area. As practicable, conduct salvage activities in ways that minimize audible impacts on river users.
- Maintain the primitive hiking trail on the closed primitive road (from Banks Lake Rd to the edge of the Wild River protection zone) for public access to enjoy the riverine environment, keeping the trail outside of the river protection zone. (It is possible to view the river at occasional places nearby; however very steep banks prevent river access here.) Provide an informational kiosk about the Wild River and property attributes.
- Monitor and evaluate use of the primitive hiking trail, and if necessary, pursue acquiring an easement or permission for a three-car parking area off Banks Lake Rd, adjacent to the trailhead.
- Develop no additional recreational use infrastructure.

State Natural Area

The **Totogan Pines State Natural Area** (390 acres) is proposed to overlay the entire management area plus the adjacent wild river corridor. The management objectives and prescriptions remain the same for this overlay. It may serve as an ecological reference area[1] due to exceptional site characteristics, particularly the natural origin red and white pine stand, the adjacent Totogatic Wild River corridor, and the complex of wetland communities.

Area 10: Braided River Channel (240 acres)
Scenic Resources Management Area - Type 2 Recreational Use Setting

This management area is located in Douglas County, several miles north of the other property parcels. It includes the lower section of river channel before it empties into the Minong Flowage. This portion of the Totogatic Wild River property is not designated as a state Wild River; however, it will be managed for similar objectives as the remainder of the property.

Almost half of the area is comprised of a braided river channel, with the remaining half consisting of pine/oak barrens and northern dry forest. The middle 80-acres (mostly water) are identified in section two of this chapter for department re-designation from Statewide Habitat to the Totogatic Wild River project. The banks on nearly the entire frontage are high and steep. The steep slopes and bluffs along the river should be protected from activities that could increase erosion and harm water quality. There are many islands and brush covered sandbars.

The walleye population at the Minong Flowage relies on this area for spawning, as do the northern pike in this river. A rich diversity and abundance of aquatic vegetation, including wild rice, supports a large variety of wildlife species. Osprey nest in the vicinity and use the area for the abundant food resources present here. Many bird species, waterfowl included, use this area for nesting and rearing their young. The uplands are primarily wooded with jack pine and oak. This management area has high scenic values in addition to its value as fish and wildlife habitat.

Smith Bridge Road, County Hwy T, and the Totogatic River all provide public access to this managed area. Smith Bridge Rd also has a public boat access, approximately ¼ mile north of the area. A primitive road private residential easement exists across the northwest quarter, for access to the north side of the property. This easement access is closed to the general public, but may be used by department staff for management access.

[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.

Table 2-9 shows the approximate acreage of current and projected forestry-based cover for Area 10 public land (Map E-3).

Table 2-9: Area 10 – Braided River Channel (Douglas Co)		
	Current & Projected Cover	
Cover Type	Acres	% Cover
Upland Conifer	134	56
Water	54	23
Oak	28	11
Non-Forested Wetland	15	6
Swamp Conifer	5	2
Emergent Vegetation	4	2
Total	**240**	**100**

Objectives and Prescriptions

Follow "Universal Elements for All Properties" provided in Section One of this chapter, including "Management by Habitat and Forest Type" and "Recreation Management", except as directed below.

Objectives

- Maintain a zone up to 150' from the outermost braided shoreline in a wild, undeveloped and somewhat remote condition; an area where natural ecological processes predominate and evidence of human cultural impact is absent, with riverway access via small watercraft. No motorized access occurs within 400' of the shoreline, other than during prescribed restoration activities.
- Provide an area free of recreational infrastructure.[2]
- Maintain the representative natural community types including Northern Dry Forest beyond the 150' management zone. Maintain older age classes of native jack, white and red pine.

Management Prescriptions

- Within 150' from the outermost braided shoreline, passively manage vegetation (i.e. no management), except as needed to control invasive species or to restore and maintain native vegetation. Prescribed burns may be used within 150' of the shoreline if necessary to control invasive species or for implementation of approved restoration activities, or for active wild-land fire suppression.
- Within 150' from the outermost braided shoreline, generally do not salvage following natural disturbances. Limited salvage and restoration actions may be done in this area when necessary to maintain the visual quality. Plant with native vegetation to be effective if natural regeneration would be too slow. Prior to salvage, consult an interdisciplinary team from Wildlife, Forestry, Natural Heritage Conservation, and Water Quality to determine whether salvage should occur, considering the original objectives of the area. Conduct activities to minimize audible and visual impacts when possible.
- Passively manage all wetlands, including swamp conifer and bottomland hardwoods.

[2] In addition to the public access off Smith Bridge Rd and Hwy T, there are two walk-in primitive roads on the property. A public boat access is available approximately ¼ mile north off Smith Bridge Rd.

- Outside of the 150 ft. shoreline zone, on appropriate sites, manage to promote the growth and retention of large trees, favoring species such as jack, white, and red pine for their wildlife and aesthetic value. Under-planting may be used to increase stocking levels of key species. Retain and promote coarse woody habitat (snags and dead downed trees) to promote old growth characteristics.
- In managed forested areas, as may be practicable, design timber sale boundaries to be irregular and harmonize with natural occurring shapes and topography to maintain a more natural appearing landscape.
- On lands between 150 feet and 400 feet of the outermost braided shoreline, limit harvesting to the period between October 15th – May 31st. If site-specific circumstances or events require harvesting outside this time window, authorization may be granted by the director of the program administering the management of the property.
- To the degree practicable, design and conduct management activities, including timber harvests so as to minimize audible impacts to river users, particularly between June 1st and October 15th.
- Following completion of timber sales, close all skid trails and logging roads. Where such roads are not needed for future management activities, conduct restoration activities for the first 50 feet of the closed trails and roads (including planting with native trees and shrubs, using rocks & berms).
- As is practicable, restore (re-vegetate) past management roads and restore other sites (or areas that have previously been modified by humans) using native vegetation or materials not foreign to the immediate surroundings. Place a priority on restoring sites most visually obvious or that have illegal motorized use.
- Maintain the primitive management access road from County Hwy T to the outer edge of department property. The road also provides pedestrian access to the public. This easement is closed to public vehicles. Develop no other public use infrastructure.
- Motorized land access is allowed only for prescribed management activities. Prevent access of unauthorized motor vehicles and ATVs.
- Allow and encourage research and monitoring.

Chapter 3: Supporting Information (from Regional & Property Analysis)

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.

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) keywords "Ecological Landscapes or Northwest Sands."

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 NWB properties overlaid on the Ecological Landscapes of Wisconsin.

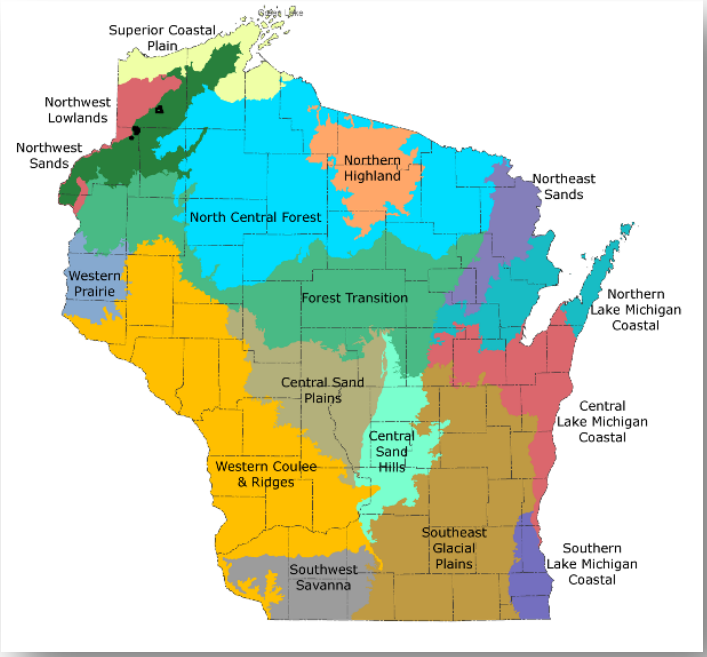

Figure 1: Northwest Barrens Properties (in black) and the 16 Ecological Landscapes of Wisconsin.

