

Barrens Restoration on the Bayfield County Forest

Partnering to help restore a globally rare
community

Bayfield County Forest – Why barrens? How?

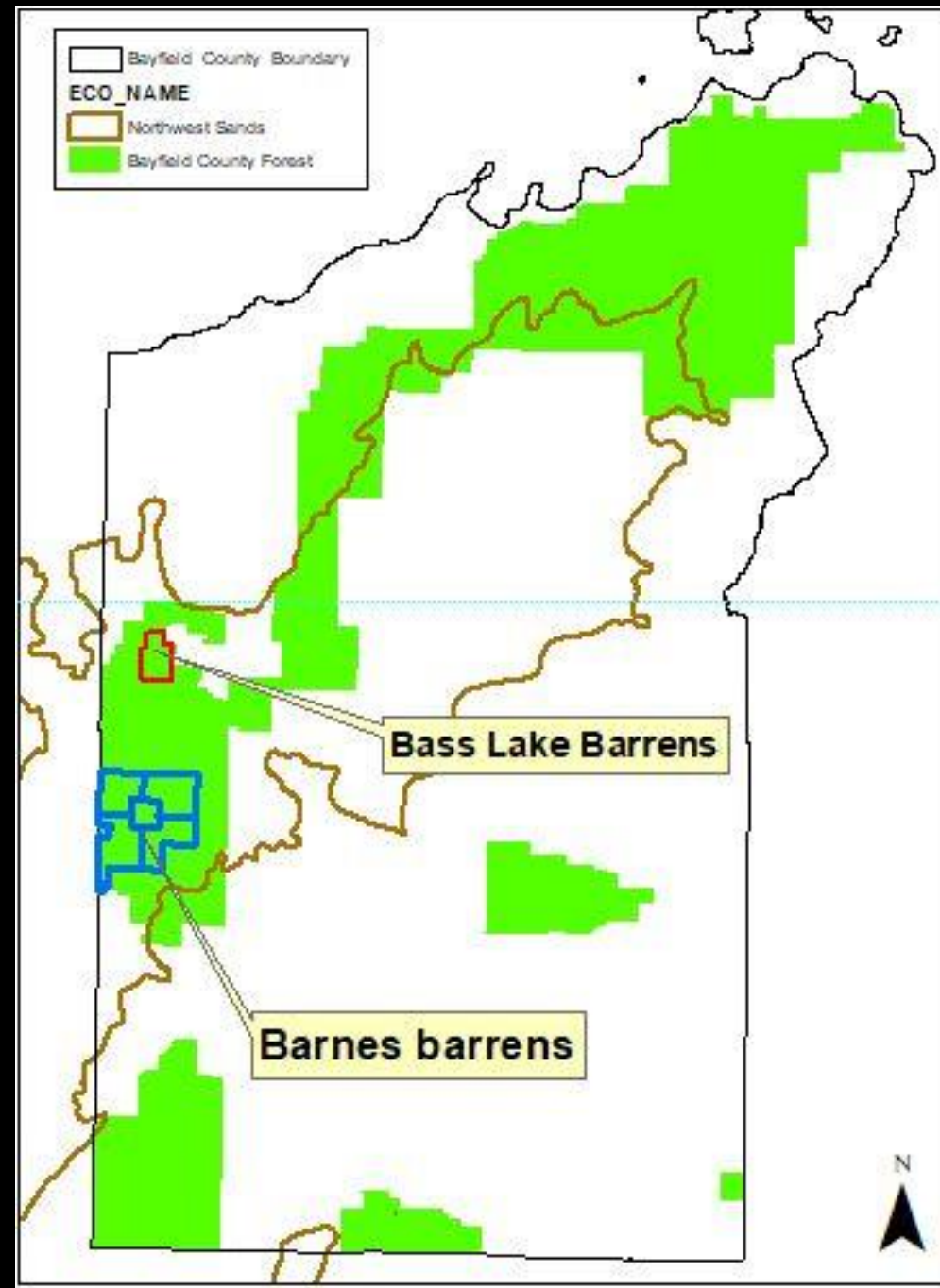
- The Northwest Sands extends into Bayfield County
- Barrens is a rare landscape
- Bayfield County Forestry and Parks Dept. has a unique opportunity to help
- Multiple Use is part of our mission
- WI DNR guiding documents along with dedicated DNR staff to support us every step of the way has been critical
- Access to funding: Pittman-Robertson, Turkey Stamp, WSGS, American Forests, Bayfield County, etc.
- Bayfield County Forestry Committee support was necessary to proceed
- Bayfield County Forestry Staff buy-in. Takes a team to pull this off.

Bayfield County Forest

176,000 acres in total

Approx. 79,000 acres within Northwest Sands

Approx. 13,000 acres actively managed to create and/or support barrens species



Important WI DNR documents

BARRENS MANAGEMENT GUIDELINES

Habitat Management Guidelines Team

Mark Rasmussen: Wildlife Biologist
Bob Hanson: Wildlife Biologist
Darren Ladwig: Wildlife Biologist
Aaron McCullough: Wildlife Technician
Tom Carlson: Wildlife Biologist
Kyle Anderson: GLG Property Supervisor
Steve Hoffman: St. Croix Area Wildlife Supervisor
Greg Edge: Forest Ecologist/Silviculturist
Ryan Magana: Northwest Region Ecologist
Henry Sullivan: Antigo Forestry Team Leader

Wisconsin Sharp-tailed Grouse: A Comprehensive Management and Conservation Strategy

May 2011

Prepared by:
Sharon Gericke Fandel
Bureau of Wildlife Management
&
Scott Hull
Bureau of Science Services
Wisconsin Department of Natural Resources

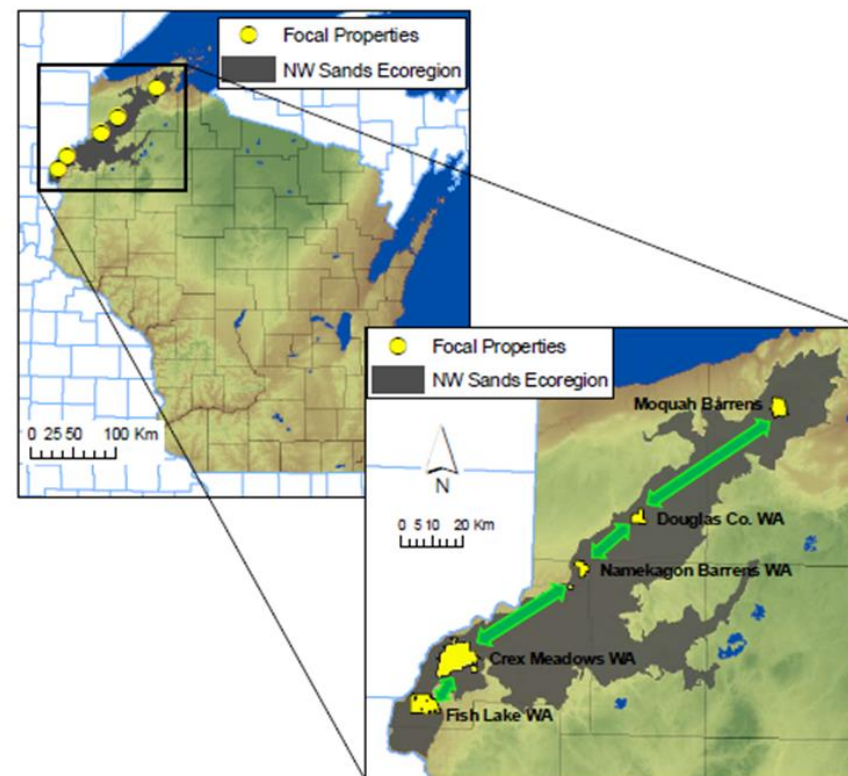


Photo by Ryan Brady, WDNR

Northwest Sands Habitat Corridor Plan

Matt Reetz¹, Scott Hull², Sharon Fandel³, Scott Lutz⁴

25 April 2013



¹Department of Forest and Wildlife Ecology, UW-Madison, ²Bureau of Science Services, WDNR, ³Bureau of Wildlife Management, WDNR

BARRENS MANAGEMENT GUIDELINES

WI DNR

The purpose of the Priority Habitat Management Guidelines (HMG) is to improve habitat quality while working to increase efficiencies and prioritize resource allocation.

Barrens were once widespread in Wisconsin but are presently considered a globally imperiled ecosystem under the Wisconsin Wildlife Action Plan (WAP). Approximately 2.3 million acres of pine barrens and 1.8 million acres of oak barrens occurred in the state prior to European settlement. Since the 1800s, a majority of Wisconsin's early successional oak and pine barrens have disappeared due to fire suppression and other practices such as agriculture, development and forest conversion. Today less than 1% of the original acres of pine and oak barrens survive in Wisconsin. Wisconsin has some of the best opportunities in North America for preserving and restoring barrens.

BARRENS MANAGEMENT GUIDELINES

Priority Work Areas

Ecological Landscape Opportunities

Ecological Landscape	Opportunity*	
	Oak Barrens	Pine Barrens
Central Sand Hills	I	I
Central Sand Plains	M	M
Northeast Sands		M
Northwest Sands	M	M
Northern Highland		P
Southwest Savanna	P	
Western Coulee and Ridges	M	I

*M = Major; major opportunity exists in this Landscape; many significant occurrences are recorded, or restorations likely to be successful.

I = Important; several occurrences important to maintaining the community in the state occur in this Landscape.

P = Present; community is present in the Landscape but better opportunity exists elsewhere.

Habitat Management Guidelines for Barrens

Seral Stages of Barrens Habitat, Definitions, and Return Intervals:

1. Open Barrens: Grassy, prairie-like habitat with very little woody vegetation. Early successional seral stage of Barrens. Once woody vegetation dominates, the stand has moved to the next seral stage. Return interval treatments vary from 1-4 years.
2. Brush Prairie Barrens: Dominated by short woody vegetation, including blueberries, hazel, willow, scrub oak and scrub aspen. The grass and forb barrens understory still provides diversity with woody vegetation providing increasing vertical structure. Once canopy closure starts reducing the ground layer or structural height surpasses six feet, the stand moves into the next seral stage. If the site-specific objective is to maintain this seral stage, disturbance is needed when this occurs. Return interval treatments vary from 1-15 years.

Sharp-tailed Grouse Management Plan

On barrens managed for sharp-tailed grouse, it is recommended that at least 1/3 of the habitat on these properties be in the Open Barrens Seral Stage, and no more than 2/3 of the habitat be in the Brush Prairie Seral Stage, at any given time. Brood-rearing and nesting habitat are the most critical habitat needs for sharp-tailed grouse.

