

# Lake States Fire Science Consortium

A JFSP KNOWLEDGE EXCHANGE CONSORTIUM



2018 - 2019 Webinar Series  
November 29, 2018

## Sharp-tailed grouse reintroduction at Moquah Barrens.

**Brian Heeringa**  
Wildlife Biologist  
Washburn District  
Chequamegon-Nicolet National Forests

Audio will start at 2 PM Eastern / 1 PM Central.

This webinar is listen only – to ask questions please use the chat box in lower right of screen.

# Bringing Back the Firebird:

## Sharp-tailed Grouse in the Lake Superior Watershed and Beyond

**BRIAN HEERINGA**

WILDLIFE BIOLOGIST

US FOREST SERVICE

CHEQUAMEGON-NICOLET NATIONAL FOREST

WASHBURN RANGER DISTRICT





# Sharp-tailed Grouse or Aagask (*Tympanuchus phasianellus*)

Order: GALLIFORMES: turkey, grouse, chicken, quail

▶ Family: PHASIANIDAE

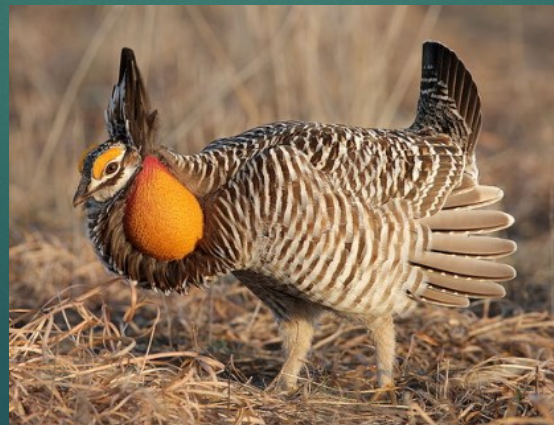
▶ Genus: *Tympanuchus*

Sharp-tailed grouse, Greater prairie-chicken, and Lesser prairie-chicken

*7 subspecies - one extinct*



Sharp-tailed grouse

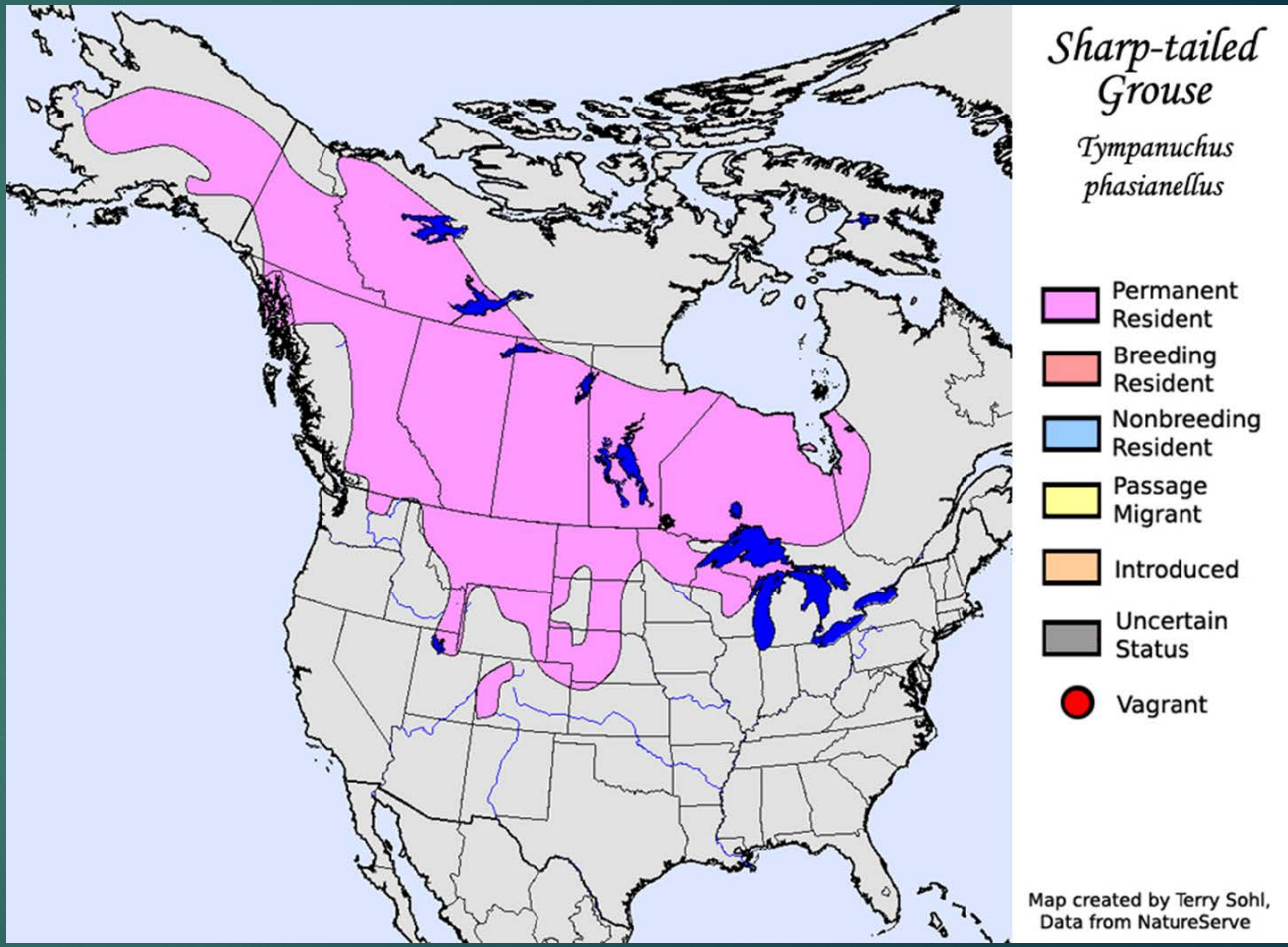
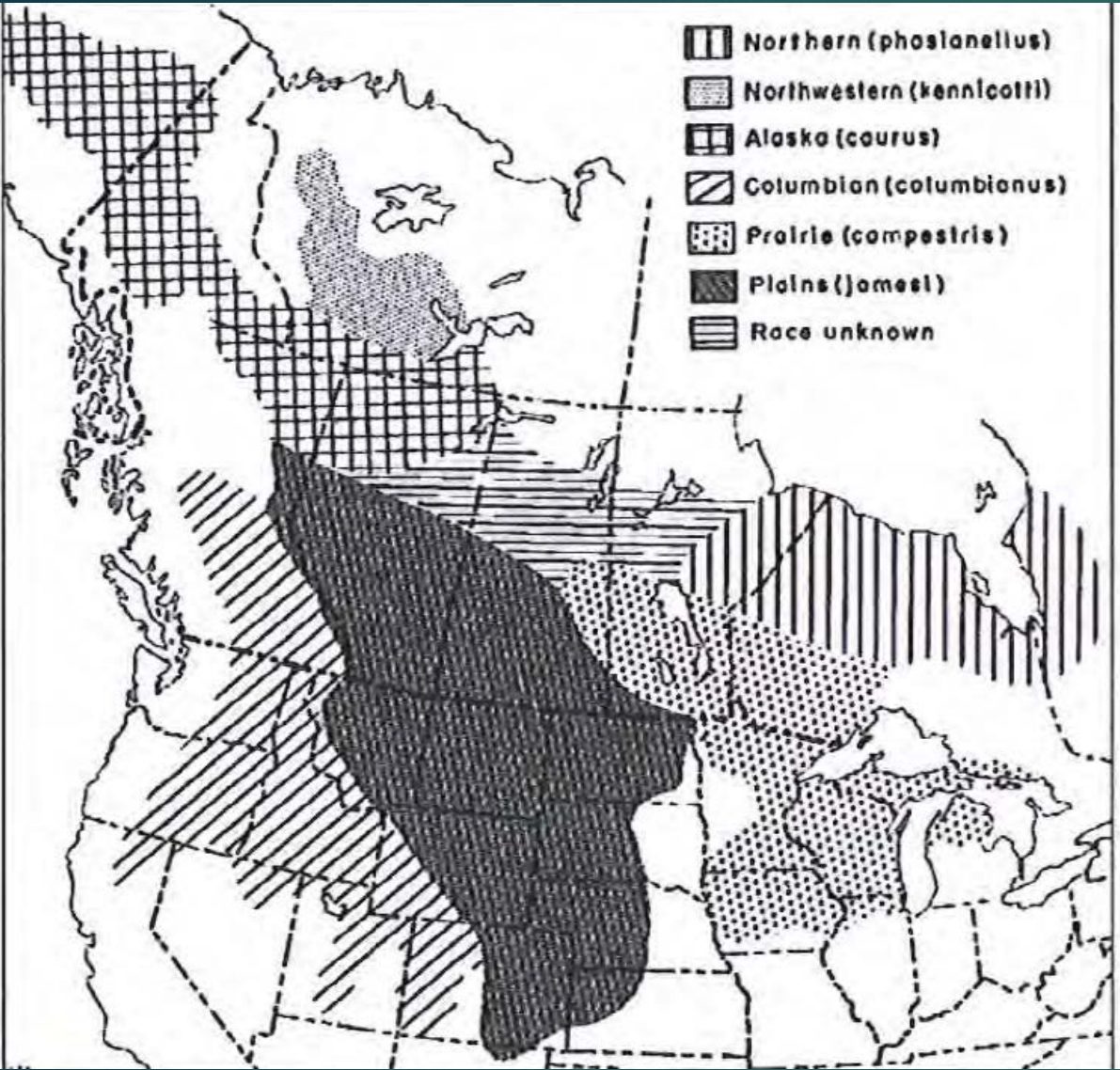