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.

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.

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. This chapter of the master plan is taken from the Regional & Property Analysis. It contains a summary from the Ecological Landscapes chapter, 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) ***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 (2) "****Rapid Ecological Assessment for Totagatic 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 feasiblity 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 2015b) (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 Totogatic 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 (Totagatic) 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 2015b). 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 2015b). 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. 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 2015b). 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 2015b). 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 caroliniense.*), 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 (*Orobanche 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 pensylvanica*). 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 2015c) 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 (Totgatic)

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 2015b). 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 2015b). 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 2015b).

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.

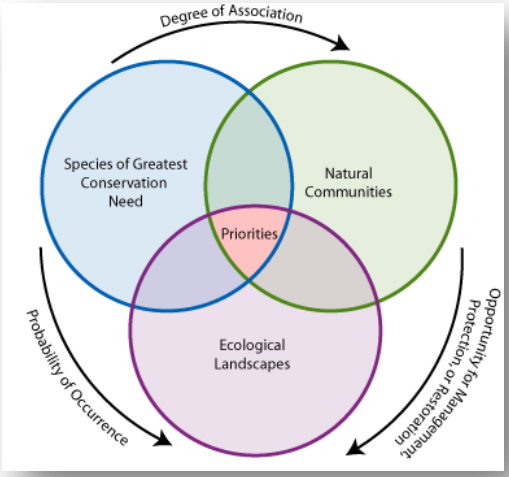

Figure 2. Illustrates the process used for identifying Ecological Priorities in the Wisconsin Wildlife Action Plan.

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 mychorrizal 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/).

PRIMARY SITES: SITE-SPECIFIC OPPORTUNITIES FOR BIODIVERSITY CONSERVATION

Seven "Primary Sites" on the Northwest Barrens Properties were identified that 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.

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 broom-rape and Richardson's sedge. In addition, numerous SGCN birds are present including northern harrier, veery, brown yhrasher, 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 erythropthalmus*) 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 (WDNR 2015c).

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.

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

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 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.

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

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 area[3] 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.

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.

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 pensylvanica*), 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 herbaceous*), 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*).

[3] 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.

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 Lepidopterans. During limited survey effort, only common barrens species were noted such as Olympia marble (*Euchloe olympia*), eastern pine elfin (*Callophrys niphon*), 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.

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

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 teaming 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.

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

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. 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 Issues

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 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 mi^2 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.

Table 4. Miles and trail density in the Northwest Sands counties compared to the state.

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
ATV: summer & winter	895	20.4	9.3
X-country skiing	426	9.7	7.2
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 $mile^2$ 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 are 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).

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.

Table 5. Recreation Demand (National survey)

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%

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 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.

Table 6. Out-of-State Recreation

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

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.

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 were 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. 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.

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 & C). 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.

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.

Findings and Conclusions from the Regional & Property Analysis

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.

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 or camping by permit opportunities, 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 Totagatic 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, Friends of the Bird Sanctuary and Wisconsin Sharp-tailed Grouse Society 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.

Chapter 4: Analysis of Impacts of the Proposed Master Plan

Introduction

This chapter, in combination with Chapters Two, Three and Five collectively constitute an Environmental Assessment (EA) for the Northwest Barrens properties (NWB) Master Plan. The intent of an EA is to disclose the environmental effects of an action (the master plan) to decision-makers and the public.

Chapter Two of this document describes the elements of the master plan (proposed actions), also known as the preferred management alternative. Chapter Five describes and evaluates the various alternatives that were considered in the planning process, but not selected.

Property planning under ch. NR 44, Wis. Adm. Code is an equivalent analysis action under ch. NR 150.20(2)(a)1., Wis. Adm. Code., and therefore complies with Wisconsin Environmental Policy Act, s. 1.11, Stats. and NR 150, Wis. Adm. Code. Based on information presented in this chapter, the proposed master plan is not anticipated to cause significant adverse environmental effects.

Impacts to Natural Resources

Soils

The probability of significant short-term and long-term cumulative impacts due to soil erosion is low for the management activities prescribed in the NWB Master Plan. For the NWB properties, the more disruptive management activities (e.g., logging) may affect on average 100 acres/year (none on Douglas County Wildlife Area where harvesting has been completed). Soil erosion on parcels during forest harvests will be minimized by the use of the Best Management Practices (BMPs) for Water Quality guidelines. BMPs contain strict standards for road construction, water crossings, skid trails and logging landings. All trails and primitive roads will be monitored for signs of excessive soil erosion caused by management activities or recreational use and actions will be taken (e.g., BMPs or trail closings) to minimize the erosion potential.

Geological Resources and Landforms

Sand and rock material may be acquired from sand pits on these properties for a variety of DNR management projects. Best management practices will continue to be used to prevent off-site erosion. Reclamation (shaping, re-vegetation, etc.) at the site will be done as needed to minimize the extent of site disturbance.

Other surface mining is not anticipated so no impacts are expected. If unforeseen circumstances would require surface mining in the future, site specific environmental impacts would be evaluated.

Air Quality

Construction activities that might generate dust include culvert and bridge replacement, resurfacing and construction of parking lots, and maintenance. Water is the most common dust suppression practice used during construction activity. Impacts on air quality from fugitive dust particles and engine exhaust emissions from construction equipment will be small and transitory in nature. When construction is complete, no residual impacts to air quality would be detectable.

Vehicle emissions generated by department motor vehicles, property users and certain management activities, such as logging, will be relatively insignificant compared to adjacent roadways and other economic activities in the area.

Water Resources

Sanitary Systems and Vault Toilets - Any upgraded or new sanitary disposal facilities will be appropriately installed, to safeguard the quality of the groundwater.

Springs and Seeps - State ownership and management will have the effect of helping to safeguard water quality and biological diversity of all springs and seeps. Best management practices for protecting water quality will be implemented around all springs and seeps.

Water Quality of Surface Waters and Wetlands – Providing permanent vegetative cover and the use of BMPs during management activities will have an overall positive impact on both surface waters and wetlands. No increase in impervious surface area is being proposed. Trail/road construction will avoid changing watercourse direction and flow, volume and velocity. Pervious road and pathway surfaces will be used where impervious surfaces are not needed. Runoff from roadways and other impervious surfaces will not drain directly into nearby streams and lakes to minimize water pollution risks. The impacts of stormwater runoff during timber harvesting will be mitigated by implementing appropriate best management practices. These practices are described in the "Wisconsin's Forestry Best Management Practices (BMPs) for Water Quality" field manual and are a part of every timber harvest on the NWB properties.

Water Control Structures and Dikes

The NWB properties have no impoundments, water control structures or dikes that are managed by department staff. There is one township road culvert that crosses Clemens Creek on the Namekagon Barrens Wildlife Area.

Vegetation and Habitats

The vegetative management strategies (described in Chapter Two) implement the goals of the master plan.

Specific vegetation management objectives outlined for the NWB plan include:

- Maintaining, restoring, and enhancing the oak/pine **barrens** at a landscape scale to benefit wildlife species.
- Maintaining, restoring, and enhancing the quality and extent of open **wetlands** to benefit wildlife species.
- Monitoring and controlling invasive species as practicable.

Wildlife - The forestry practices in this master plan, if enacted, will have positive impacts on the resident and migratory wildlife populations of the local area for decades to come. All harvest treatments will be planned with wildlife habitat features as a primary consideration, and forest products as secondary.