BARRENS MANAGEMENT GUIDELINES

Standard Practices

1. Prescribed Fire
2. Herbicide to control woody vegetation
3. Mechanical Treatment
4. Grazing
5. Timber Harvest
6. Native Grass/Forb Assisted Seeding
7. Invasive Species control

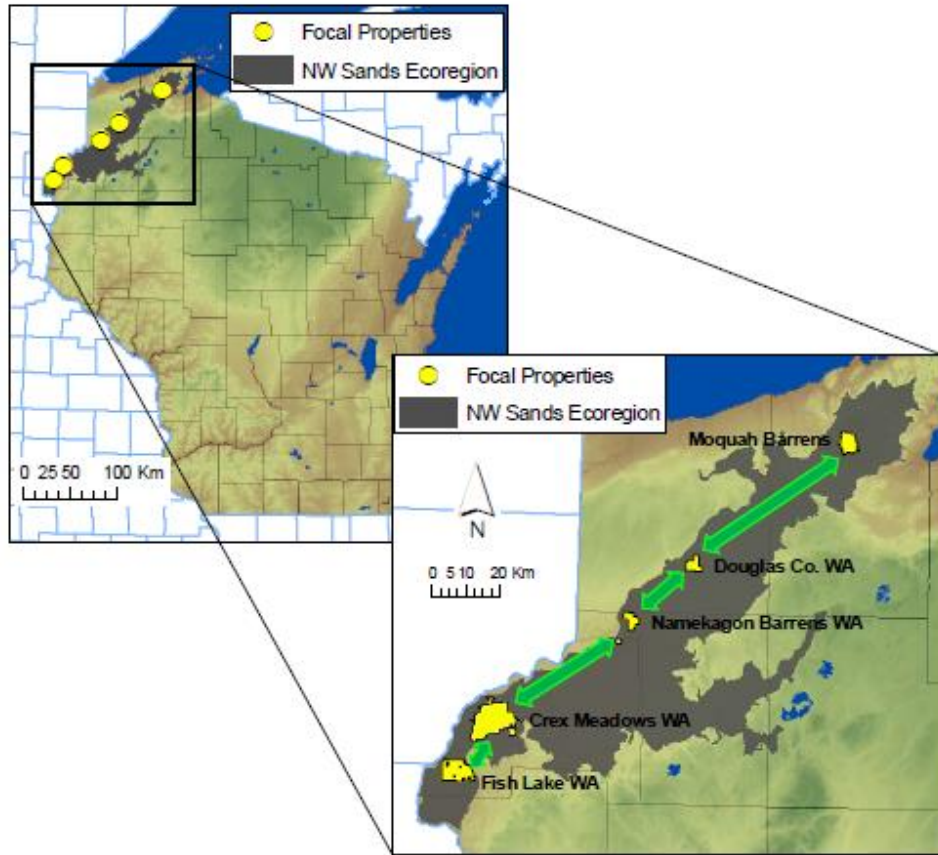
Monitoring

Prescribed burn evaluations, Target species monitoring, Photo points, etc.

Northwest Sands Habitat Corridor Plan

Matt Reetz¹, Scott Hull², Sharon Fandel³, Scott Lutz¹

25 April 2013



¹Department of Forest and Wildlife Ecology, UW-Madison, ²Bureau of Science Services, WDNR, ³Bureau of Wildlife Management, WDNR

Northwest Sands Habitat Corridor Plan 2013

Plan Objective:

This project uses biologically-driven data to identify barrens habitat restoration opportunities within the Northwest Sands and potential habitat corridors or stepping stones between existing barrens habitat patches, with the ultimate goal of benefitting barrens-dependent SGCNs.

Northwest Sands Habitat Corridor Plan

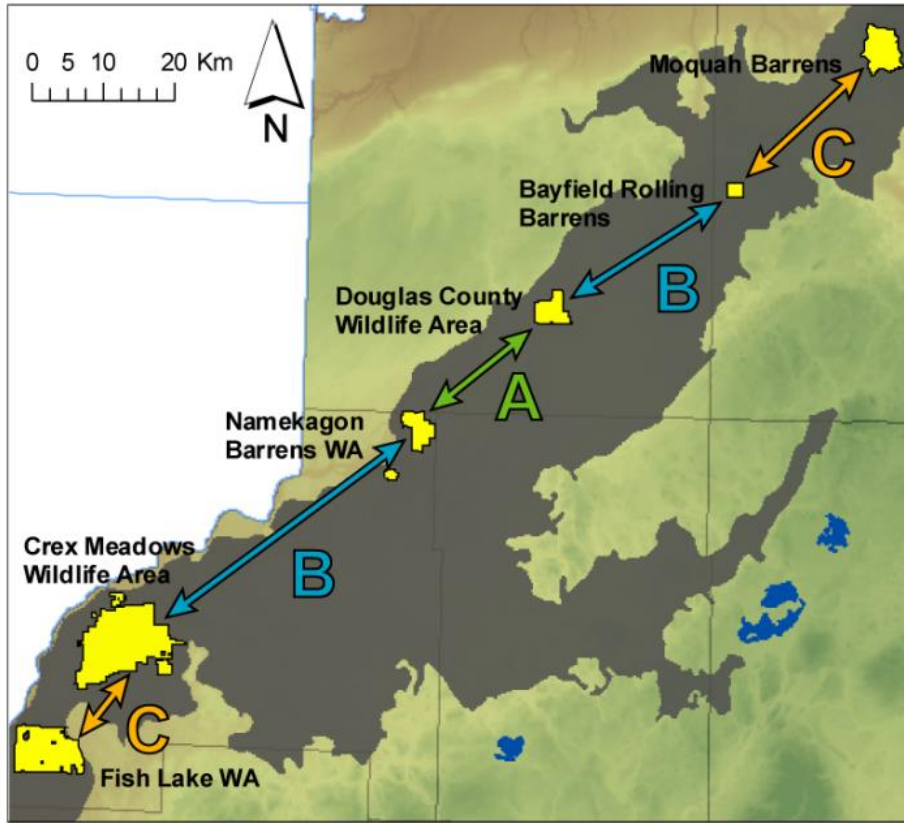
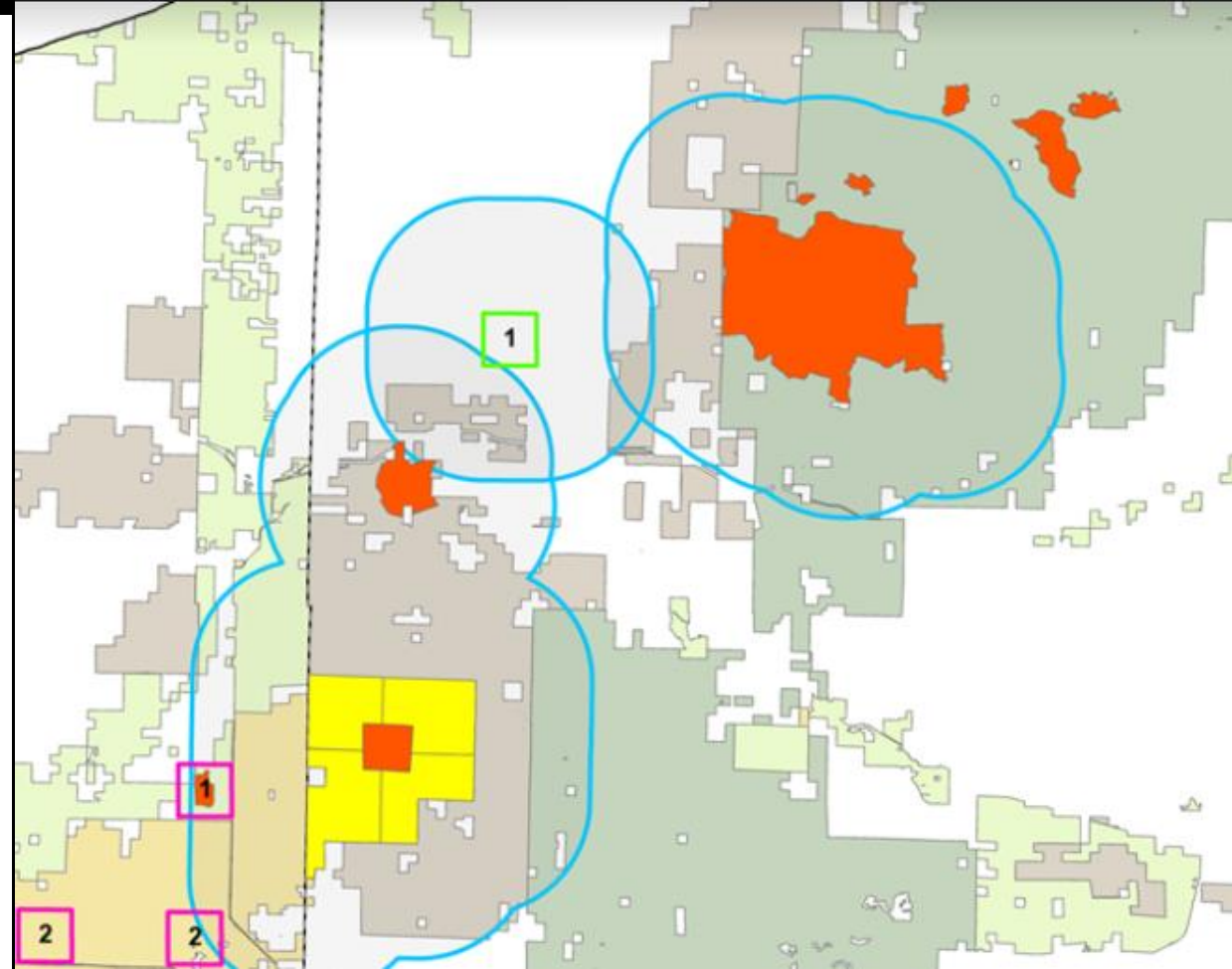
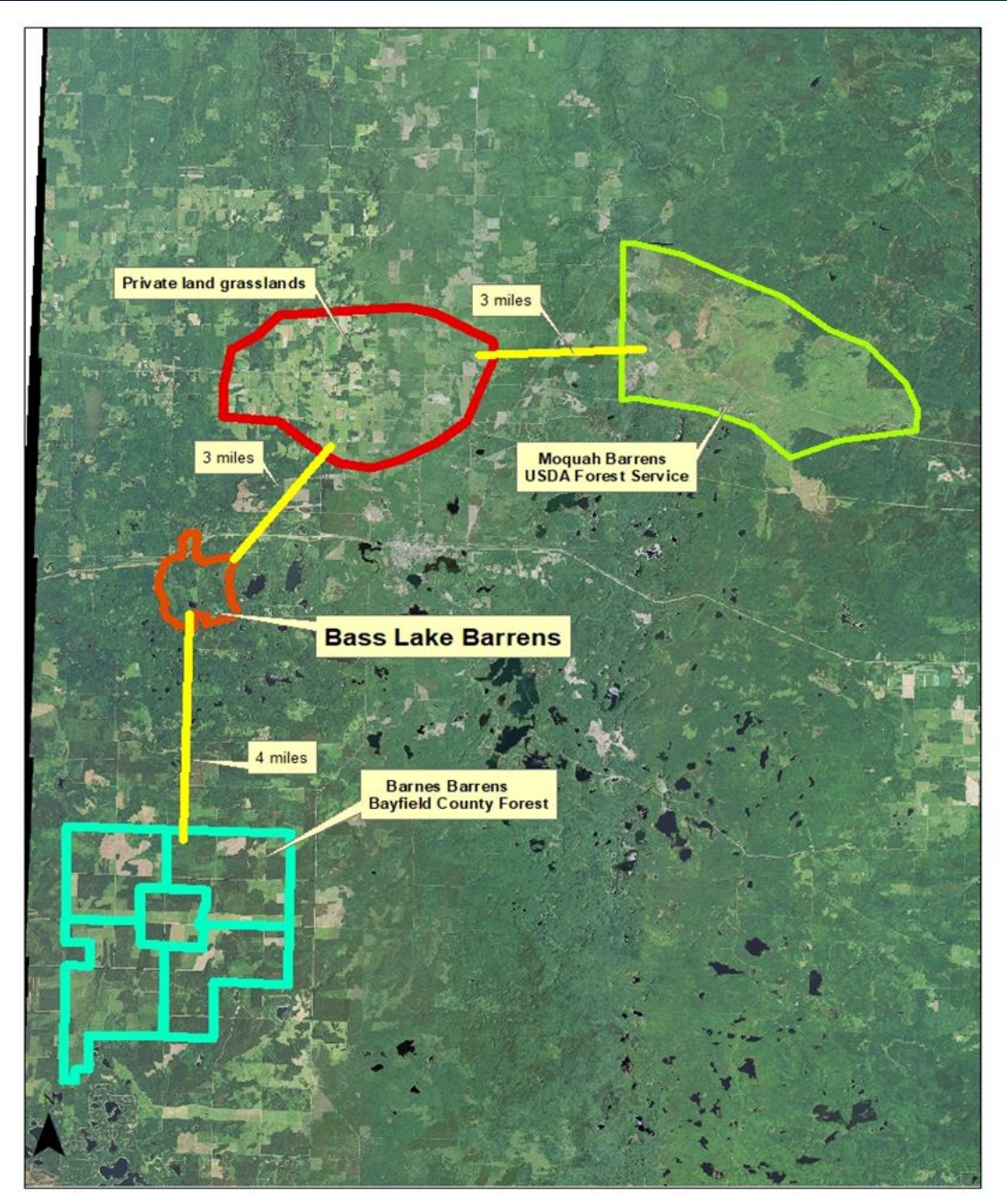
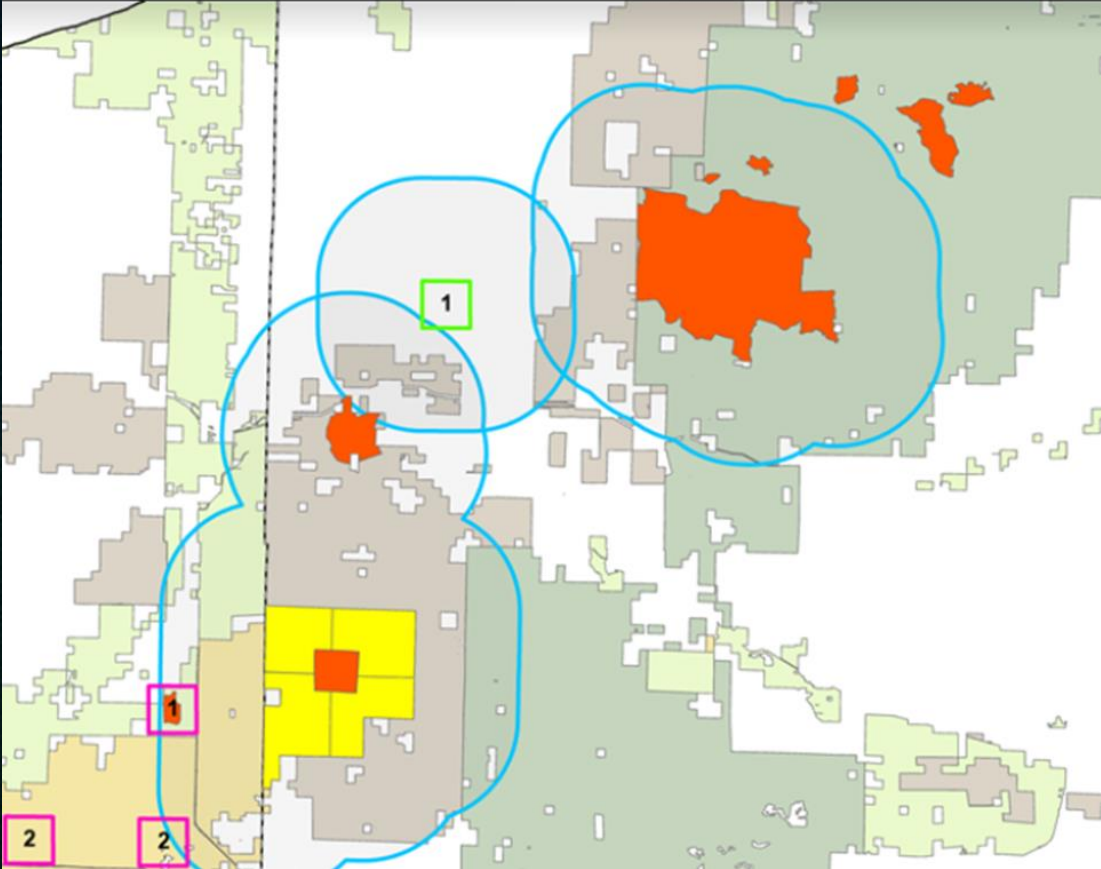