Greater prairie-chicken



Lesser prairie-chicken







# Identification



- ▶ Medium sized
- ▶ Round body & short legs
- ▶ Large, rounded wings
- ▶ Elongated pointed tail

# Sharp-tailed Grouse



Hen (Female)



Alex Lehner 2016

Cock (Male)



# Female vs Male





- ▶ Diet: Plant buds, seeds, fruits, and insects
- ▶ Ground nesters
  - ▶ Made of woven grasses and plants
  - ▶ Hidden in brushy areas
- ▶ Male courtship display









# Habitat Needs

- ▶ Most found in:

brush prairie

barrens

cut or burned-over forestland

wet meadows

pine/oak savannah

mixed deciduous

conifer forest

abandoned farmland

- ▶ Large open spaces for courtship, nesting, and raising broods

- ▶ Habitat disturbances – ex. Fire



# Pine Barrens

- 
- ▶ Dominated by grasses, shrubs, and scattered trees and occur on poor-quality sandy soils.
  - ▶ Fire is a major disturbance factor in these ecosystems.
  - ▶ Historically - Once covered over 2.3 million acres in WI.
  - ▶ Today - About 1 % remains.
    - ▶ Considered a Globally Rare and Imperiled Ecosystem



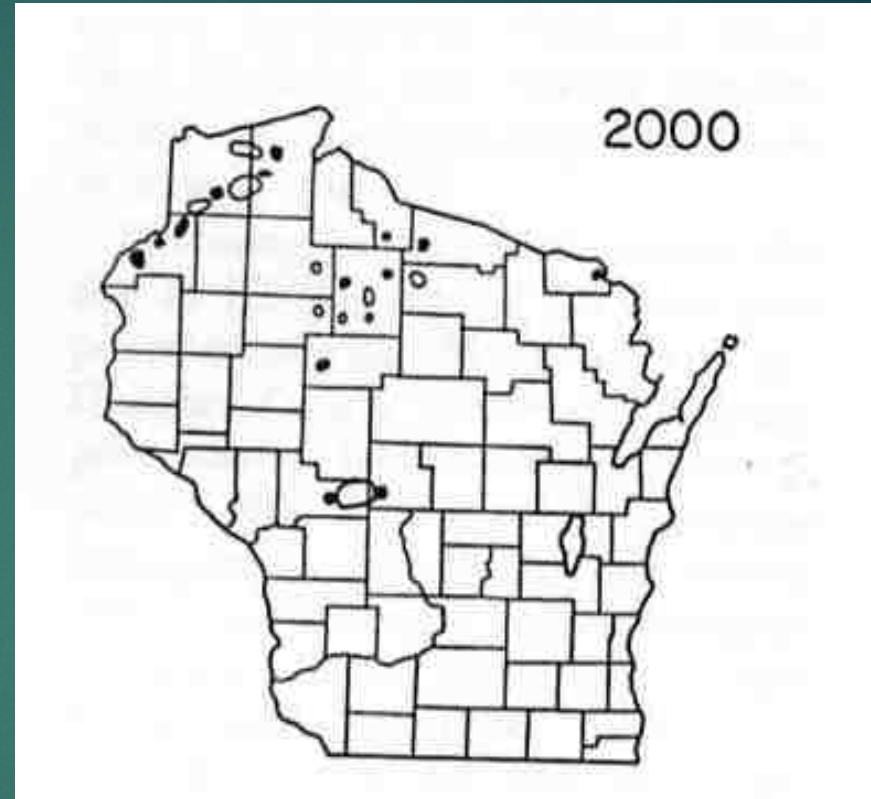
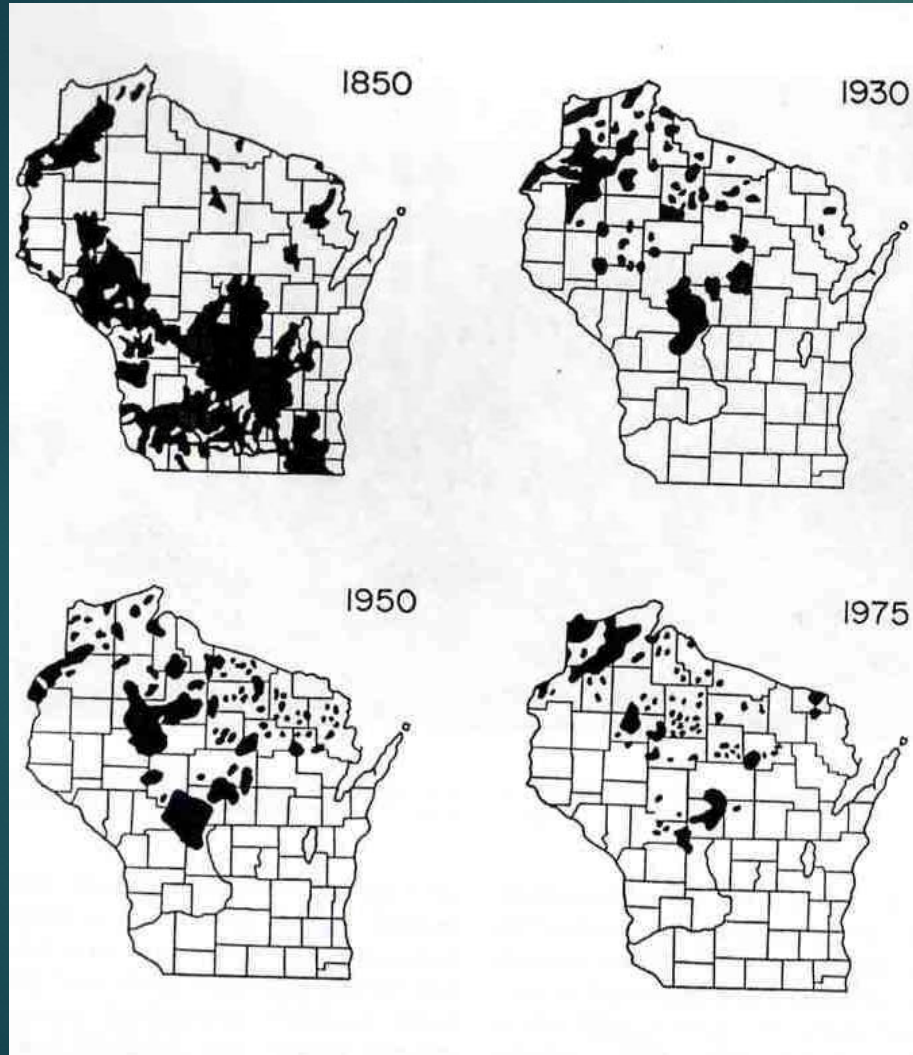
# Sharp-tailed Grouse Statewide

- ▶ Non-migratory
- ▶ Listed as
  - ▶ Species of Greatest Conservation Need – WDNR
  - ▶ Species of Special Concern – WDNR
  - ▶ Regional Forester's Sensitive Species – USFS





# Sharp-tailed Grouse Statewide



Lack of large scale disturbance that renews sharp-tail habitat has caused the population to decline.