The wildlife management activities and proposed boundary adjustments will enhance the quality and extent of the available habitat and should improve the population status of game and non-game species. The management objectives and prescriptions outlined in Chapter Two will maintain the diverse wetlands, forests and aquatic habitats needed by the game and non-game wildlife populations found on the NWB properties. The proposed management activities are beneficial to wild turkeys, deer, woodcock, ruffed grouse, Blanding's and wood turtles, and especially for the less abundant species typically found in barrens habitat such as upland sandpiper, vesper sparrow, sharp-tailed grouse, brown thrasher, whip-poor-will.

Passively managed areas will benefit those wildlife species that utilize mature forest stands with complex structure. This includes species of forest interior birds such as wood warblers. Bird species that rely on conifer-dominated forests will see a gradual increase in habitat over time. Land purchases and management activities that support barrens conservation efforts will help protect both game and nongame species diversity.

Endangered, Threatened and Rare Species, Native Communities and Scarce Ecological Resources

The *Rapid Ecological Assessment*s (WDNR 2009 and 2013a) identify specific natural communities and rare species documented on the NWB properties. They also reference the ecological assets found in the Ecological Landscapes where these properties are located. Management as described in Chapter Two is designed to help protect and enhance the natural communities that harbor known rare species. All management prescriptions in the proposed master plan consider the needs of endangered, threatened, and rare species and the potential impacts to the species and their habitat.

The management objectives and prescriptions are expected to cause few, if any, negative impacts to endangered, threatened and rare species while yielding significant medium to long-term benefits. Implementation of the proposed master plan would ensure continued safeguarding of these species and under-represented ecological communities. These actions also are compatible with department obligations to protect threatened and endangered species and plant communities.

Impacts to Recreational Facilities and Opportunities

Visual/Scenic Resources – The visual qualities and aesthetics of these properties are well established.

Land Management - The suite of land management objectives and prescriptions will have medium to long-term positive benefits on recreational activities occurring on the NWB properties. These actions are designed to benefit wildlife populations and improve the vitality and abundance of Northwest Sands barrens and wetlands communities. In turn, habitat management activities will enhance both the primary recreational management objectives of hunting, fishing and trapping, as well as the increasing interest in accommodating wildlife viewing and other nature-based outdoor activities.

Temporary disruption to recreational activities will occur during management actions such as flowage drawdowns and timber harvests. Negative impacts can be minimized by the timing and screening of the management actions. Forest and habitat management near more heavily used sites such as riparian and parking areas will be designed to improve the aesthetic quality of these sites, and by using good time management, avoid conflict with primary recreational uses when possible.

Recreational Use and Nature Interpretation – The NWB properties are well known for bird dog trialing, bird watching, hunting (upland game birds, bear, and deer), trapping, and nature study. The proposed habitat management recommendations and boundary adjustments will improve the quality of the habitat and expand the acreage available for these and other outdoor recreation activities. Most of the habitat management activities, such as selective logging to attain the vegetation management goals, will take place during off-peak recreational seasons, reducing potential conflicts with recreational users.

Impacts to Archaeological Resources

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).

Socio-Economic Impacts

Timber Products – The primary purpose of forest land on wildlife, fishery and state natural areas is wildlife food and cover habitat, protecting native communities and providing diverse hunting habitats. However, on NWB properties, timber harvests are an important management tool for meeting habitat objectives. Timber harvests are used to provide open barrens habitat for wildlife species. In some areas, timber harvests may be used to create 'stepping stones' of barrens habitat to reconnect subpopulations of wildlife species. By using shorter rotations, timber harvest may play an important role in managing open barrens habitat and young forest habitat for the benefit of wildlife on the properties.

Infrastructure and Transportation - Recreational use on the NWB properties is heaviest during spring sharp-tailed grouse displays, spring and fall bird migrations, the fall hunting seasons, and spring turkey hunting.

Operation and maintenance of these properties generates minimal solid waste. The management philosophy of the department is to reduce, reuse and recycle to diminish the use and disposal of non-recyclable materials. All debris from illegal dumping will be disposed of or recycled properly through the appropriate solid waste program or a licensed sanitary waste contractor.

Elements

Noise - Noise impacts from management activities and most of the expected recreational uses are anticipated to be minimal on NWB neighbors and users. Wildlife use patterns may be temporarily impacted by most noises. Most noise impacts would primarily be generated from land management, forestry and maintenance activities. Such noise will be generated by chainsaws, skidders, machinery and trucks. These noises will primarily occur during daylight hours and would have peak (high level, short duration) characteristics. The noise will often be seasonal in nature and transient (i.e., once the project is completed the noise source will be eliminated). If new technological innovations threaten to significantly increase noise and disturbance levels on the NWB properties, amendments to the master plan will be pursued to limit noise and disturbance.

Public Safety - There are no elements of the NWB master plan that are anticipated to have a negative effect on public safety. Designated use areas (such as parking areas) are inspected semi-annually to locate and remove hazardous trees. In addition, public safety precautions are taken when using herbicides, pesticides, fire, and in other property management activities. Prescribed fires used in forest and native community management will follow department safety procedures.

Land Use – The land uses and cover types on the lands surrounding the NWB properties will be minimally affected (probably not at all) by the implementation of this master plan.

Economic Effects and Their Significance – There will be some economic benefits for the local economy, primarily in the form of day visit tourist activities (purchases for meals, gasoline, sporting equipment, etc.) from visitors using the Northwest Barrens properties. The properties draw dog trialing, hunting, and birding interests from the region including out-of-state users. Economic benefit to the region is close to $90,000 within Burnett, Douglas, and Washburn counties. Events generate over $8,000 in state and local tax revenue (Appendix F). For a qualitative discussion of the general economic significance of these lands, please refer to the "Investment in Public Lands, Recreation and Conservation" discussion (Chapter 1).

Implementation of the master plan's forest management elements are expected to have minimal impact on the local logging industry. These properties have limited forested area and the timber harvests that do occur will contribute to the local supply of wood products. These harvests will add to the local economy through cash to the landowners and wages for laborers in the field, and primary and secondary forest products industries.

Fiscal Effects on Local Government - State law requires the department make payments in lieu of property taxes (PILT) to ensure the affected town's property base is not adversely affected. There are two separate statutes and several formulas under each statute that dictate the amount of these payments.

Wisconsin statute s. 70.113 Stats. applies to land acquired by the department prior to January 1, 1992. Payments under this statute are made directly to the taxation district in which the land is located. Schools, VTAE and counties do not receive any payment under this law.

Wisconsin statue s. 70.114 Stats., governs payments in lieu of property taxes for all lands purchased by the department after January 1st, 1992. This law has been amended several times so the specific formula used by the department to determine individual payments varies depending on when the property was acquired and how it was acquired.

The department uses an automated process for collecting information and calculating PILT payments. The process is determined by statute with little room for interpretation or calculation by the department. For further details, please refer to Wisconsin State Statutes or to the Department of Natural Resources web site at http://dnr.wi.gov/ and perform a search for "Payment in Lieu of Taxes".

Fiscal Effects on State Government – Funding Constraints

Implementation of the master plan is dependent upon staffing and funding allocations that are set by a process outside of the master plan. Operational funding for the department is established by the state legislature. Development projects

follow an administrative funding and approval process outside of the master plan. Many of the initiatives contained within the plan are dependent upon additional funding and staffing support. Therefore, a number of legislative and administrative processes outside of the master plan will determine how quickly portions of this master plan will be implemented.

The Wildlife Management program covers approximately $28,000/yr of operational costs for Namekagon Barrens Wildlife Area and $6,000/yr for Douglas County Wildlife Area (DCWA). Because Douglas County (not DNR) manages the Recreation Area within DCWA, that portion of operational costs ($7,000/yr) is provided by the county. Additional funding and in-kind support is contributed by the Friends of Namekagon Barrens Wildlife Area ($1200), by the Sharp-tailed Grouse Society ($2500); and Friends of the Bird Sanctuary contribute approximately 1700 hours of labor. The Facilities and Lands program commits about $3200/yr for operational costs associated with the Totogatic Wild River project. Property staff increasingly relies on community involvement and on these partnerships to achieve management goals, and is extremely grateful for their assistance. Timber management is projected to result in little to no change in management costs or revenue.