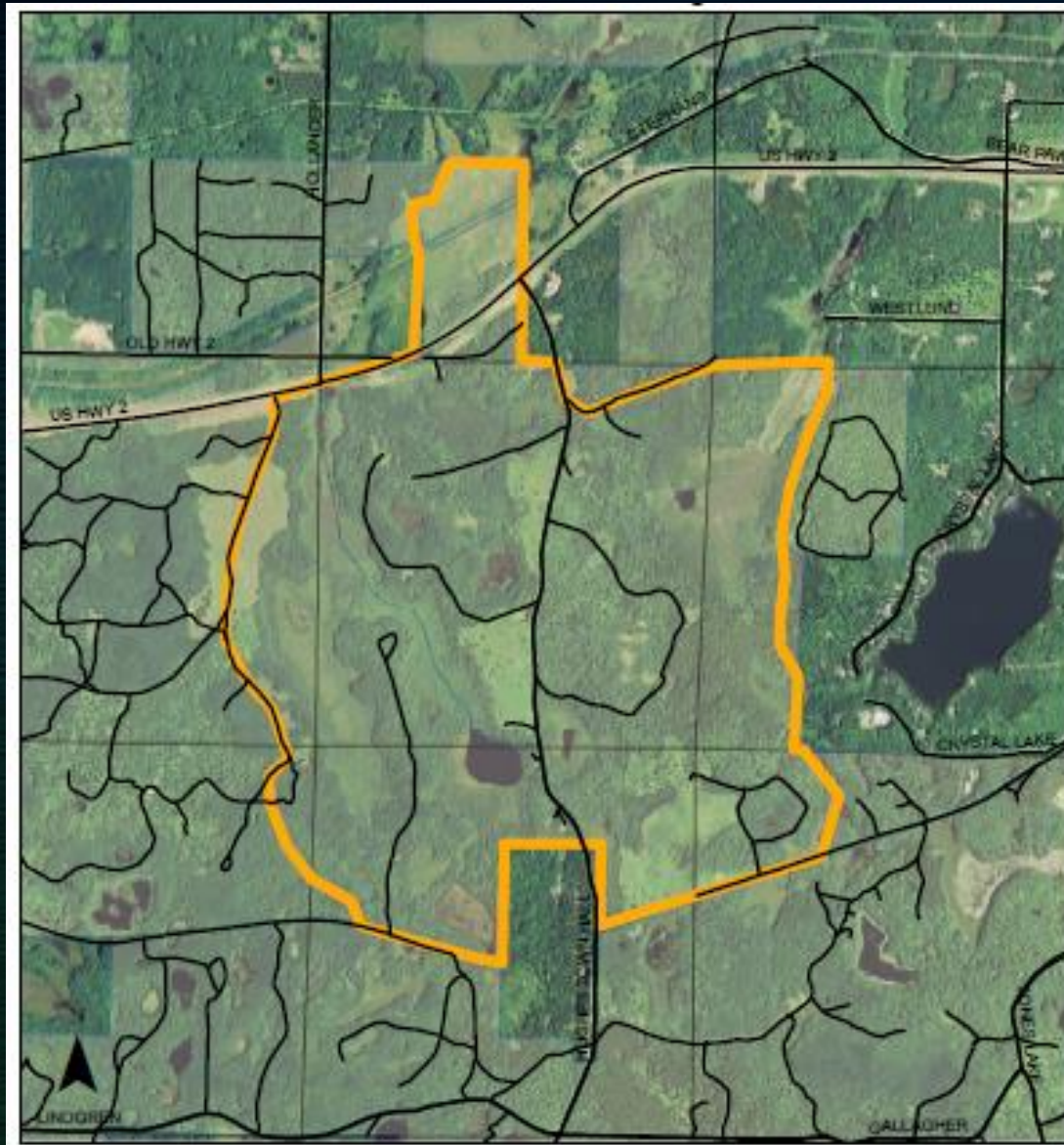
FIGURE 4-1. Prioritization of linkage opportunities in the Northwest Sands. Tier A represents the area of highest overall probability of success.