# Number of Dancing Males Observed on Managed Properties from 2008-2018

Managed Properties	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Crex Meadows WA	40	24	20	16	24	14	5	16	25	22	17
Douglas County WA	28	41	36	42	25	25	23	31	24	14	23
Kimberly Clark WA	10	10	11	n/a	8	n/a	3	4	6	0	0
Moquah Barrens WMA	3	6	7	5	6	3	4	3	2	10	15
Namekagon Barrens WA	47	36	43	21	40	42	56	81	62	47	44
Pershing WA	27	20	14	9	3	7	5	3	3	1	0
Riley Lake WMA	27	37	31	15	33	25	19	27	16	21	6
Barnes Barrens*	16	27	n/a	n/a	6	8	10	19	31	23	12
<b>Total</b>	<b>198</b>	<b>201</b>	<b>162</b>	<b>108</b>	<b>145</b>	<b>124</b>	<b>125</b>	<b>184</b>	<b>169</b>	<b>138</b>	<b>117</b>
<b>% Change</b>	<b>42%</b>	<b>2%</b>	<b>-19%</b>	<b>-33%</b>	<b>34%</b>	<b>-14%</b>	<b>1%</b>	<b>47%</b>	<b>-8%</b>	<b>-18%</b>	<b>-15%</b>

Table from WDNR 2018 Wisconsin Sharp-tailed Grouse Survey Report.

\*Barnes data separated out for this table beginning in 2007 and first reported in this way beginning in 2014.

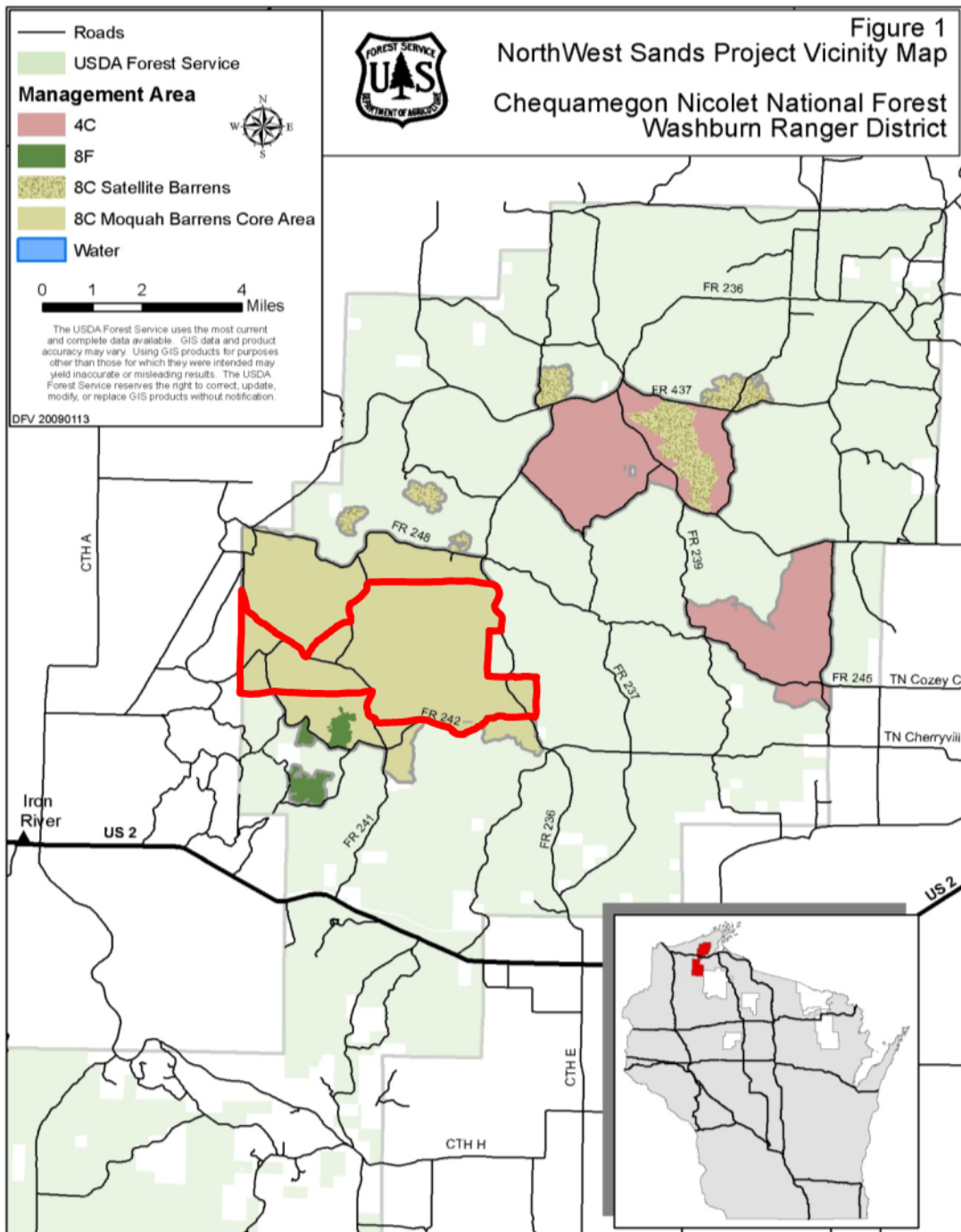


# Sensitivity



Which variables have the strongest influence?





# Northwest Sands Project

22,900 acres

- Core Area = 12,500 acres
- Satellite Barrens & Other Areas = 10,400 acres





- ▶ 1950 MOU – USFS will "reserve for sharp-tailed and pinnated grouse management certain areas which, to the best knowledge available, meet the requirements of these birds for large openings."



- ▶ 1965 MOU Supplement - "The Chequamegon National Forest agrees to establish the Moquah Barrens Wildlife Management Area ... to be managed primarily for sharp-tailed grouse, along with other wildlife species and resource values, in accordance with multiple use objectives."



## Prescribed Fire



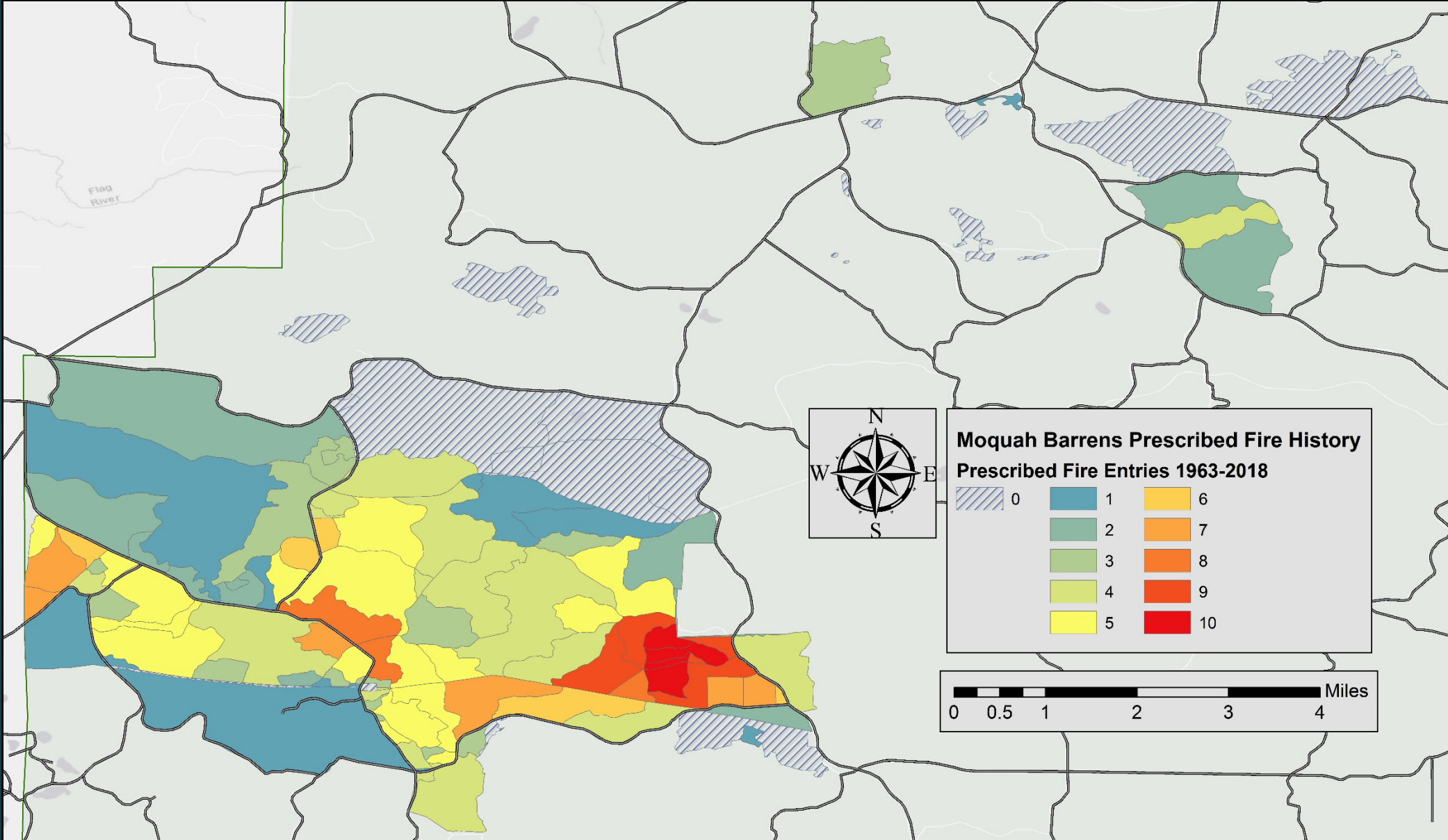
Multiple prescribed burns to:

- Promote barrens vegetation
- Reduce competing shrub cover
- Improve wildlife habitat





# Moquah Barrens Prescribed Fire History





# 2018 Prescribed Fire:

Total = 3,731 acres

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## Moquah Block J

- 950 acres
- May 16-17, 2018

## Moquah Block B

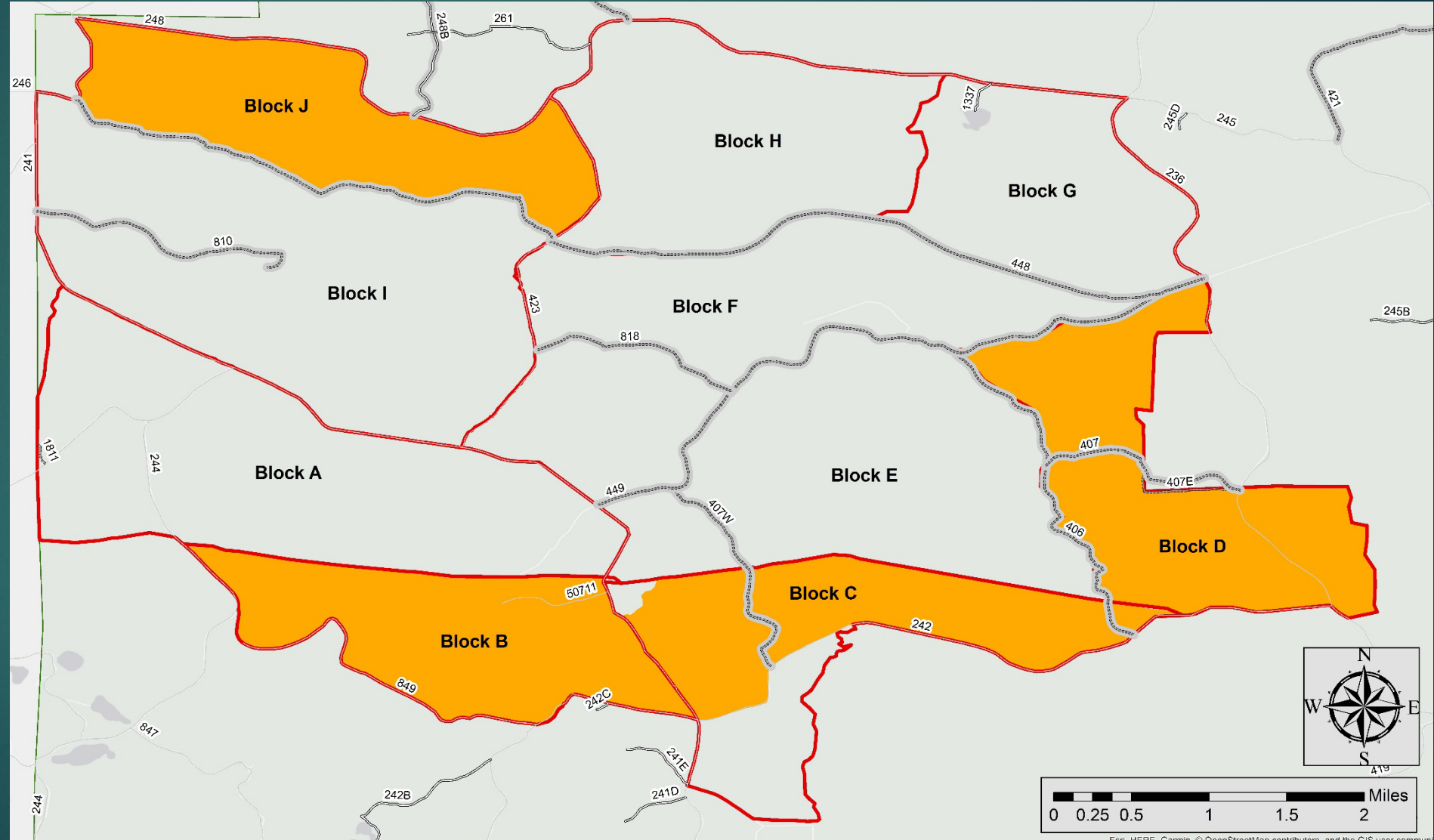
- 895 acres
- May 18, 2018

## Moquah Block D

- 1,086 acres
- May 20, 2018

## Moquah Block C

- 800 acres
- July 22-23, 2018





Moquah Block B – May 18, 2018





Moquah Block C – July 22-23, 2018





## 2019 Rx Fire Plans:

Total = 5,566 acres

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### Moquah Block A

- 1,661 acres

### Moquah Block C

- 274 acres (south)