Table 4-1 indicates the projected development costs associated with the activities described in this plan. Some costs may be shared in partnership with the Friends groups. These costs are based on 2016 dollar-values and assume full completion of all proposed construction. Work may be phased over several state biennial budget cycles to avoid a disproportionate load on the budget. Costs for infrastructure will vary based on soil conditions, grade/steepness, special conditions, infrastructure requirements and labor costs (e.g., seasonal labor, volunteers or contractor). Development costs may vary over time due to inflation and the results of competitive bidding for construction.

Table 4-1: Estimated New Development Costs

Management Activity	Cost
Revise/Create visitor property maps for each property (printing not included)	$1,000
Auto Trail Update/Design/Publish (includes each property in new regional effort)	$12,000
Information Displays; 3 at Totogatic (materials, laminate map, GIS staff time)	$1,000
County Line Rd Restoration (Totogatic)	$1,000
Parking areas (primitive); 3 at Totogatic	$3,000
Sharp-tailed grouse reporting station (NBWA)	$1,000
Wildlife observation and lookout area benches (NBWA South Unit & Totogatic)	$2,000
Storage Building (Namekagon Barrens WA Special Events area)	$10,000
Picnic shelter (Namekagon Barrens WA Special Events Area)	$10,000
Total	**$41,000**

Impacts of Boundary Adjustments

The proposed modifications to this property group result in an 6-acre increase in department project boundary and acquisition goal.

Impacts on Energy Consumption - No significant impacts to energy consumption are expected.

Significance of Cumulative Effects - The proposed actions are anticipated to have positive long-term effects on the quality of the natural environment and recreational users. Habitat management and the proposed recreation

management prescriptions are expected to provide the following cumulative benefits to users of these properties and the natural environment:

- Quality recreational opportunities for a growing population of users through improved access facilities and sustainable wildlife for harvest and observation.
- Improved habitat for game and non-game species, including endangered, threatened and species of concern species.
- Use of sustainable forestry practices.

These benefits are consistent with the department's mission and responsibilities, and the recognized need to provide and protect public lands for future generations.

Significance of Risk - Management of the Northwest Barrens Properties poses a low overall potential for risk to the environment. The management activities will be similar to those used over the last several decades so no precedents are being set and the activities typically have less impact than nearby residential, forested, or agricultural lands. No new, high-risk actions are proposed, nor are any actions which involve an irretrievable commitment of resources, or actions that could not be reversed in the future.

The presence of motor vehicles and other equipment during construction and logging may pose a slight but insignificant risk from spills and erosion. These risks would be mitigated by best management practice requirements and at preconstruction meetings with contractors.

Prescribed burns are a management tool used to improve the quality of wildlife habitat, reduce fuels to lessen fire hazard, mimic natural fire disturbance, help control woody plants and invasive weeds, and liberate nutrients tied up in dead plant material. If periodically burned, upland nesting cover used by sharp-tailed grouse, upland sandpiper, waterfowl and songbirds is more productive. Wetlands also benefit from fire. Regular use of prescribed fire reduces fuel loads, which ultimately reduces the risk of wild fires. Prescribed fire and special burning permits are allowed on department managed lands when regular burning permits are suspended, due to specialized resource needs and risk mitigation consideration.

Necessary precautions and department procedures are always followed during prescribed burns, including having an approved burn plan and adequate fire-fighting equipment and personnel present on site. A smoke management policy is contained in the Prescribed Burn Handbook (DNR manual code 4360.5). In addition to department communication specialists who inform the public about annual prescribed burns, at NBWA, wildlife management staff maintains an email contact list for all neighbors interested in knowing when prescribed burns are conducted on the north unit. Fire control dispatch sends an email to the contact list every day a burn is conducted. Wildlife management sends an email every spring and fall informing them of the potential that prescribed burns will occur.

Risk of introduction of invasive exotic species may increase due to public entry and use of the property. Actions will be taken to control infestations as practicable. Off-road vehicles are a vector for the introduction of invasive species, though limited to winter use on designated snowmobile trails, and otherwise prohibited except by permit for mobility impaired use. Herbicide/pesticide use will strictly follow label instructions to protect the environment and public safety.

Chapter 5: Analysis of Alternatives

This chapter describes the alternatives and anticipated impacts of alternatives considered, but not selected during the development of this master plan.

Do Nothing Alternatives

Under this alternative, no changes would be recommended to current habitat or recreation management, public access, boundary adjustments, or natural areas. Existing management practices would continue to be applied within the existing boundaries. Such a plan might arguably meet the bare minimum needed for master planning, forest certification and other program needs. However, it would result in staff continuing to address problems on an ad hoc basis rather than integrating and prioritizing the challenges and opportunities of increasing populations, changing land uses, and scientific advances.

Generally, this option was not pursued because it would not meet the needs of the resources being managed, would continue management inefficiencies, and would miss opportunities to provide the public with improved access. Importantly, such a master plan would not create the long-term improvement in property management the process is intended to promote. The potential impacts of this approach may lead to a decline in resource preservation and a decline in recreational enjoyment.

State Natural Area Alternative

Alternative: Do not identify State Natural Area overlays in the existing property management areas.

Discussion: Overlays of natural areas within wildlife areas and wild river managed lands provide opportunities for staff collaboration between the programs who manage these lands and those with the Natural Heritage Conservation program. The overlays have unique value and fulfill the GAP analysis (Natural Heritage Conservation) to strategically identify parcels that contain rare ecosystems. They can also bring added fiscal resources to assist with habitat management and field surveys. Traditional recreational uses will continue to be allowed. In these NWB properties, the designation of a State Natural Area overlay will not change the management objectives or prescriptions.

Decision: This alternative was not selected.

Recreation Management Alternatives

Alternative: Develop a shooting range.

Discussion: The department has a long history of promoting safe and accessible shooting opportunities for residents and visitors. This history includes a commitment to providing ranges on public lands and a shooting range grant program to assist with maintenance and development on private ranges in exchange for some public access. During the planning process, department staff considers screening criteria to assess the need and properties' potential as shooting range sites.

Decision: The planning team determined there is no need for additional shooting opportunities. Within 30 miles of the properties, there are five shooting ranges. Two shooting ranges are on public land and three more have club affiliations.

- Northwoods Trap and Rifle Range, Douglas Co.
- Frog Creek Range, Washburn Co. Forest
- Eau Claire Lakes Conservation Club, Douglas Co.
- Indianhead Rifle & Pistol Club, Washburn Co
- Hayward Rod & Gun Club, Washburn Co.

Alternatives: The following alternatives that pertain to property or river access were considered:

- Encourage the Town of Minong to close County Line Rd (a primitive dead-end road) where their gas tax reimbursement ends, approximately at Five Mile Rd, one mile south of St. Croix Trail Rd.
- Encourage the town to maintain the road to the north boundary of DNR land.
- Encourage the town to maintain the road through 400 feet of sloping and sandy conditions on DNR land, beyond their gas tax appropriation, to where it almost connects to river shoreline.

Discussion: Keep in mind the overarching **Property Management Goal** as intended by both the wild river statute and administrative code:

Provide opportunities for river users to experience the solitude and enjoyment of a natural, wild appearing, remote setting, by maintaining the Totogatic River in its natural, free-flowing, and unaltered condition.