Landscape Level Connectivity of Barrens Habitat



Bass Lake Barrens




 **Open Barrens**

Total acres in permanent
open habitat

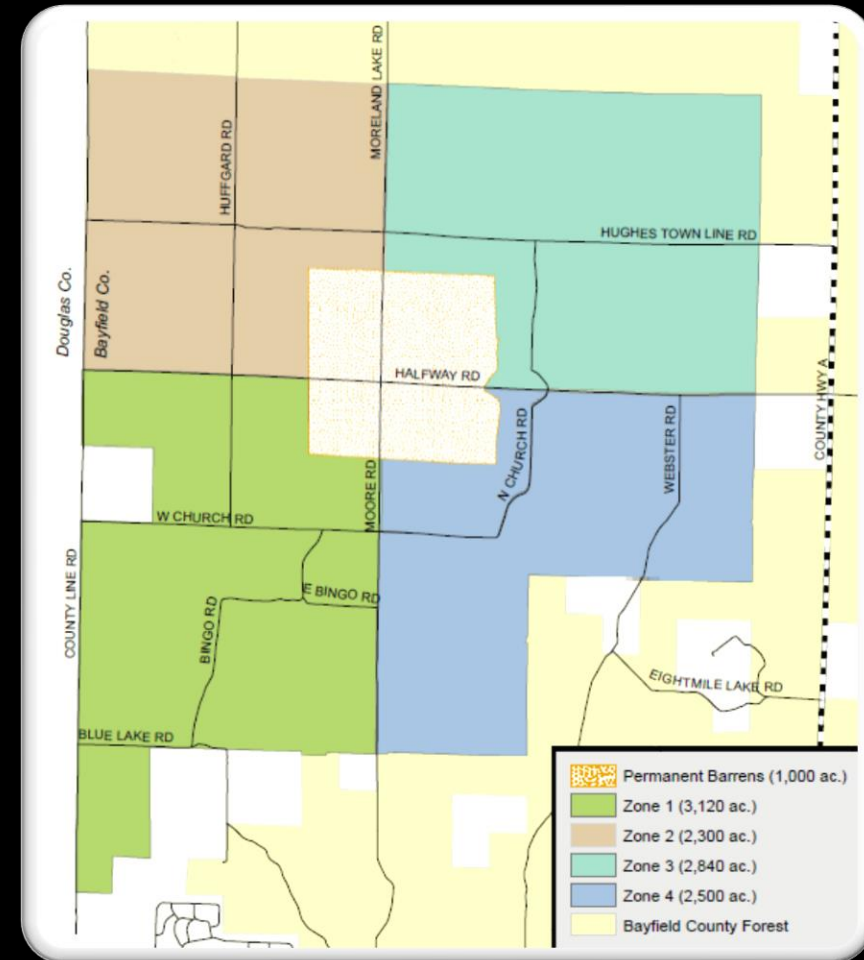
1300 acres

(46% upland, 54% lowland)

 Bayfield County Forest

The Beginning of the Barnes Barrens

- The Bayfield County Forestry office was wanting to create a landscape level barrens area that would be more beneficial to barrens species than the existing fuel breaks.
- The idea of using a floating barrens concept began around 2008.
- 1,100 acres of fuel breaks have been planted in exchange for a 1,000 acre block (core area)
- In 2011 a plan was developed for the Barnes Barrens Management Area
- In 2013 a modification was made to designate 200 contiguous acres in each zone as Kirtland's Warbler Habitat Areas (KWHA).



Forest Management

NE corner of the Barnes Barrens Core 2022



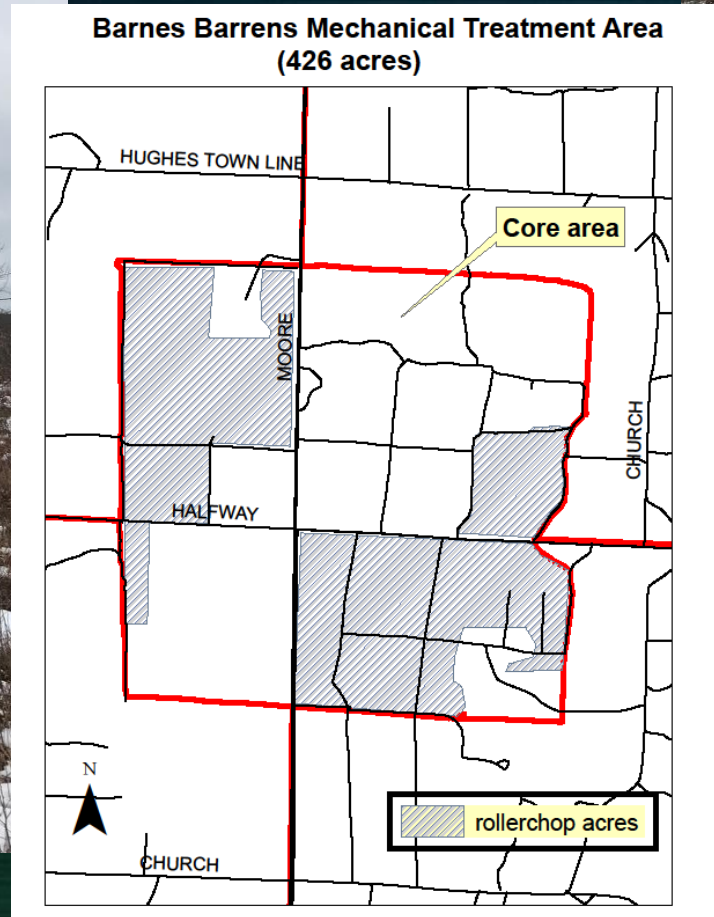
Forest Management

NE corner of the Barnes Barrens Core

2023



Mechanical Treatment



Pittman-Robertson Funds: \$45,000
466 acres

426 acres Barnes Barrens
40 acres Bass Lake Barrens

Mechanical Treatment

Bass Lake Barrens roller chopping



Barnes Barrens WI DNR dozer work

Mechanical Treatment

Clearing a potential lek area
Barnes Barrens

Location based on
past dancing activity

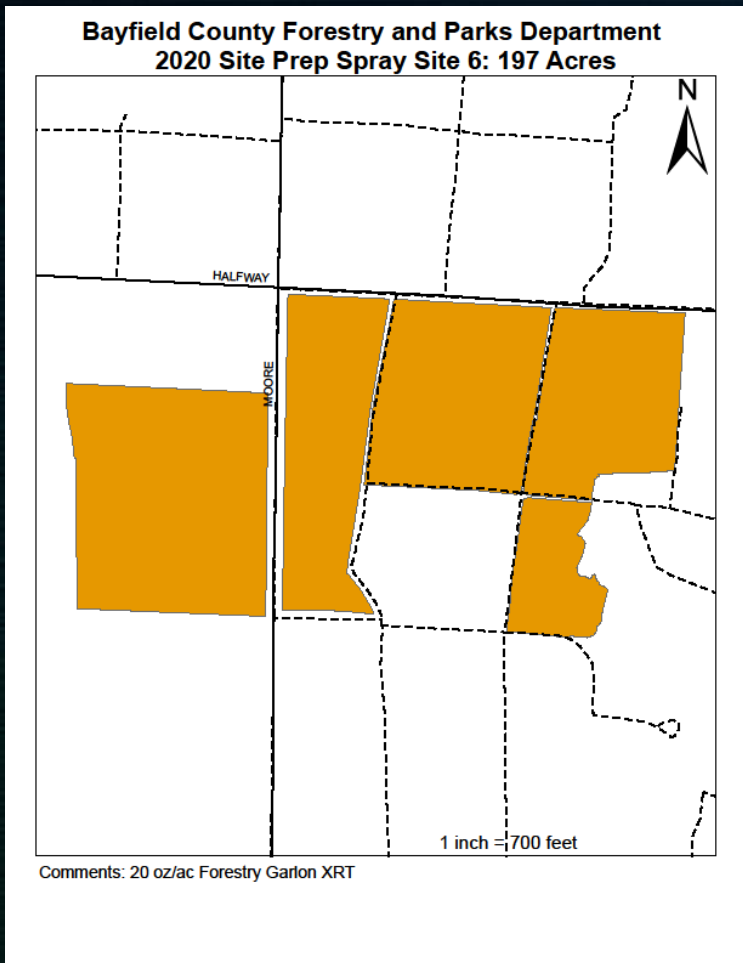


Mechanical Treatment

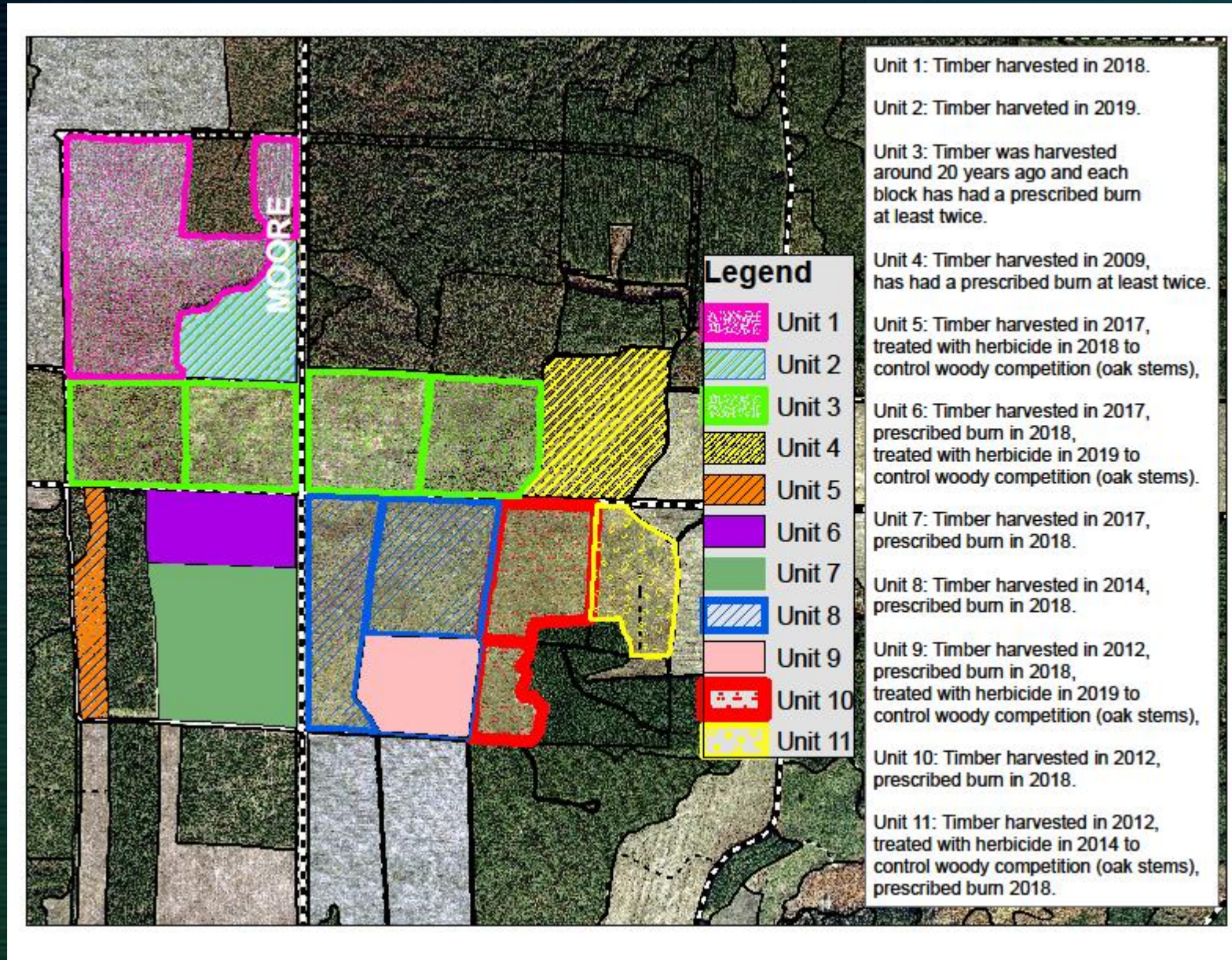
Cleared a potential lek location
using the WI DNR dozer in the
NW portion of the Barnes Barrens