### Moquah Block F

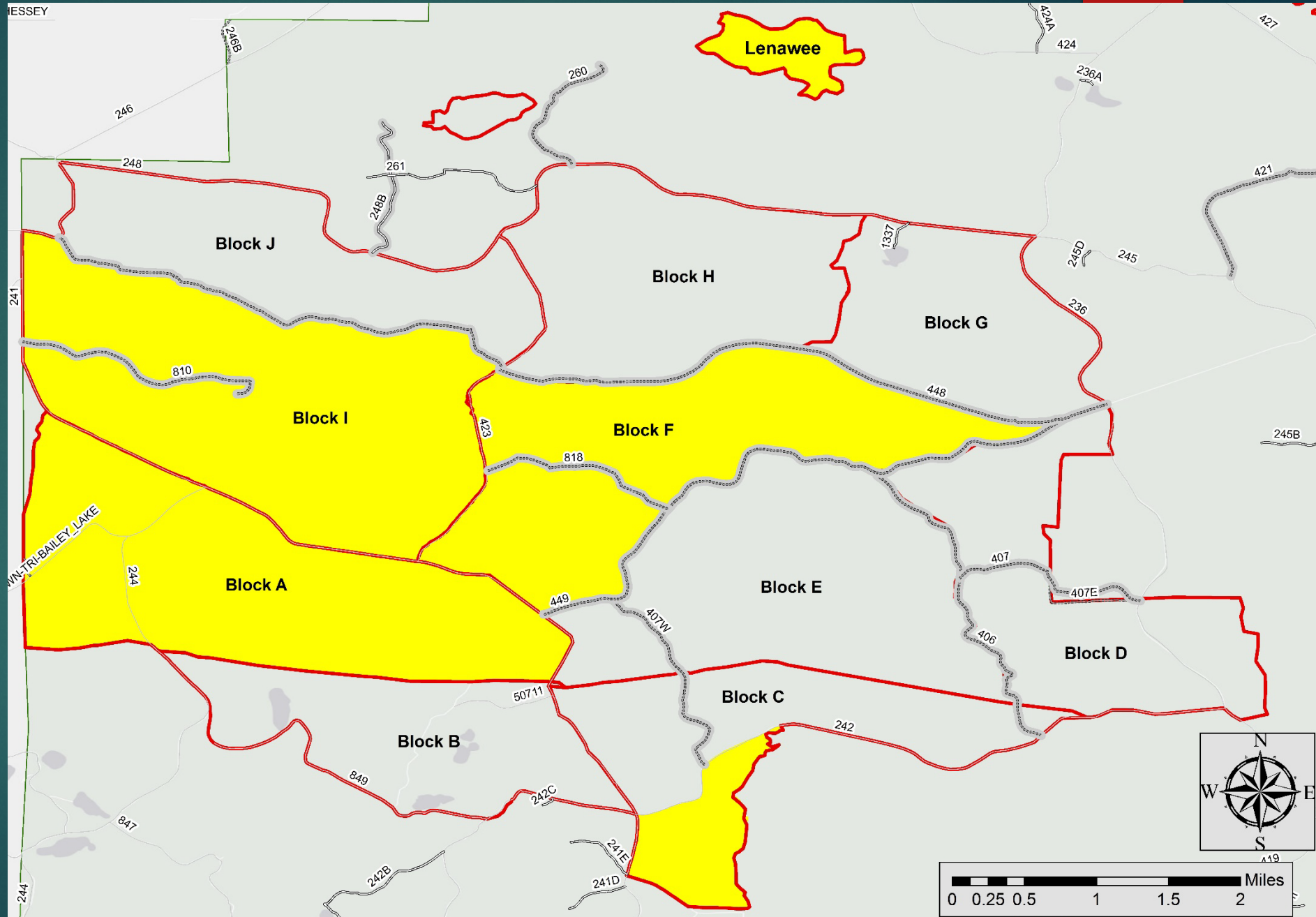
- 1,538 acres

### Moquah Block I

- 1,942 acres

### Lenawee

- 151 acres





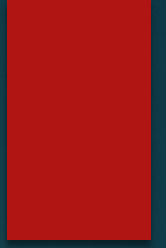
# Mechanical Treatment

- Restore species composition and structure of the pine barrens
- Areas too dense with young, regenerating forest for fire to carry
- Approximately 200-500 acres per year





# Wheeled tractor with brush mower







ASV with brush mower





# Roller Chopper Masticator



# Brushsaw and chain saws





# Timber Harvest





# Today at Moquah



- ▶ Moquah Barrens – one of last potential areas to maintain source population of sharp-tailed grouse in Wisconsin's Lake Superior Basin.
- ▶ Current population – considered too small to respond to improved habitat without help
  - ▶ likely less than 10 grouse (pre-2016)
- ▶ Improvements to sharp-tail habitat within Moquah Barrens will continue and will accommodate sharp-tail habitat needs





Photo Credit: Alex Lehner 2016



# Past Efforts at Moquah

- ▶ Leopold (1931)
  - ▶ Bayfield County held over 4,000 - 5,000 sharp-tailed grouse.
- ▶ Barton (1936)
  - ▶ Roughly 10,000 grouse in Moquah Barrens.
  - ▶ Flush counts recorded an estimate of 33 sharp-tails per section in the Moquah Barrens.
- ▶ Historically abundant species in the Moquah Barrens
- ▶ Population responded to intense logging (1895-1910) and subsequent fires.
- ▶ Since the mid-1950's, active habitat management in Moquah Barrens has occurred as forests matured. Natural forest succession and the end of fire has decreased sharp-tailed grouse habitat.





# Past Efforts at Moquah

- ▶ In 1990-92, released 85 grouse and 23 were radioed
- ▶ Cooperative project between:
  - ▶ Great Lakes Indian Fish and Wildlife Commission (GLIFWC)
  - ▶ Wisconsin Department of Natural Resources (WDNR)
  - ▶ United States Forest Service (USFS)
- ▶ Within the first two years 21 radioed grouse died
  - ▶ Mostly by raptors during winter
  - ▶ “Shine” and weight of transmitters may have made birds more susceptible to predation





# Past Efforts at Moquah

- ▶ Population began to increase in 1995
- ▶ Remained moderately stable until 2004
- ▶ By all interpretation, the '90-'92 effort was a success
- ▶ However, during this recovery period (1990-2004)
  - ▶ likely never exceeded the recommended minimum population size of **280 grouse**
  - ▶ maintained genetic viability of >50 birds
  - ▶ amount of available habitat likely below minimum acreages (<10,000 acres) to sustain a viable population





# Translocation

## GOAL:

Supplement the existing remnant population of prairie sharp-tailed grouse in the Moquah Barrens.

## OBJECTIVE:

Trap and translocate up to 200 adult sharp-tailed grouse from NW MN to Moquah Barrens within a 2-3 year period (2016-2018).

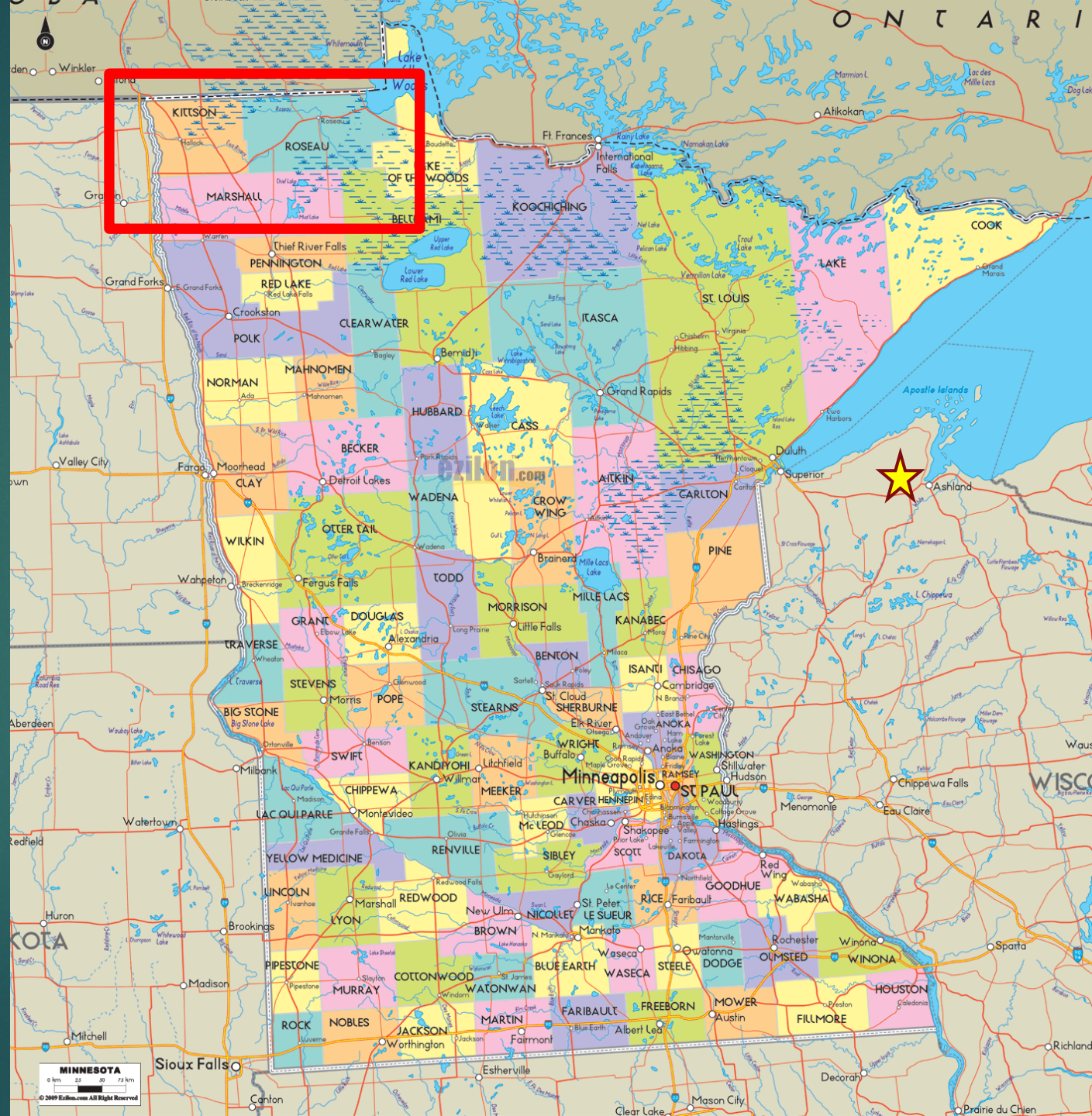
## BENEFITS:

- The Moquah population of sharp-tailed grouse will likely disappear without supplementation of additional birds
- Anticipated dispersal over time into the Lake Superior grasslands and nearby NW Sands Landscapes.