- The intent of Chapter NR 302 Wis. Admin. Code is to allow limited walk-in access areas to allow or accommodate the launching of water craft. The rule intends there should be no development in the river protection zone and that restoration activities and erosion control activities be performed within the 400' protections zone.
- The 400' of primitive road leading down to the shoreline and being abandoned is sloping, sandy, prone to deep rutting, and enable frequent illegal trail-making on department land (within the river protection zone) by ATV users; all of which are contrary to the intent of the wild river statue and administrative code.
- Public comments received during the initial planning comment period expressed concern that the solitude of the wild river user experience be preserved and access kept primitive; commenters specifically expressed concern about illegal ATV use and that the property not become inappropriately accessible and abused, as they believe happened to the nearby Namekagon River.
- It is not uncommon for the department to locate parking areas back 400' from a scenic river (e.g. Brule River in Douglas County) and to provide a carry-in primitive trail for boat access.
- If the Town of Minong continued their road maintenance only to the north edge of department property, the option to maintain and use a carry-in river access site would require a ¾-mile hike, which would discourage many river users. Although a carry-in boat access site at this location is not a 'need' due to nearby river access points, it is a 'nice-to-have' option for river users.
- If the Town of Minong continued their maintenance only to the location of gas tax reimbursement, Burnett County foresters and Lyme Timber Co staff could be adversely affected in trying to reach their land.

Decision: This master plan collaborates with the Town of Minong for them to continue their management of County Line Rd (a dead-end road) to the proposed DNR river access parking area, approximately 400' north of the river, beyond which the road will be closed and abandoned. The closed portion of the road will be restored to a primitive trail for carry-in boat access for river users.

Chapter 6: Summary of Public Involvement & Comments on Draft Master Plan

January 25 - February 12, 2016 Initial Public Involvement

The Department of Natural Resources invited public comments on the Preliminary Vision and Goals, the Regional and Property Analysis and the Public Participation Plan for the Northwest Barrens properties master planning during an initial three-week public involvement period. An 'open house' style public meeting held February 4 at the Chicog Town Hall west of Minong, WI was attended by approximately 40 members of the public.

DNR staff received over 100 public comments: via online comment forms from the DNR master planning website; via email, letters, phone calls, direct contact with staff and via comment forms submitted at the open house. The public responded in significant favor overall to current management and public uses of the properties, with substantial interest in preserving and expanding ownership of the rare oak/pine barrens habitat, especially in the interest of maintaining and restoring a robust population of sharp-tailed grouse. Maintaining the wild, natural setting within the Totogatic Wild River Area was another theme among the interests expressed.

Participants and Public Comments represented:

- Bayfield Regional Conservancy
- Bird Dog Field Trial participants
- Boy Scout trip leaders
- Burnett County Resort Owners
- Chippewa Valley Grouse Dog Association
- Elected local officials
- Insect Research International Repository (antweb.org)
- Friends of Namekagon Barrens Wildlife Area
- Friends of the Bird Sanctuary
- Hunters & Barrens enthusiasts beyond Wisconsin: Calif., Iowa, Missouri, Minnesota, & South Dakota
- Members of the public with no particular affiliation mentioned
- Nearby property owners, large company manager and small business owners
- North Country Trail Association
- Northwest Field Trial Association
- St. Croix River Association
- Washburn County Lakes and Rivers Association
- West Wisconsin Land Trust
- WI Sharp-tailed Grouse Society

Comments ranged from detailed and specific, to far-reaching and policy-related. Commenters overwhelmingly supported the Preliminary Vision & Goals and the Regional and Property Analysis documents. A couple of people objected to prescribed burning as a management tool. A summary of public comments is provided below, with recurring themes identified in the categories that were listed on the comment forms and letters received by the department.

- Land management
  - Prescribed burns – would like more of this barrens habitat management tool; more woody plant management, try burning in staggered seasons, and more invasive species control.
  - Habitat diversity and management are spectacular. Many "thank you's" to DNR staff and to volunteers for outstanding barrens stewardship and collaboration.
  - Find ways to connect and expand the globally significant barrens in this region.
  - Oak/pine barrens are vanishing in Minnesota and Wisconsin and they need to be preserved.
  - Provide special protection to the bog on the south parcel of Namekagon Barrens WA.
  - No rows of monotypic pine trees should occur on these state lands.
  - North Country Trail Association should be added to the list of "Community Partners."

- Recreation & Access
  - Property parcels favored for: hunting sharp-tailed grouse, ruffed grouse (on the edges), and deer; for dog trialing and exercise, fishing, hiking, bird watching, wildlife watching, blueberry picking, xc skiing, snow-shoeing, landscape (grasslands) painting, and public programs and education.
  - Many commenters indicated they've been bird dog field trialing here and training for sharp-tailed grouse hunts since 1980's.
  - Douglas County WA dog trial area needs better brush control; has recently grown too much for bird dog field trials.
  - Need to address the culvert with poor fish access on Clemens Creek (NBWA).
  - Manage for better trout habitat along 5-mile Creek (Totogatic tributary). (note: requires partnership with Lyme St. Croix Forest Company on adjacent land)
  - Enjoy the well-marked auto tour on Namekagon Barrens WA.
  - Ease of access is good on Namekagon Barrens WA for those with limited mobility.
  - Continue to protect the North Country National Scenic Trail (Douglas County WA).
  - Restrict to "foot only" as much as possible on the Totogatic, to enhance the wilderness experience and protect current resources.
  - Stop the illegal ATVs coming in to Totogatic property.
  - No bear dog hunting should be allowed on the Totogatic.
  - General interest in horse-back riding in the region.
  - Leave Totogatic wild and natural; no campsites, no walk-in river access for water craft; Too much erosion would otherwise occur; should avoid chances of 'trashing' the riverway.
  - Would like education stations and wildlife viewing areas designed to enhance public's experiences. Wildlife Viewing is highly valued tourist attraction in the region.
  - Education programs are good, but minimal; would like more offered.
  - Comments indicate a need for more education programs. Also desire supporting amenities, including small educational visitor center on NBWA, picnic shelters on properties, and marked hiking trails.
  - Many comments and discussions emphasized the rare vast landscape of barrens with scattered wetlands that provides tremendous wildlife species diversity, and that management for this landscape provides abundant hunting, trapping and wildlife viewing opportunities – which are key to the ecotourism that supports the local communities.

- Wildlife Management
  - Rare species and natural areas - continue to monitor and protect.
  - Need increased habitat work to benefit sharp-tailed grouse.
  - Unprecedented sharp-tailed grouse management opportunities.

- Boundary Modifications
  - Substantial interest in preserving and expanding DNR ownership of the rare oak/pine barrens habitat, especially in the interest of restoring and maintaining a genetically diverse and sustainable population of sharp-tailed grouse.
  - The north and south units of NBWA should be joined together.
  - Expand the properties project boundaries to obtain more lands for running bird dog field trials and dog training. This is an important economic and recreational benefit to the region. It will require controlled burning, timber removal and habitat management.
  - Several comments and letters emphatically supported the concept of a barrens partnership corridor from Namekagon Barrens north to Moquah Barrens, similar to the Crex-Namekagon Barrens partnership corridor - specifically preservation of the rare barrens ecological community for wildlife species conservation, increased habitat for hunting, tourism and job opportunities. (including request from a Minnesotan returning to these properties since 1978)
  - Expand the Totogatic Wild River boundary along the river corridor to protect it.