Herbicide Treatments



Herbicide treatments are to control woody vegetation



Prescribed Fire

2022 Barnes Barrens Core

spring burn 195 acres



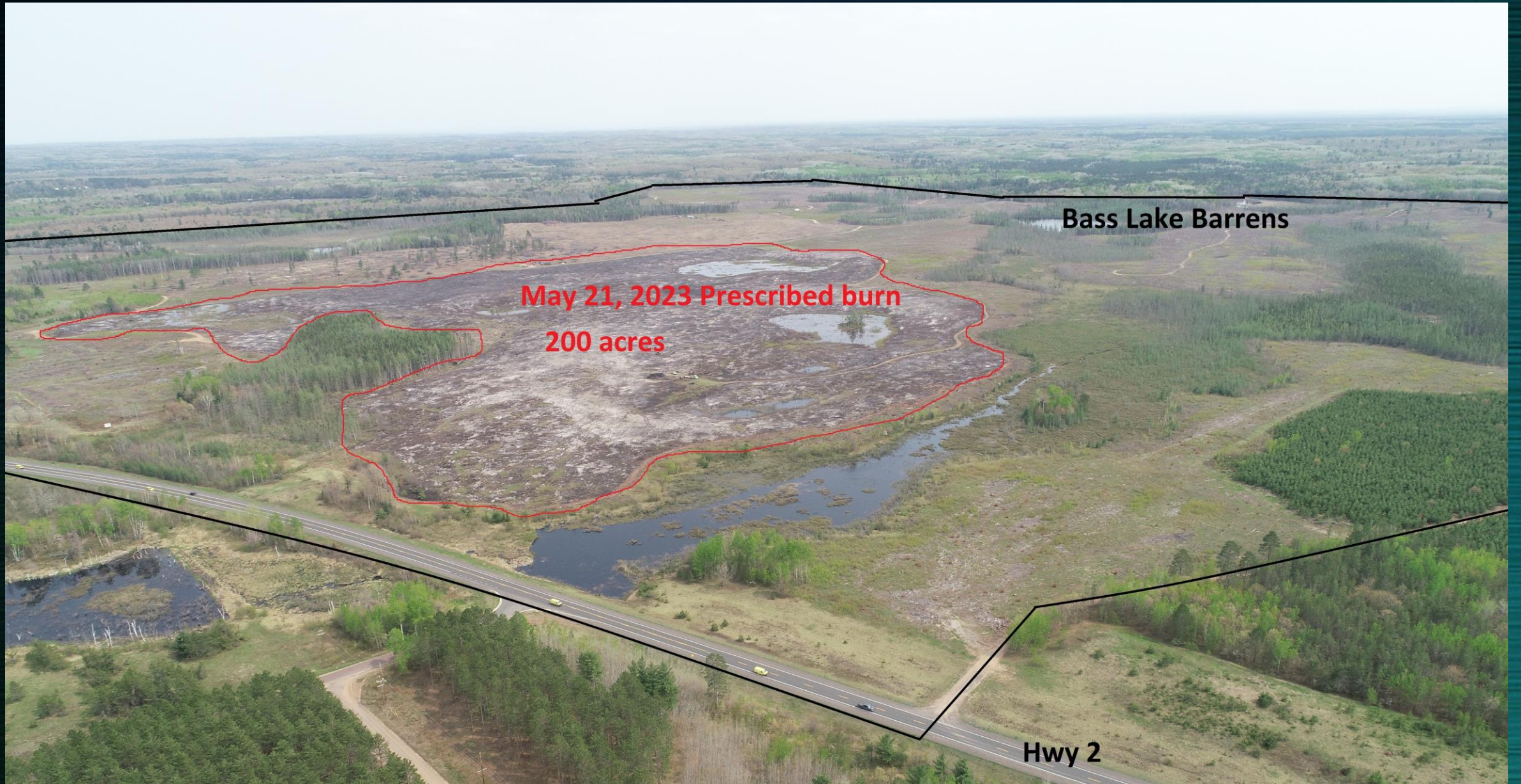
Prescribed Fire

Sept 1st 2023 Mott's and Barnes burn occurring at the same time



Prescribed Fire

First burn in the Bass Lake Barrens Spring 2023



Invasive Treatment Control

Spotted Knapweed is very common in this area

Milestone: 5 oz per acre

NOTICE

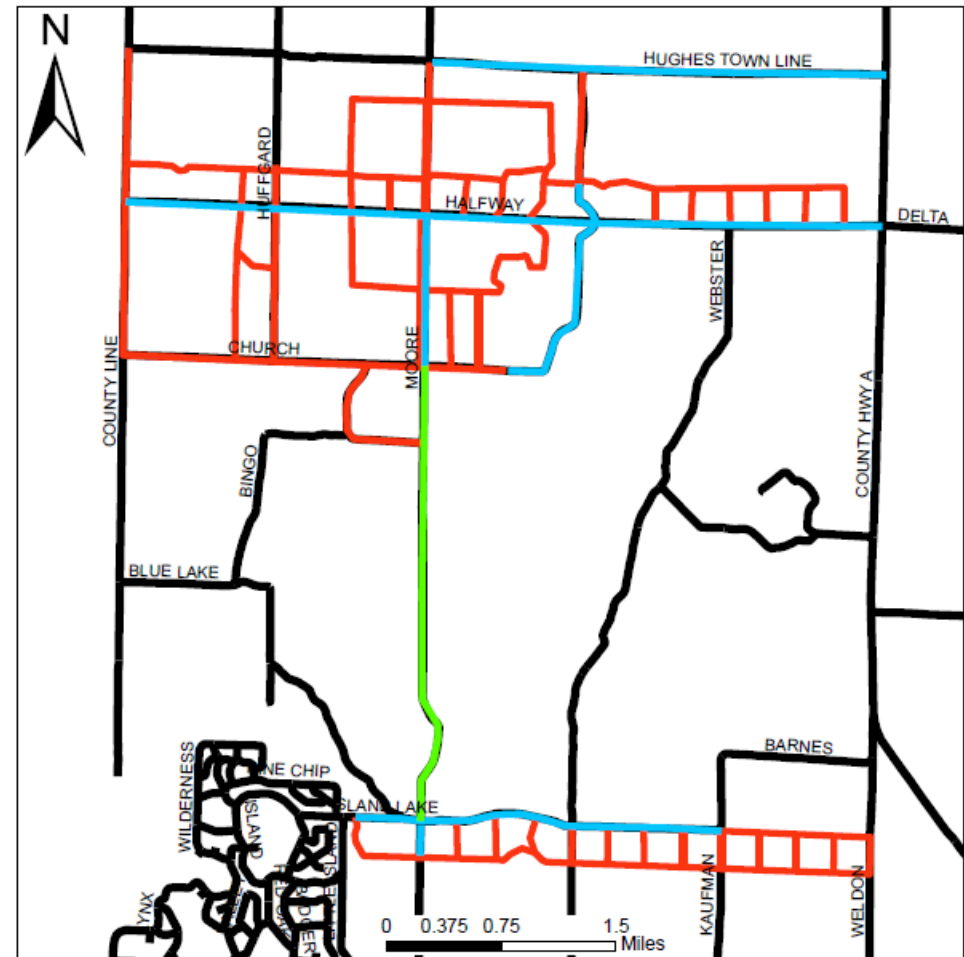
INVASIVE CONTROL AREA

A herbicide application to control Spotted Knapweed and prevent it from infesting and degrading barrens habitat.

This area was treated on _____

For More Information Contact:
Bayfield County Forestry Dept.
Courthouse
P.O. 445
Washburn, WI 54891
715-373-6114

Bayfield County Forestry and Parks 2023 Knapweed Treatment Area T46N R9W and T45N R9W



- Treat all knapweed on or near the roadway and 60 feet beyond the maintained road surface
- Treat all knapweed on or near the roadway and 30 feet beyond the maintained road surface
- Treat all knapweed on or near the roadway and 20 feet beyond the maintained road surface
- Roads

Monitoring

Sharp-tailed Grouse

Males observed on the Bayfield County Forest
Population has been dynamic for a number of reasons



Year	2015	2016	2017	2018	2019	2020	2021	2022	2023
# Males	19	25	22	12	11		4	15	19

Monitoring

***2022 Report on the
Barrens Flora of the
“Core Area” of the
Barnes Barrens
Management Area***

***Paul Hlina, Leaning Pine
Consulting***

October 2022



138 species present

Notable and Rare species

Houghton's sedge

New jersey tea

Heart-Leaved golden alexanders

Hairy lettuce

Northern wild comfrey

Gay-wings

Monitoring

Natural Resources
Research Institute

UNIVERSITY OF MINNESOTA DULUTH
Driven to Discover

ANNUAL REPORT

Barnes Barrens Management Area 2021 Avian Monitoring Report



Submitted by:

Alexis Grinde, Josh Bednar, Reid Siebers, and Annie Bracey

Date: December 2021

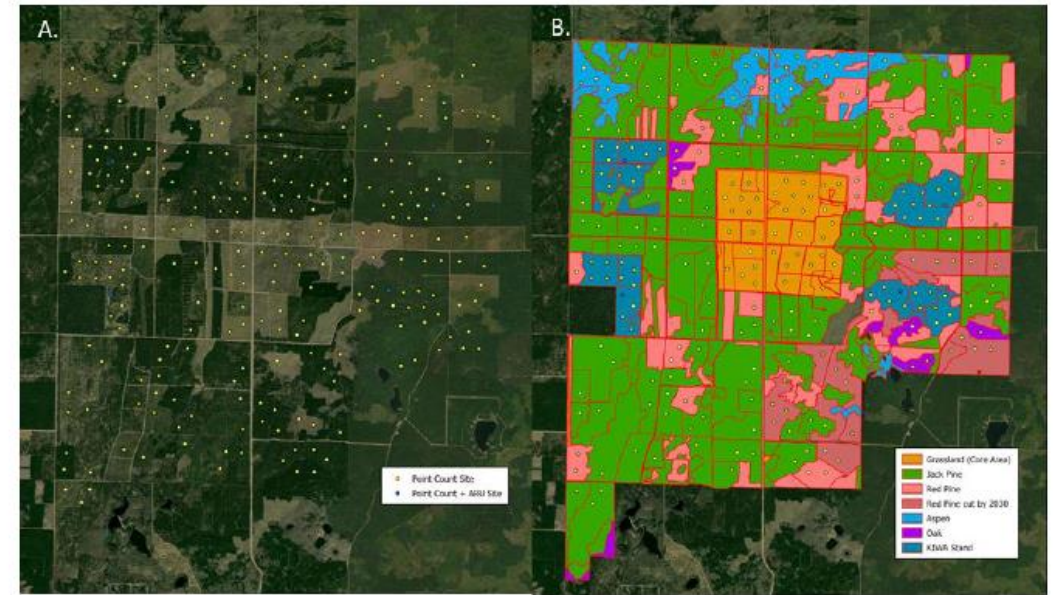
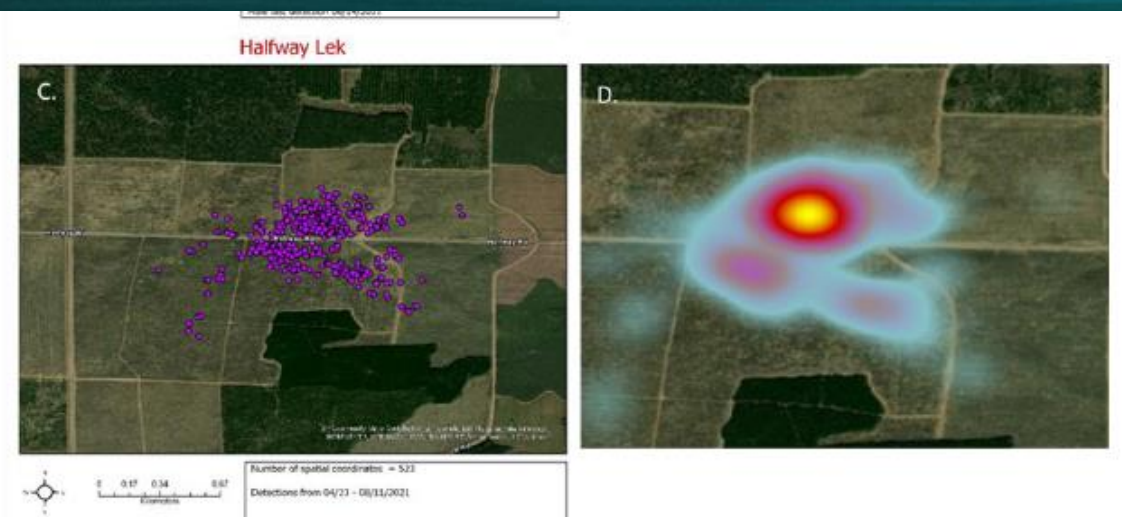
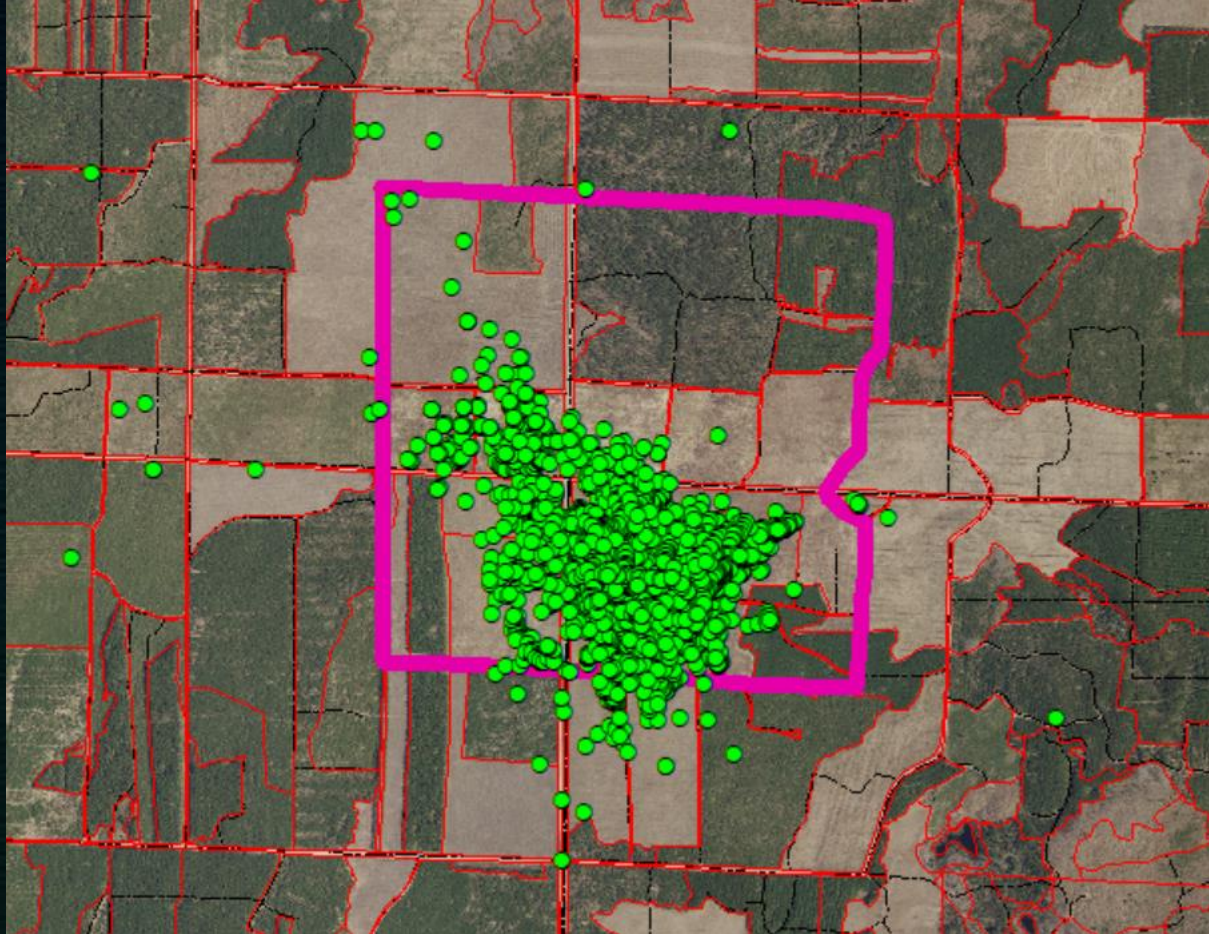


Figure 1. Point count sites (A.) distributed among specified cover types (B.) within Barnes Barrens Management Area. ARUs (blue dots) were deployed at point count sites (yellow dots) in each of the four designated Kirtland's Warbler Habitat Areas.