# Where?

- Trapping: Roseau, Marshall, and Kittson counties, MN
- Transfer Location: FS Northern Research Station, Grand Rapids, MN
- Vet Clinic: Duluth, MN
- Driver/Release Coordinator
- Release Location: FR241 STGR lek, Moquah Barrens





# How?

Common characteristics of successful translocation projects include:

- 1) >100 grouse released
- 2) grouse released over several years
- 3) grouse released in spring
- 4) grouse released from remotely-opened transport/ settling boxes

Current Project is a cooperative effort between:

United States Forest Service  
Bad River Band of Lake Superior Chippewa  
Red Cliff Band of Lake Superior Chippewa  
Wisconsin Department of Natural Resources  
Wisconsin Sharp-tailed Grouse Society  
Minnesota Department of Natural Resources  
Minnesota Sharp-tailed Grouse Society



# How?

- ▶ Automatic Bownets with remote triggers
- ▶ Walk-in traps, with triggered doors
- ▶ Lead lines: creates a maze of sorts on the lek, directing birds into the traps
- ▶ Not baited
- ▶ Traps and lead lines left overnight with doors secured shut





Photos provided by: WI DNR



# Scouting & Training





# Creativity & Innovation





# Timeline & Logistics

- Trapping ~0300-0830
- Processing ~0900-1030
- Transport:
  - Karlstad to Grand Rapids ~1030-1300
  - Grand Rapids to Duluth ~1300-1500  
[Vet Inspection ~1500-1600]
  - Duluth Vet to Moquah ~1645-1700
- Release at Moquah ~1700-?



































# What next?





# Processing

















Transport Box # 02 Date 04/28/2018  
BAND # 34G-80 SHARP-TAILED GROUSE PROCESSING DATA SHEET TIME (2400) 0955  
CVI # \_\_\_\_\_ IMPORT # 35DK04278-BPI PROCESSOR ALEX LEHNER  
CAPTURE TIME 0620 CAPTURE LOCATION CUJO  
RELEASE TIME \_\_\_\_\_ RELEASE LOCATION Moquah 291  
AGE AHY SEX F WEIGHT(g) 750  
FEATHER PLUCKED  Y  N ENVELOPE # 34  
TARSUS (mm) 34 CULMEN (mm) 11 WING CORD(mm) \_\_\_\_\_  
CROP EMPTY BREAST FULLNESS 3 ECTOPARASITE NONE VISIBLE  
TRANSMITTER \_\_\_\_\_  Y  N FREQUENCY \_\_\_\_\_  
NOTES/OBSERVATIONS ON BACK









# Transportation





# Vet Inspection

Minnesota Board of Animal Health 525 Robert St. North St. Paul, MN 55155 (612) 298-2942		MINNESOTA CERTIFICATE OF VETERINARY INSPECTION Revised November 2012			41- 1550158				
1. Owner/Consignor's Name: Brian Heeringa Wildlife Biologist		5. Consignee's Name: Brian Heeringa Wildlife Biologist		10. Number in Shipment: 10					
2. Owner/Consignor's Address: USPS 113 E. Bayfield St Washburn WI		6. Consignee's Address: USPS 113 E. Bayfield St 54891		11. Permit Number (if required by state of destination): 35DK 04037 - GP1					
3. Origin Address: (if different than above) Stevens, Everett, Brad & Lois Killian #52 (Carlsbad, MN) (see GPS below) (weeks)		7. Destination: (if different than above) Mogawk Barracks Wildlife Area Danfield City WI 46.304643N, 91.160689W		12. Herd or Flock Status: Disease: _____ Status: _____ Status/Herd/Flock Number: _____ Date of last herd test: _____					
4. Species: <input type="checkbox"/> Cattle <input type="checkbox"/> Horse <input type="checkbox"/> Swine <input type="checkbox"/> Cat <input type="checkbox"/> Dog <input type="checkbox"/> Avian <input type="checkbox"/> Goat <input type="checkbox"/> Sheep <input checked="" type="checkbox"/> Sharpshail group		8. Reason for Movement: <input type="checkbox"/> Breeding <input type="checkbox"/> Slaughter <input type="checkbox"/> Feeding <input type="checkbox"/> Sale <input type="checkbox"/> Show/Exhibition <input type="checkbox"/> Travel <input checked="" type="checkbox"/> Relocation/Population Reintroduction Project		9. Carrier's Name and Address: Sue Reinecke 1170 4th Ave S Park Mills, WI 54880 <input type="checkbox"/> Truck <input type="checkbox"/> Air <input checked="" type="checkbox"/> Car <input type="checkbox"/> Van					
Official Stamp, Telephone or Fax Number	Description of Animal or Facility Name and Number	Age	Sex	Breed	Traceable by marking tattoo	Tuberculosis Date Tested Date Read Results	Other Test Tested for Date Results	Other Vaccine or Treatment Product Date	
	1 Band # 3646WR Box DNR1		M			(Stevens) NO ACTIONS	= N48.554209	W-96.102729	
	2 Band # 3766WR Box DNR2		M			(#11 Everett)	= N48.6448	W-96.485874	
	3 Band # 38 WIGB Box DNR3		M			(#11 Everett)	"	"	
	1 Band # 3964WR Box L1		M			(#11 Everett)	"	"	
	5 Band # 30/GW Box J1		M			(Band - Lois Killian #5)	= N48.521859	W-96.050824	
	6 Band # 31/BW Box J2		M			(Brad Killian #5)	= "	"	
	7 Band # 32/GW Box J3		M			(Killian #5)	= "	"	
	8 Band # 33/GW Box I1		M			(Killian #5)	= "	"	
	9 Band # 34 GLWR Box I2		M			(Vicki Lawrence #4)	= N48.573954	W-96.059273	
	10 Band # 35 BLWR Box I3		M			(Stevens)			
15. Certificate of Issuing Veterinarian: I certify as an accredited veterinarian that the birds listed on this form have been inspected by me and that they are not showing signs of infectious, contagious and/or communicable disease (except where noted). The vaccination and results of these tests are indicated on these labels. To the best of my knowledge, the animals listed on this certificate meet the state or occupational and Federal tuberculosis requirements. Reasoning is given on this label.						Certificate of Owner/Agent: <input checked="" type="checkbox"/> I certify in this statement and those certified to and listed on this certificate. <input checked="" type="checkbox"/> I hereby certify that the animals in this statement were, to the best of my knowledge, acclimated to air temperatures lower than 7.2 C (45 F). Owner/Agent Signature: <u>Sue Reinecke</u>			
Accredited Veterinarian Signature: <u>Lisa R. Seannette</u>		Vet Code #: 006975							
Accredited Veterinarian Printed Name: Lisa R Seannette DVM		Address: 215 E. 14th St. Duluth, MN 55811		Printed Name: Sue Reinecke					
Date Inspected: 4-19-17		Date Issued: 4-19-17		Phone No: 218-722-3963		Phone: 715-762-5185		Date of Owner Signature: 4-15-17	





# Moquah Barrens Release















Credit: Charlie Rasmussen - GLIFWC



Credit: Jodie Provost - MN DNR / MSGS



## 2016 – 2018 Trapping Summary

	2016	2017	2018
<b>Start Date</b>	11-Apr	17-Apr	10-Apr
<b># Trap Days</b>	14	10	14
<b>Private Lands</b>	7	13	14
<b>Public Lands (State/County)</b>	1	2	3
<b>Total Birds Trapped (% male)</b>	107 (88%)	174 (85%)	181 (80%)
<b># Transported (male/female)</b>	29 (16/13)	67 (45/22)	64 (33/31)
<b># Transmitter (male/female)</b>	5 (5/0)	10 (5/5)	20 (10/10)
<b>Mortality - Trap</b>	2	0	1
<b>Mortality - Transport</b>	0	0	0
<b>Passed Vet Inspection</b>	29	67	64
<b>Successfully Released</b>	29	67	64