August 22 - September 9, 2016 Second Public Open House and Comment Period

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Appendix A: Excerpts from Rapid Ecological Assessment

Species of Greatest Conservation Need

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	Warmwater Rivers
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	
Pickerel 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 then 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 occasionaly 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 hianna*), 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 (*Schizachryium scoparius*). 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 form 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 aquilinium*), 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 (*Liatris 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	*Lithobates catesbeianus*	NBWA	1997	S3	G5	SC/H
American Woodcock	*Scolopax minor*	DCWA	2009			
American Woodcock	*Scolopax minor*	NBWA	2009			
Black-billed Cuckoo	*Coccyzus erythropthalmus*	NBWA	2009			
Blanding's Turtle	*Emydoidea blandingii*	DCWA	1989	S3	G4	THR
Brown Thrasher	*Toxostoma rufum*	DCWA	2009			
Brown Thrasher	*Toxostoma rufum*	NBWA	2009			
Canada Warbler	*Wilsonia canadensis*	DCWA	2009	S3B	G5	SC/M
Chryxus Arctic	*Oeneis chryxus*	DCWA	1996	S2?	G5	SC/N
Clear-winged Grasshopper	*Camnula pellucida*	NBWA	2009	S3?	G5	SC/N
Club-horned Grasshopper	*Aeropedellus clavatus*	NBWA	2009	S2	G5	SC/N
Cobweb Skipper	*Hesperia metea*	DCWA	1996	S2	G4G5	SC/N
Cobweb Skipper	*Hesperia metea*	NBWA	1989	S2	G4G5	SC/N
Connecticut Warbler	*Oporornis agilis*	NBWA	2006	S2S3B	G4	SC/M

Common Name	Scientific Name	Property Name	Last Date	State Rank	Global Rank	State Status
Dickcissel	***Spiza americana***	**NBWA**	**1991**	**S3B**	**G5**	**SC/M**
Dusted Skipper	*Atrytonopsis hianna*	DCWA	1977	S3	G4G5	SC/N
Eastern Hog-nosed Snake	*Heterodon platirhinos*	DCWA	2009	S3?	G5	SC/H
Field Sparrow	*Spizella fusilla*	DCWA	2009			
Field Sparrow	*Spizella fusilla*	NBWA	2009			
Golden-winged Warbler	*Vermivora chrysoptera*	NBWA				
Grasshopper Sparrow	*Ammodramus savannarum*	NBWA	2009			
Henry's Elfin	*Callophrys henrici*	NBWA	1989	S1S2	G5	SC/N
Least Flycatcher	*Empidonax minimus*	NBWA	2009			
Leonard's Skipper	*Hesperia leonardus*	DCWA	1999	S3	G4	SC/N
Midwestern Fen Buckmoth	*Hemileuca sp. 3*	DCWA	1980	S3	G5T3T4	SC/N
Mink Frog	*Lithobates septentrionalis*	NBWA	1997	S3S4	G5	SC/H
Mottled Dusky Wing	*Erynnis martialis*	NBWA	2009	S2	G3	SC/N
Northern Harrier	*Circus cyaneus*	DCWA	2009			
Northern Harrier	*Circus cyaneus*	NBWA	2009			
Prairie Skink	*Plestiodon septentrionalis*	DCWA	2009	S3	G5	SC/H
Prairie Skink	*Plestiodon septentrionalis*	NBWA	2009	S3	G5	SC/H
Pygmy Shrew	*Sorex hoyi*	DCWA	1997	S3S4	G5	SC/N
Pygmy Shrew	*Sorex hoyi*	NBWA	1997	S3S4	G5	SC/N
Red Crossbill	*Loxia curvirostra*	DCWA	1991			
Rocky Mountain Sprinkled Locust	*Chloealtis abdominalis*	DCWA	2009	S2?	G5	SC/N
Rocky Mountain Sprinkled Locust	*Chloealtis abdominalis*	NBWA	2005	S2?	G5	SC/N
Sharp-tailed Grouse	*Tympanuchus phasianellus*	DCWA	2009	S1B,S2N	G4	SC/M
Sharp-tailed Grouse	*Tympanuchus phasianellus*	NBWA	2009	S1B,S2N	G4	SC/M
Speckled Rangeland Grasshopper	*Arphia conspersa*	DCWA	2009	S2	G5	SC/N
Speckled Rangeland Grasshopper	*Arphia conspersa*	NBWA	2009	S2	G5	SC/N
Upland Sandpiper	*Bartramia longicauda*	DCWA	2009	S2B	G5	SC/M
Upland Sandpiper	*Bartramia longicauda*	NBWA	2009	S2B	G5	SC/M
Veery	*Cathartus fuscescens*	DCWA	2009			
Veery	*Cathartus fuscescens*	NBWA	2009			
Vesper Sparrow	*Pooecetes gramineus*	DCWA	2009			
Vesper Sparrow	*Pooecetes gramineus*	NBWA	2009			
Western Meadowlark	***Sturnella neglecta***	**NBWA**	**1991**	**S2B**	**G5**	**SC/M**
Whip-poor-will	*Caprimulgus vociferus*	DCWA	2009			
Whip-poor-will	*Caprimulgus vociferus*	NBWA	2009			
Wood Thrush	*Hylocichla mustelina*	NBWA	1991			
Woodland Jumping Mouse	*Napeozapus insignis*	DCWA	1997	S2S3	G5	SC/N
Plants						
Dwarf Milkweed	*Asclepias ovalifolia*	NBWA	2009	S3	G5?	THR
One-flowered Broomrape	*Orobanche uniflora*	NBWA	2009	S3	G5	SC
Richardson Sedge	*Carex richardsonii*	NBWA	1994	S2	G4	SC
Communities						
Inland Beach	*Inland Beach*	DCWA	2009	S3	G4G5	
Lake--Shallow, Soft, Seepage	*Lake--shallow, soft, seepage*	NBWA	1979	S4	GNR	
Northern Dry Forest	*Northern dry forest*	NBWA	1979	S3	G3?	
Pine Barrens	*Pine barrens*	DCWA	2009	S2	G2	
Pine Barrens	*Pine barrens*	NBWA	2009	S2	G2	

Priority Conservation Opportunity Areas—Northwest Sands

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: Tri-Partnership Agreement

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

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: _____
President, Board of Directors

Attested: _____

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: _____
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: _____
Director

Douglas County Board

By: _____
Chairman

Appendix D: 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 Meadows, 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 2011). While Crex Meadows 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 below '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, for implementation to occur.

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.

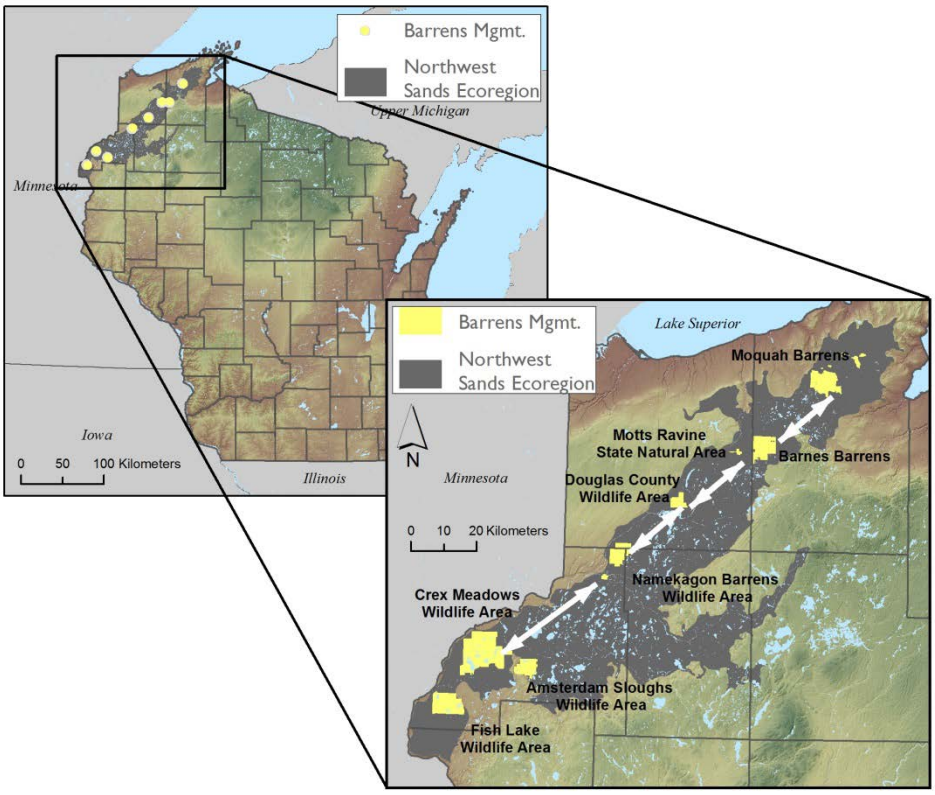
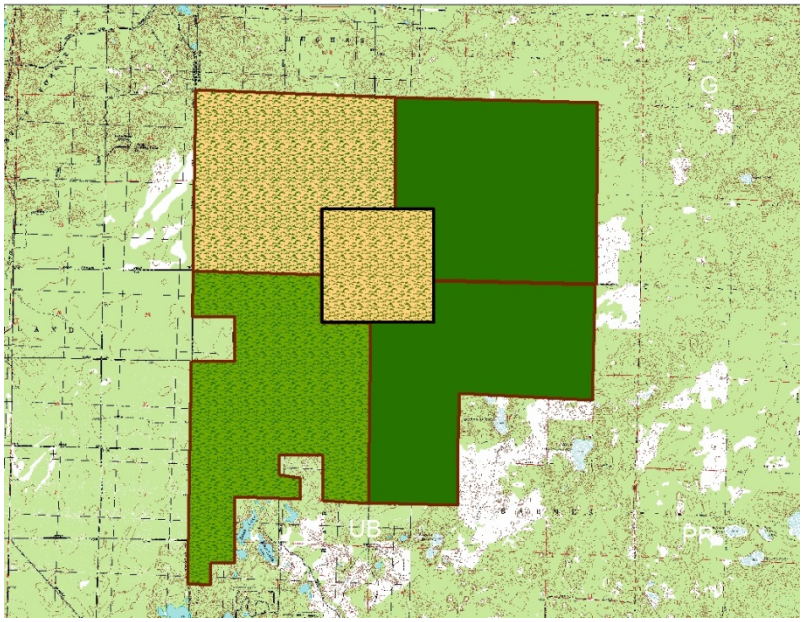