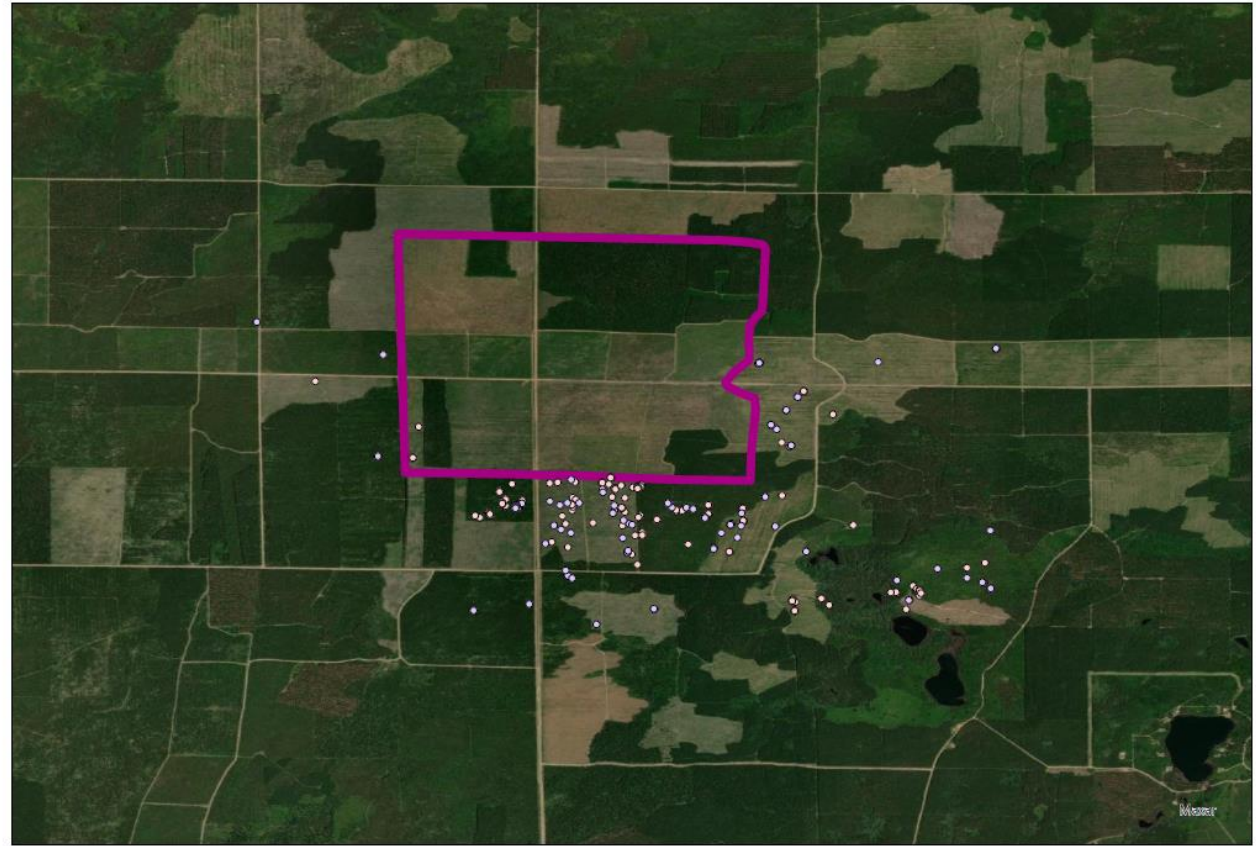


Monitoring



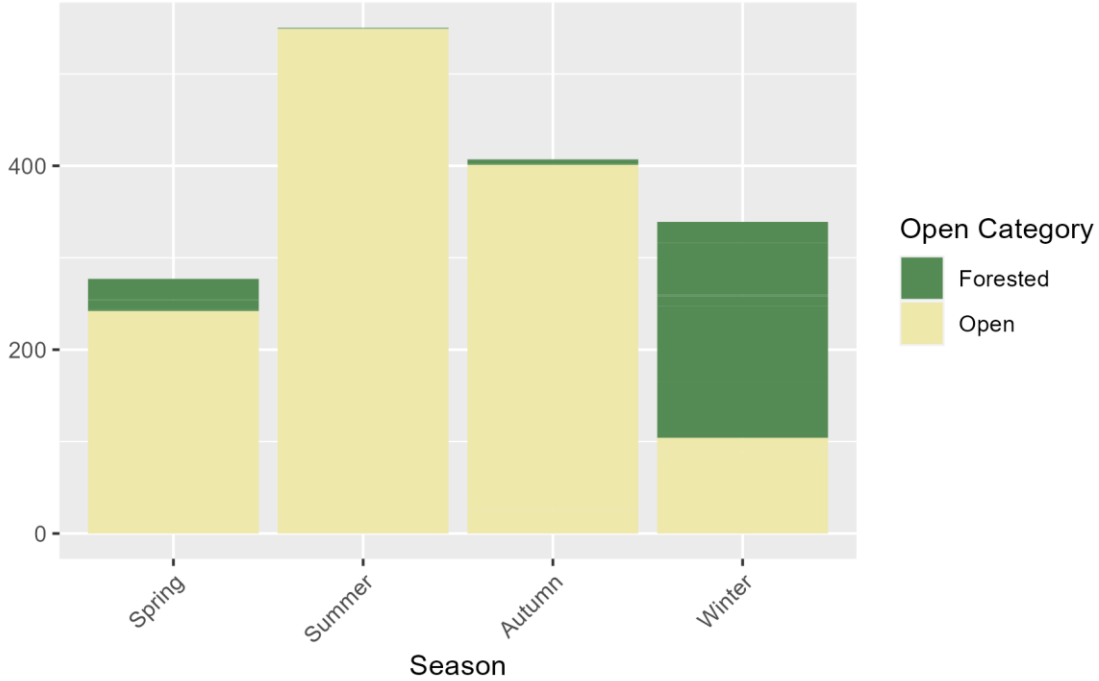
GPS tagged Sharpie Movement Map

Jan 18 2023 - March 26 2023

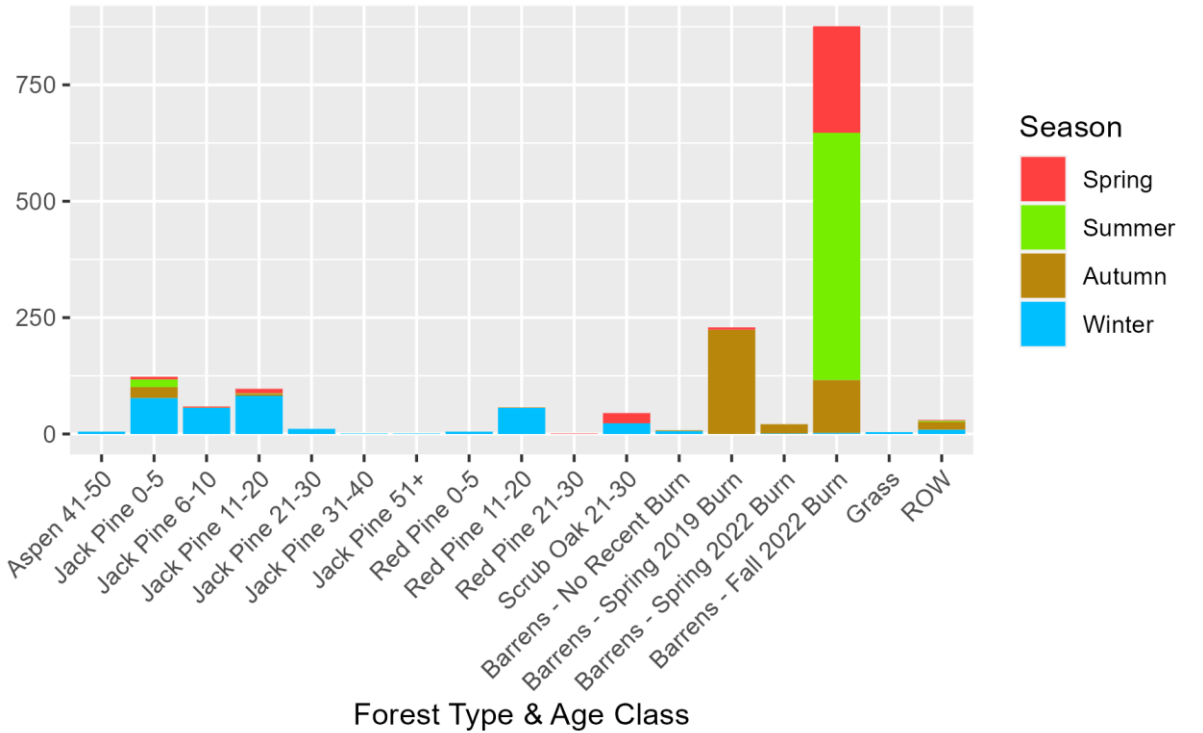


Monitoring

Number of Sharp-tailed Grouse GPS Points by Season and Open Category



Number of Sharp-tailed Grouse GPS Points by Season and Forest Type



Monitoring

GPS locations over a 2 day period of a STG prior to a prescribed burn in the Barnes Barrens

Burn occurred on 9/01/2022
This map shows the bird's locations on 8/30-8/31/2022



GPS locations over a 4 day period of a STG after a prescribed burn in the Barnes Barrens

Burn occurred on 9/01/2022
This map shows the bird's locations on 9/1-9/05/2022



Monitoring

ARU (Autonomous Recording Unit)

Bayfield County purchased 2 ARUs with support from WSGS to assist in the monitoring of STG and other species



Monitoring**Barnes Barrens - Site 4**

4/26/2023 – 5/23/2023

<u>Common Name</u>	<u>Number of Occurrences</u>
Clay-colored Sparrow	6215
Vesper Sparrow	3253
Brewer's Blackbird	481
Field Sparrow	188
Sharp-tailed Grouse	172
Common Raven	115
Brown Thrasher	45
Northern Flicker	23
Lapland Longspur	19
American Pipit	18
White-winged Crossbill	14
American Goldfinch	13
Palm Warbler	13
Eastern Bluebird	10
Eastern Kingbird	10
American Tree Sparrow	9
Eastern Towhee	9
American Crow	8
Northern Saw-whet Owl	7
Killdeer	6
Northern Harrier	6

7 am -9 am recording time
(timeframe incorrectly set)

Bass Lake Barrens

6/21/2023 – 6/30/2023

<u>Common Name</u>	<u>Number of Occurrences</u>
Eastern Whip-poor-will	1114
Common Nighthawk	922
Killdeer	127
Eastern Towhee	116
Song Sparrow	108
Wilson's Snipe	104
American Goldfinch	79
Chestnut-sided Warbler	15
Sandhill Crane	12
Brown-headed Cowbird	11
Common Yellowthroat	10
Rusty Blackbird	8
Common Loon	7
Vesper Sparrow	7
White-winged Crossbill	7
Black-billed Cuckoo	6
Eastern Kingbird	5
Red-winged Blackbird	5

5 min recording each hour


Monitoring

Establish permanent plots to monitor response to prescribed fire in Barnes Barrens

- Establish one monitoring grid (two 2x5 grids) in each core zone (NW, NE, SW, SE)
- Survey each grid once per year.

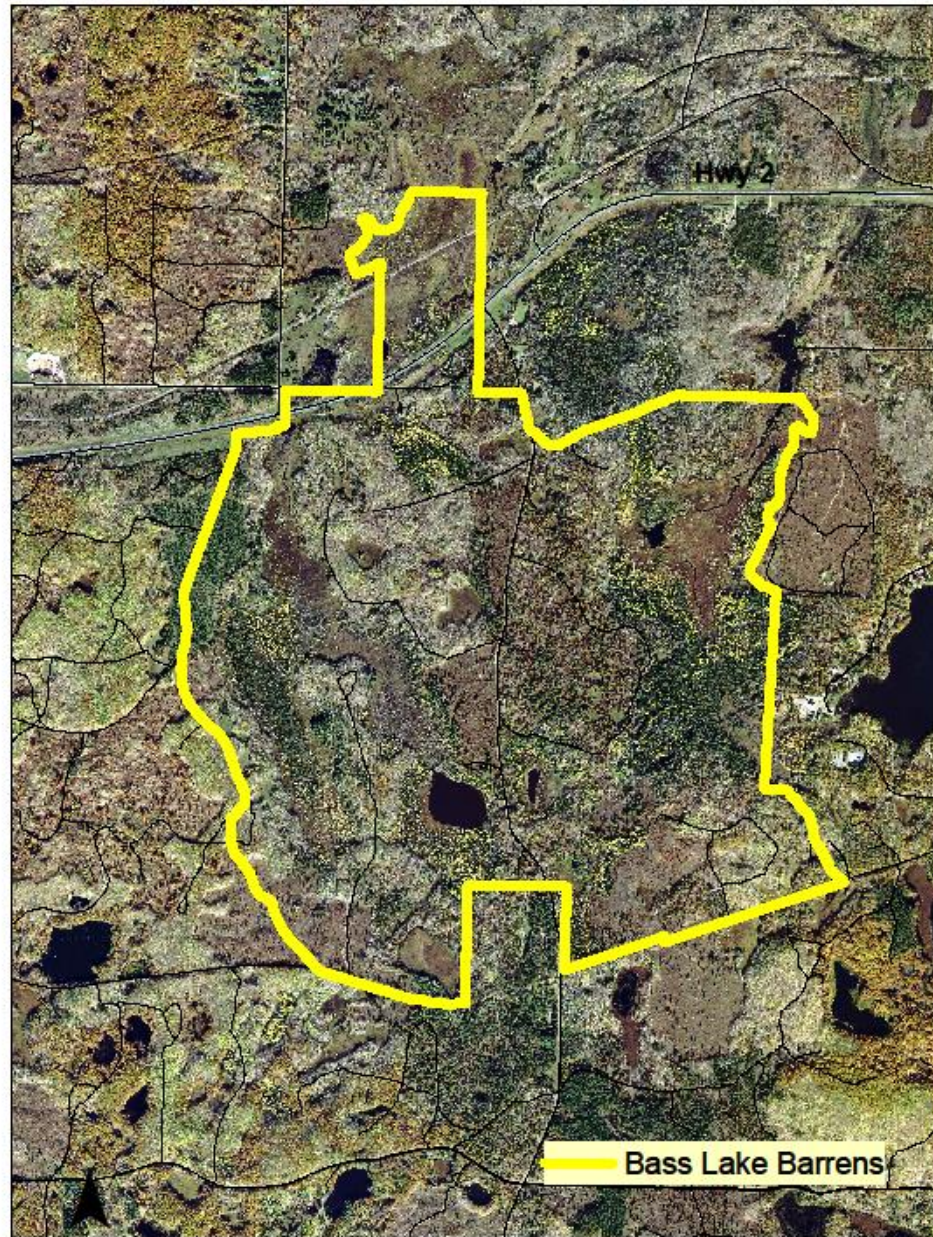
Year	NW	NE	SW	SE
2022	Spring		Summer (partial)	Summer
2023	Spring			Summer
2024		Summer	Spring	
2025		Summer	Spring	
2026				
2027	Spring			Summer
2028				
2029		Summer	Spring	
2030				
2031				
2032				