## 2016 – 2018 Project Summary

- 160 sharp-tailed grouse (66 females, 94 males) moved to Moquah Barrens
- Nearly 500 birds trapped and handled over 3 years – 3 mortalities during trapping efforts
- 35 birds (15 females, 20 males) received radio transmitters
- 2018: 39 personnel (17 USFS, 8 WDNR, 8 Tribal, 1 GLIFWC, 5 volunteers)
- 2017: 31 personnel (19 USFS, 5 WDNR, 5 Tribal, 2 volunteers)
- 2016: 18 personnel (9 USFS, 4 WDNR, 1 Tribal, 4 volunteers)
- Over 90% of translocated birds came from private lands with excellent landowner support
- Trapped over 150+ square mile area in NW Minnesota as far north as ¼ mile from Canada and as far west as 10 miles east of North Dakota











# Telemetry Summary

- ▶ Dates: May 2016 to present
- ▶ Number of locations since May 2016: 1,200+
- ▶ Personnel:
  - ▶ Alex Lehner, USFS and WSGS (2017-Present)
  - ▶ Ariadna Chediack, Red Cliff Tribal Nat. Res. (2016)
  - ▶ Erin Schlager, Red Cliff Tribal Nat. Res. (2017)
  - ▶ Shea Schachameyer, Red Cliff Tribal Nat. Res. (2018)





# 2016 - 2018 Summary

- ▶ 2016 (5 males)
  - ▶ 3 – mortalities (3 male)
  - ▶ 1 – lost signal/low battery – last detected Feb. 2018 (1 male)
  - ▶ 1 – unknown location/never detected after release (1 male)
- ▶ 2017 (5 males/5 females)
  - ▶ 3 – mortalities (1 male/2 female)
  - ▶ 2 – dropped transmitters (2 male)
  - ▶ 4 – unknown location – inactive 2018 (1 male/3 female)
  - ▶ 1 – unknown location – last detected May 2018 (1 male)
- ▶ 2018 (10 males/10 females)
  - ▶ 7 – mortalities (4 male/3 female)
  - ▶ 5 – active in Moquah Barrens (2 male/3 female)
  - ▶ 2 – active outside Moquah Barrens (1 male/1 female)
  - ▶ 6 – unknown location – last detected May 2018 (3 male/3 female)





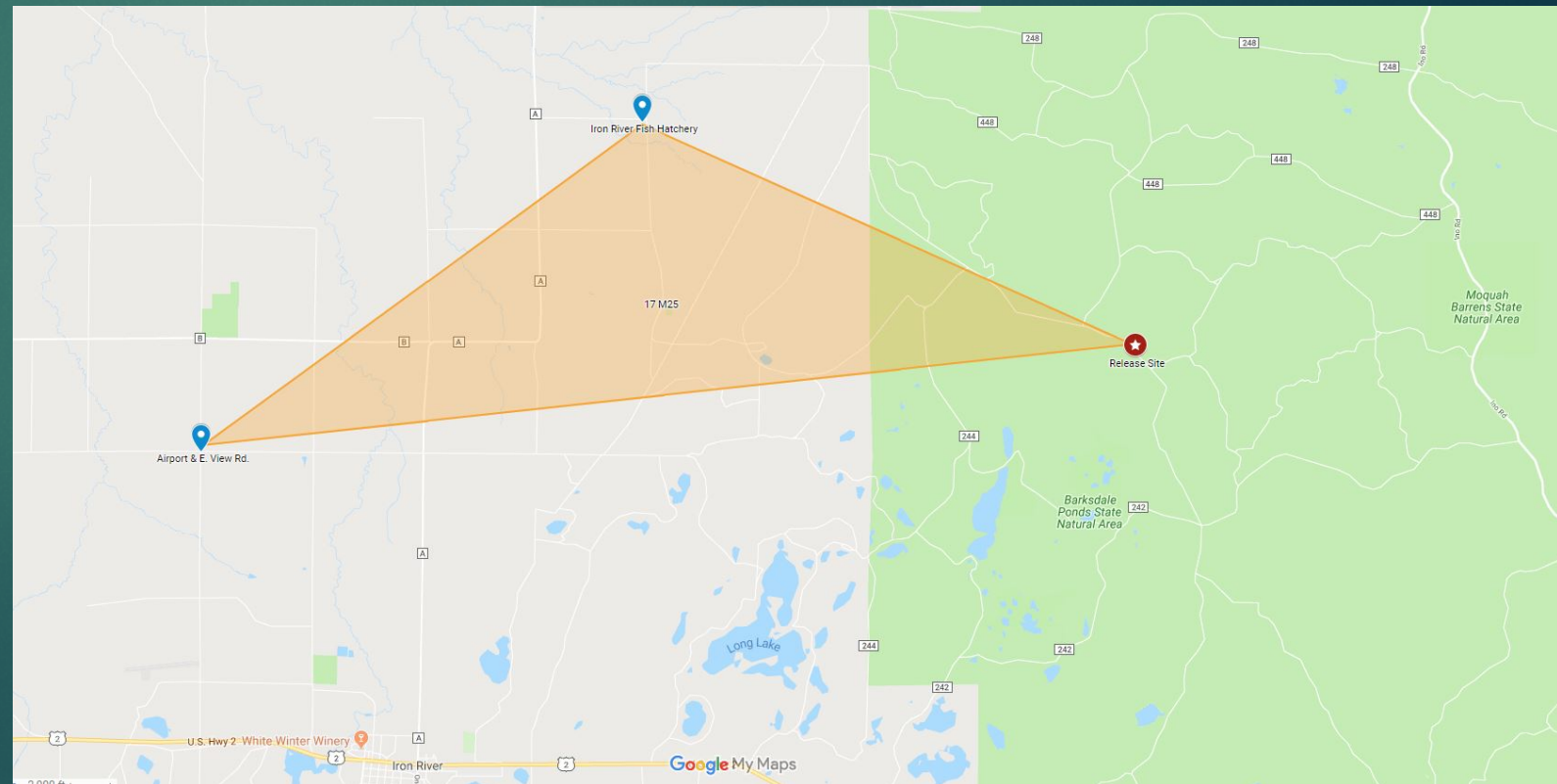
# 2016 Highlights

- ▶ 2016: 5 males
  - ▶ 3 mortalities within the first month, in Moquah
  - ▶ 1 bird disappears, remains undetected today
  - ▶ 1 bird disappears, and reappears on the dancing ground in spring 2017: Male #25



# 2017 Male #25:

- ▶ Released on April 27<sup>th</sup> 2016.
- ▶ Detected once in the barrens in early May in 2016.
- ▶ Returned to Moquah Barrens on May 10<sup>th</sup>, and is seen dancing on the lek. Remains in the barrens until May 23<sup>rd</sup>.
- ▶ June 2<sup>nd</sup> found on Airport Rd north of Iron River. Is a small lek there known to the WI DNR. Remains here until November.
- ▶ Reappears near the Iron River Fish Hatchery until December.
- ▶ Reappears on Airport Rd February 2018, signal getting very weak.





# 2017 Highlights

- ▶ 2017: 5 males and 5 females
  - ▶ 3 mortalities to date: 1 female in Moquah, 1 male near the Iron River Fish Hatchery, and 1 female north of Maple, WI
    - ▶ Female #47 dispersed approx. 22 miles.
      - ▶ Eggshells found in a nest near where she was flushed.
      - ▶ At site of known active lek.
    - ▶ Male #53 and Female #44 was an avian mortality



# 2017 Highlights continued

- ▶ 2 males slipped their transmitters
  - ▶ Male #48: collar recovered within Moquah Barrens and bird later seen dancing on lek (release site).
  - ▶ Male #50: never detected at Moquah, but appeared at John F. Kennedy Airport in Ashland. Collar recovered in pile of brush and bird flushed from same general location.
    - ▶ First known STGR at the airport since 1991.