Figure 2. This example illustrates the rolling barrens concept from Bayfield County's Barnes Barrens Plan. Four blocks of barrens 'roll' around a permanent barrens core. Blocks are harvested at 12-year intervals on a 48-year rotation.



Appendix E: Namekagon Barrens - Moquah Barrens Partnership Corridor (See Map G)

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.

This corridor 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. State wildlife areas with early successional barrens serve as a fuel break in the landscape. An opportunity exists to create a landscape dotted with 'rolling' or transitional barrens with different age classes of oak and pine stands around a permanent young barrens core. 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. A rolling barrens landscape provides benefits by offering patches of fuel breaks that support prescribed burning, while enhancing ecological diversity. In the event of a forest fire, fuel breaks increase the safety and effectiveness of forest fire suppression operations.

The sharp-tailed grouse (*Tympanuchus phasianellus*) is an area-sensitive species dependent on the presence of large (>1000 ac) patches of suitable habitat (young barrens) 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 Meadows, Namekagon Barrens, and Douglas County Wildlife Areas, with smaller remnant populations elsewhere, such as at Moquah Barrens, where a substantial restoration project is underway (Schultz-Naas 2016) . 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 will be substantially improved by connecting the 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 2011). While Namekagon and Douglas County wildlife areas are managed to support sharp-tailed grouse, the 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 these wildlife area subpopulations. Reconnecting grouse subpopulations to ensure a self-sustaining population requires individuals moving 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 oak/pine 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 G), 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 below 'Prescriptions') to increase the habitat value for barrens wildlife species, while meeting or enhancing public 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, for implementation to occur.

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 Namekagon-Moquah Barrens Partnership Corridor (Map G), 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.

Regional Partners

Bayfield County Forestry
Burnett County Forestry
Douglas County Forestry
Washburn County Forestry
The Conservation Fund
Friends of the Bird Sanctuary
Friends of the NW Sands
Friends of the Namekagon Barrens Wildlife Area
Lyme Timber Company
St. Croix River Association
St. Croix Tribe
St. Croix Watershed Conservation Collaborative
Steigerwaldt Land Services
US Fish & Wildlife Service
US Forest Service
US Park Service
West Wisconsin Land Trust
Wisconsin Department of Natural Resources
Wisconsin Sharp-tailed Grouse Society

DNR staff will collaborate with the 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 Namekagon-Moquah 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 multiple county forest fifteen-year plans, the Lyme-St. Croix conservation easements, the Chequamegon-Nicolet 2004 Forest Plan, Northwest Sands Environmental Impact Statement, 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 Chapter One, Section One may be applied.

Objectives

- Re-establish wildlife habitat connectivity between Namekagon Barrens Wildlife Area and Moquah Barrens Wildlife Area with ten 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 county forests 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.

Prescriptions

- Collaboratively establish ten barrens stepping stones to be managed by 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 ten 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).
- Use prescribed fire as a forest silviculture and management tool to reach landowner objectives.
- Favor jack pine during regeneration (USDA, 2013) and shorter rotations of red pine; use cost-sharing incentives from DNR when available.

Lands (Map G)

The specific locations of the barrens stepping stones will be determined through collaboration with interested partners. 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 the counties. 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 Namekagon-Moquah Barrens stepping stones will provide connections for wildlife to properties with barrens habitat, eliminating a prominent gap in the Northwest Sands Ecological Landscape.

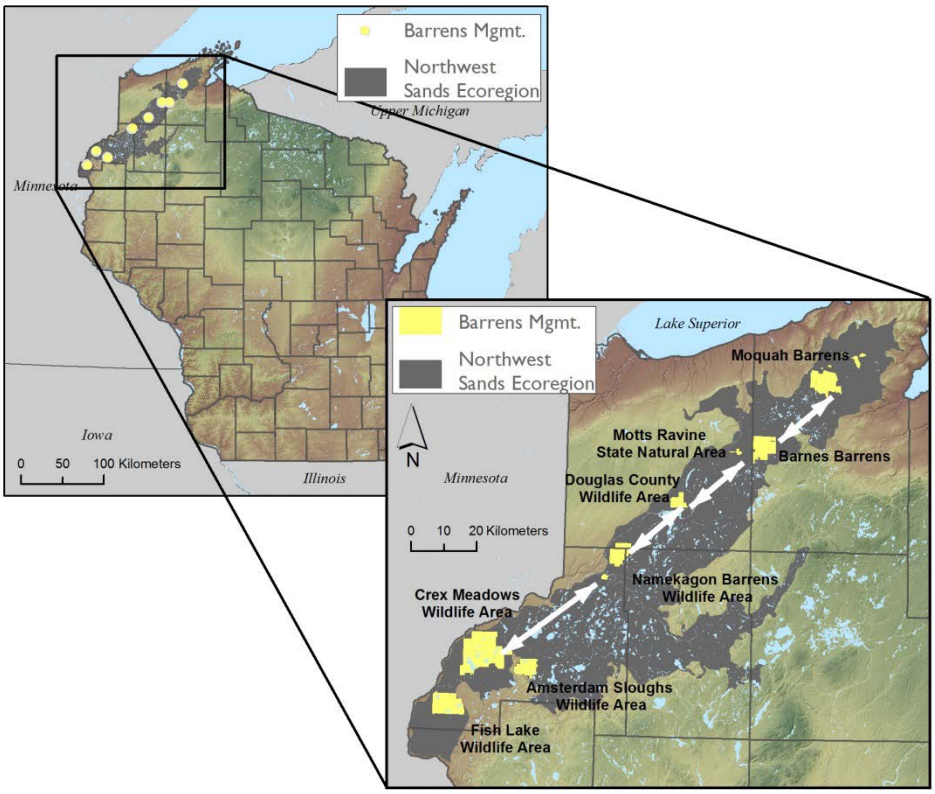
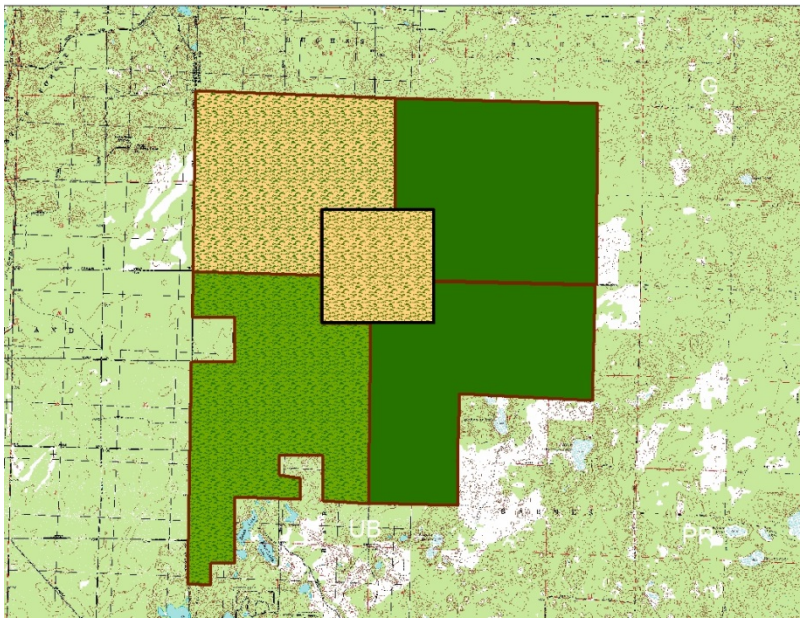