Effects of fire seasonality and intensity on resprouting woody plants in prairie-forest communities

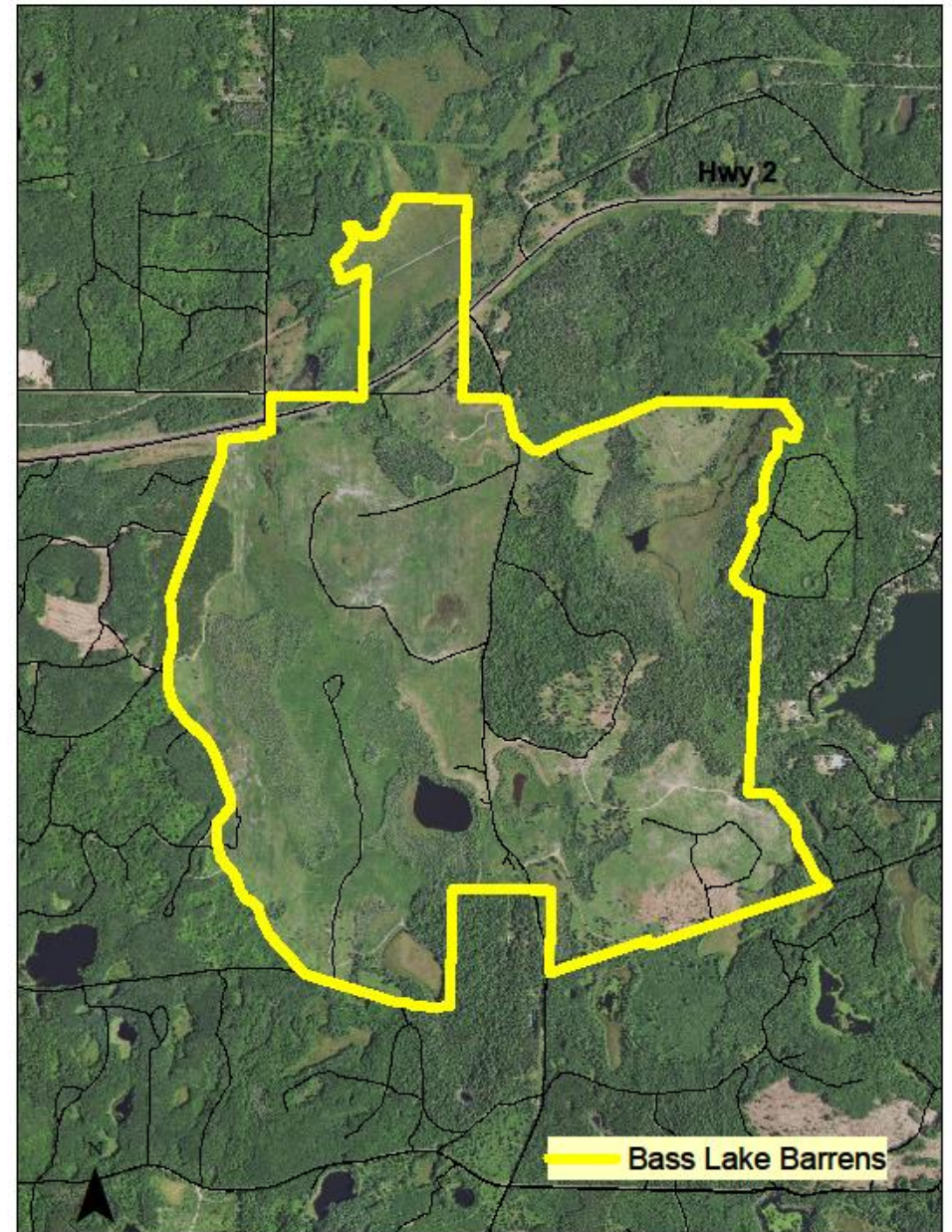
Jed Meunier^{1,2} , Nathan S. Holoubek³, Yari Johnson⁴, Tim Kuhman⁵, Brad Strobel⁶



Bass Lake Barrens area -- 2018



Bass Lake Barrens -- Status 2022



2019 Condition: Pre-barrens work

Bass Lake Barrens



2023 Status

Bass Lake Barrens



Summary

- Restoring barrens is a lot of work
- WI DNR staff and their guidance documents have been invaluable
- Dedication, persistence, time, money and patience are key
- Bayfield County is unique in this effort

ISSUE 4.3 | FALL 2022 | PROJECTUPLAND.COM

Project Upland

MAGAZINE



VOLUME FOUR
4/3
ISSUE THREE

sand ecological landscape fish lake w...
managed property bayfield rolling barren pine barren
meadows wildlife county wildlif
namekagon barren fish lake
sharp-tailed grouse
wildlife area
wildlife area

OUR MISSION IS COMPLEX YOURS IS SIMPLE



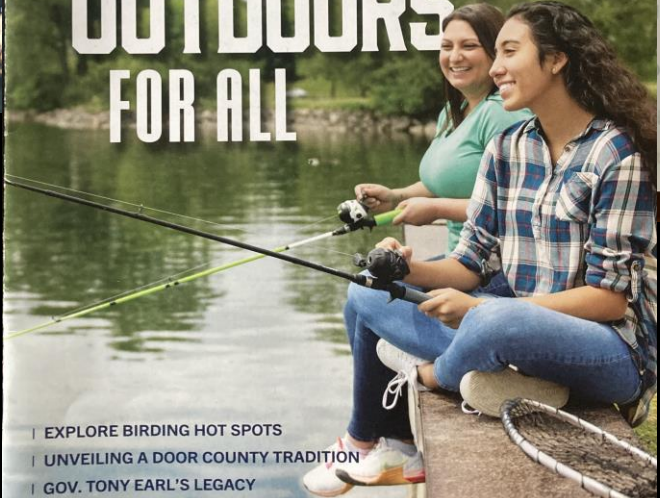
FIREBIRDS OF THE NORTHWEST SANDS



Wisconsin Natural Resources

THE WISCONSIN DNR'S GUIDE TO THE OUTDOORS | WNR.MAG.COM

OUTDOORS FOR ALL



- | EXPLORE BIRDING HOT SPOTS
- | UNVEILING A DOOR COUNTY TRADITION
- | GOV. TONY EARL'S LEGACY

SUMMER 2023 | 3.50

BECOME A MEMBER
WISHARPTAILS.ORG



RESEARCH AND HABITAT WORK
A GPS tracking project from the Natural Resources Research Institute at the University of Minnesota-Duluth has shown just how much sharp-tails love the open habitat provided by burning.
"We saw a bird move back in after a prescribed burn the very next morning, while it was still smoking!" Hanson said.
"The project showed us that birds will avoid wooded areas," said Mike Arman, a Bayfield County forester and vice president of the Wisconsin Sharp-tailed Grouse Society. "That bird could have gone just across the road to another suitable habitat after the burn, but it came back into the black right away. These are fire-adapted species, after all."

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LEARN MORE
To learn more about sharp-tailed grouse, scan the QR code or go to dnrwi.gov/tiny/1626.



FIGHTING FOR *firebirds*

**BARRENS
MANAGEMENT
BENEFITS RARE
GAME BIRD**

ANDI SEDLACEK

There's more to northern Wisconsin than lush green forests, and that's good news for a rare game bird. In the northwest corner of the state, pine and oak barrens provide important habitat for the sharp-tailed grouse, a non-migratory game bird with a small and sensitive population in Wisconsin. The vital landscapes for

these birds are characterized by scattered jack pine and oak trees, open grassy land with woody shrubs, and sandy soil. "It's a globally important landscape and ecosystem," said Bob Hanson, habitat biologist for the DNR's Northwest Sands region. "And it's kind of the last stronghold of the sharp-tailed grouse in Wisconsin."
"Historically, these areas burned quite often," Hanson said, referring to

the naturally occurring wildfires that helped maintain the open savannas. When humans started suppressing wildfires to protect growing communities, it allowed the land to shift to mature forests. And that decimated the populations of many open habitat species, including the sharp-tailed grouse.
"Now, we've realized the fire is needed for many reasons," Hanson said. "And we are working to put some of that landscape back into barrens."

The sharp-tailed grouse (*Tympanuchus phasianellus*) is considered by the DNR to be a species of greatest conservation need and a species of special concern. It's also listed as a regional forester's sensitive species by the U.S. Forest Service. At last count in 2022, only 164 males were found in Wisconsin.
It's not just a rare bird. It's also unique. Weighing in at about 2 pounds, sharp-tailed grouse have round bodies and short legs with short, rounded wings and long tail feathers — hence the "sharp-tail" name.
Both males and females have a patch of small yet striking yellow feathers, known as a head comb,

over each eye. These are not always visible, but males expand them and inflate the purple patches of skin on their necks during spirited courtship dances.
Barrens management is being done through a partnership that includes the DNR, the Bayfield, Douglas and Burnett county forests, the Chequamegon-Nicolet National Forest, and other groups. The key is to reintroduce fire to the landscape, along with approaches like creating rolling barrens of working forest lands.
And the sharp-tails love it. In fact, they're known as firebirds because of their affinity for lands managed by fire.

"Efforts to support the barrens and the birds have help from the Wisconsin Sharp-tailed Grouse Society and Friends Groups from Cass Meadows, the Namekagon Barrens and the Douglas County wildlife areas."
"There's a series of dedicated people who are very much on board with supporting this globally rare landscape and the birds and plants that occupy it," Arman said. "We're fighting hard for the last of what's left."
And Sedlacek is a public information officer in the DNR's Office of Communications.

Questions???

Thank You

Mike Amman

Forester

Bayfield County Forestry and Parks

Link to the Barnes Barren Management Plan:

<https://www.bayfieldcounty.org/DocumentCenter/View/349>

Link to the video of the Barnes Barren Management Area:

<https://vimeo.com/240744552>