Figure 2. This example illustrates the rolling barrens concept from Bayfield County's Barnes Barrens Plan. Four blocks of barrens 'roll' around a permanent barrens core. Blocks are harvested at 12-year intervals on a 48-year rotation.



Appendix F: Field Trial Economic Impact Analysis – Summary Report (UW Extension & Tom Goltz, 2016)

Background

In preparation for updating the Namekagon Barrens Wildlife Area Master Plan, the Wisconsin Department of Natural Resources asked user groups to provide economic impact data if available. The Chippewa Valley Grouse Dog Association (CVGDA) hosts a major dog field trial and volunteered to provide an economic analysis for the three field trial championships held annually on the Barrens. Tom Goltz of the CVGDA and Andrew Dane of the University of Wisconsin Extension used IMPLAN, a widely used OI model, for the data analysis, updated with current field trial and economic data.

The study found that three field trial championships have an overall economic impact of $87,333 in the three counties of Douglas, Burnett and Washburn. This includes $60,100 in direct economic impact and supports the equivalent of 2 full time jobs. In addition, the events generate $8,155 in state and local tax revenue.

Field Trial Championships

The CVGDA was founded over 40 years ago by a group of central Wisconsin sportsmen wanting to promote and expand populations of wild prairie game birds, mainly sharp-tailed grouse.

Field trials were chosen as a great way to promote these game birds. The NBWA and Douglas Bird Sanctuary Wildlife Area provide excellent venues for competition and there is very little cost to the area managers to support dog trial activities. The CVGDA hosts the North Country Shooting Dog Championships, sanctioned by the Amateur Field Trial Clubs of America (AFTCA). Region 19 of the AFTCA hosts two championships, the Shooting Dog Championship and the All Age Dog Championship. The three championships held in the NBWA attract over 100 sportsmen from throughout the Midwest and East Coast.

Because of the quality and beauty of the NBWA, the host clubs have consistently been able to attract top notch dogs that are competing nationally, leading to the growth and success of the three championship events.

Study Methodology

The methodology used to assess the 2015 data from the NBWA dog trial events is the same methodologies used in the 2010 Field Trial Economic Impact Analysis of the Eau Claire County Forest dog trial events by Andrew Dane and Tom Goltz.

To assess the economic and fiscal impact of the field trial events, a regional economic modeling approach called Input-Output (IO) analysis was used. An IO model allows the user to describe the level of interaction of all actors in the local economy. The IO model can trace changes by altering the level of activity in one or more variables in the local economy. For this study, the variable introduced into the model was the level of yearly spending in the local economy due to out-of-area field trial participants. The numbers for the level of spending were provided by Tom Goltz. This type of spending is called the “initial” or direct economic impact. The ripple effect, or multiplier effect, of the visitor spending is then measured and traced across all sectors of the local economy using IMPLAN.

While the approach used here provides insights into the impact of the field trial visitor spending in Douglas, Washburn and Burnett counties, it is only a partial analysis and should not be interpreted as a full cost-benefit analysis. Any public investment, negative impacts, or positive exposure of the St Croix Valley Area associated with the event were not considered in the analysis.

Several potential income sources were not considered in analysis. Out-of-area visitors who come to observe - but not participate - in the event, along with the several other breed-specific field trials such as those held by the German Wirehair Club, the German Shorthair Club and the Gordon Setter Club were not analyzed in this study due to lack of data. The fiscal impact of the field trial events would have been significantly greater if these groups had been included in the analysis.

Field Trial Regional Economic Impact

The economic impact of the field trial can be measured by the jobs, income, and overall economic activity generated by the spending in the local economy as a result of the event. For this study, the local economy is defined as Douglas, Washburn and Burnett counties, where the majority of the out-of-area visitor spending occurs.

The direct economic impact of the field trials is $60,010. This spending includes $20,980 on restaurants and meals, $20,250 on lodging, $13,850 on gas and auto-related items, $4,130 on retail and convenience, and $800 on veterinary services.

Through the multiplier effect, the events generate an additional $27,323 in economic impact, resulting in an overall economic impact to the three counties of $87,333.

The event generates $44,336 in total income, which includes $31,590 in employee and owner income and $12,746 in property income. In terms of jobs, the field trial events generate the equivalent of two full time jobs in the local economy on an annual basis.

The field trials also add to the county and city tax base through personal property and real estate taxes. The event generates $13,645 in local, state, and federal taxes. This figure includes $8,155 in state and local taxes and $5,490 in federal taxes.

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.

APPENDIX G: Existing and Planned Recreation Management Infrastructure

Recreation Infrastructure	Namekagon Barrens Wildlife Area	Douglas County Wildlife Area	Totogatic Wild River
Water Access			
Walk-in Fishing (via town/county road)	**1**	**2**	**5**
Carry-in boat (via town/county road)	**0**	**0**	**5**
Carry-in boat (department)	**0**	**0**	*1 planned*
Lakes and waterfowl potholes	**3 lakes, 10 pothole wetlands**	**2 lakes, 14 pothole wetlands**	**0**
Streams/Rivers	**Clemens Creek; Rand Creek**	**Leo Creek**	**Fivemile Creek; Totogatic River**
Wildlife Observation Blinds (seasonal)	**3**	**1**	**0**
Parking Areas	**Everywhere** on road shoulders	**1** + everywhere on road shoulders	**1** + road shoulders; *1 planned*
Road Access (total miles) State Highway/County/Township DNR public access DNR service /closed (gated)	**36 miles** 14 miles 16 miles 6 miles	**44 miles** 17 miles 24 miles 3 miles	**11 miles** 5 miles 0 miles 6 miles
Trails *(mileage may overlap)*			
Designated Auto trail miles	**14 miles**	*10 miles planned*	*9 miles planned*
Hiking/XC ski trail miles	(property open for access)	**5 miles** (NorthCountryTrail)	(open for access) *1 planned*
Snowmobile/ATV trail miles (county)	**12** miles	**1.5** miles	**2** miles
Bicycle/Horseback miles	Town road miles	**14** miles designtated horse trail	Town road miles
Primitive Camping (Seasonal; need permit)	Mgmt Area 3 (by DNR permit)	Mgmt Area 5 (by county permit)	0
Disabled Accessible Hunting places/structures (need permit/key)	**PDMD only**	**PDMD only**	**PDMD only**
Information/Interpretive Displays	**3**	**2**	*3 planned*
Picnic / Rest Area (sites with facilities)	*1 shelter planned*	**1** (county managed)	**0**
Observation/lookout Area	**1**	**0**	*1 planned*
Dog Training Area (number and acres)	**0**	**1** (300 acres)	**0**
Buildings (existing)	**1**	**4** (county owned/managed)	**0**
Buildings (planned)	-	-	-
Unheated storage; Grouse reporting station	*2 planned*	**0**	**0**
Property Maps for Visitors	*1 planned*	1	*1 planned*