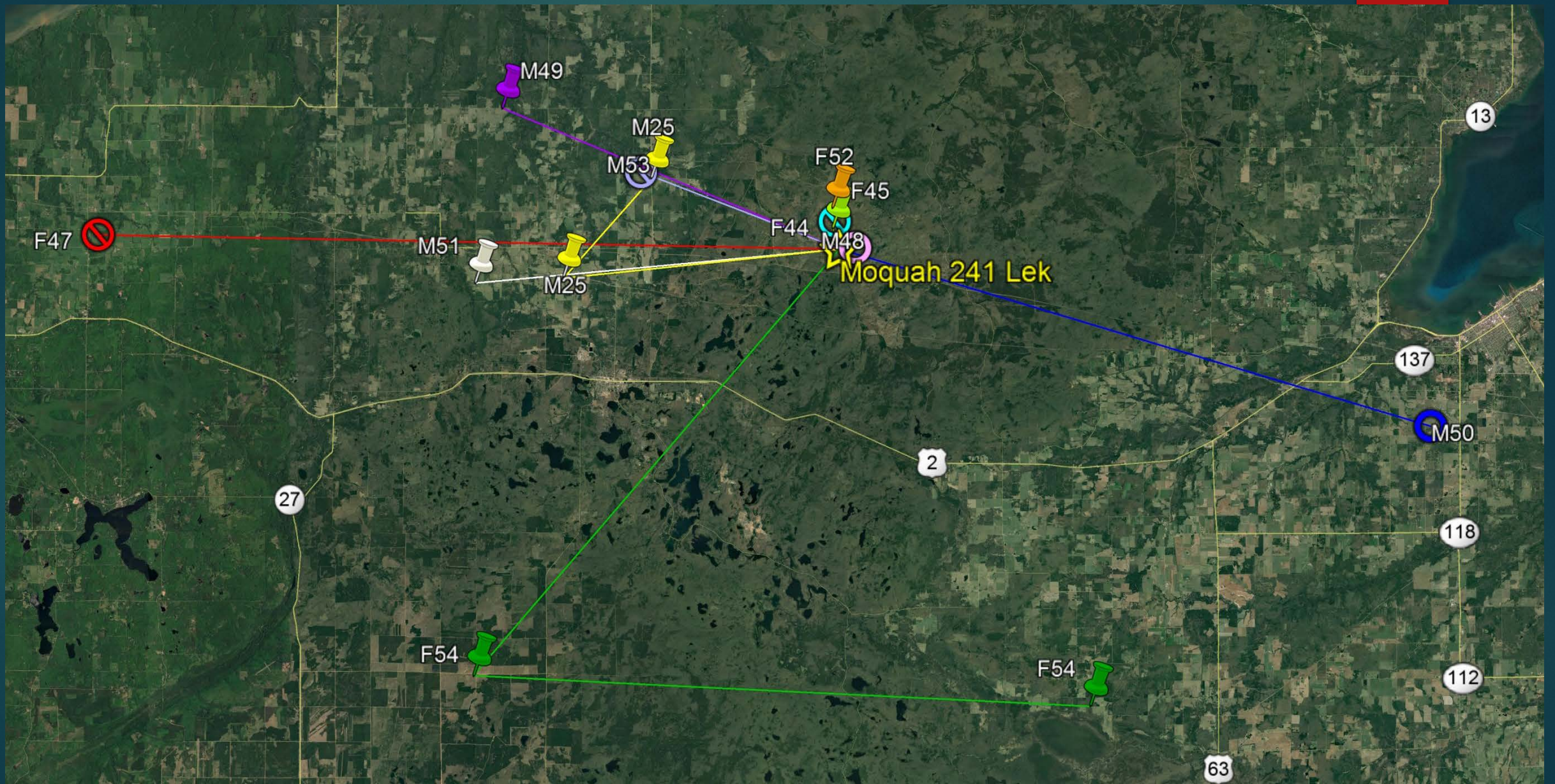
# 2017 Highlights continued

- ▶ 5 birds currently unknown locations
  - ▶ Female #45 and #52 were detected in the barrens a few times and disappeared by end of April 2017.
  - ▶ Male #49 and #51 were detected north of Iron River and near Oulu before they disappeared May 2017
    - ▶ UPDATE: 1 male relocated by plane 05/29/2018 – same general location
  - ▶ Female #54 detected in the Bayfield County Barrens south of Iron River. Located nest with 10 eggs and 6 chicks were documented. Later moved north of Bibon Swamp and has gone undetected since December 2017.









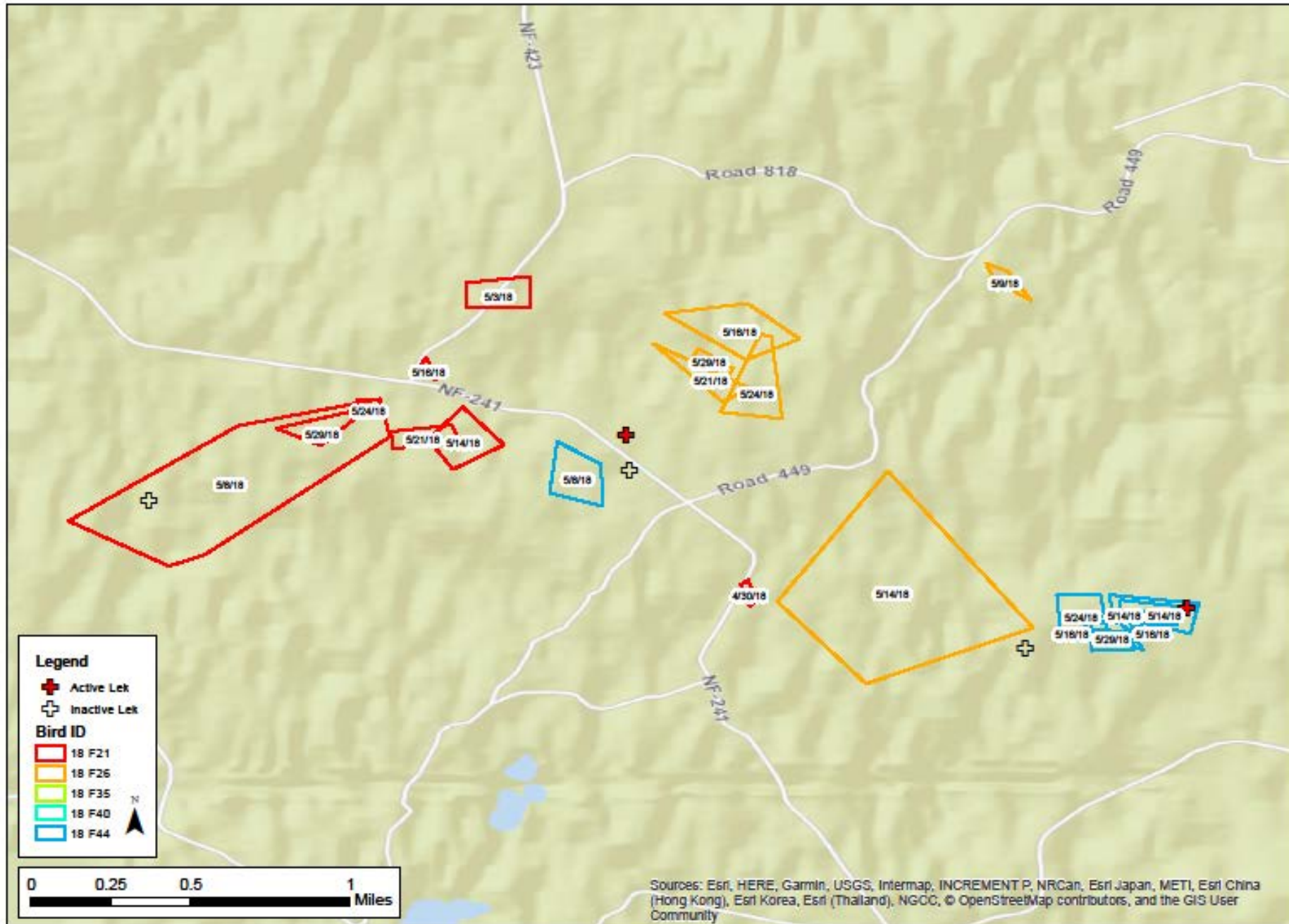


# 2018 Highlights

- ▶ 2018: 10 males and 10 females
  - ▶ 7 mortalities:
    - ▶ 2 females approx. 9 and 25 miles SE of Moquah
    - ▶ 1 female and 1 male in Moquah
    - ▶ 2 males approx. 20 miles NW of Moquah
    - ▶ 1 male approx. 8 miles west of Moquah
  - ▶ 7 birds still active & detected within and outside of Moquah
  - ▶ 6 unknown with last detection in May 2018.

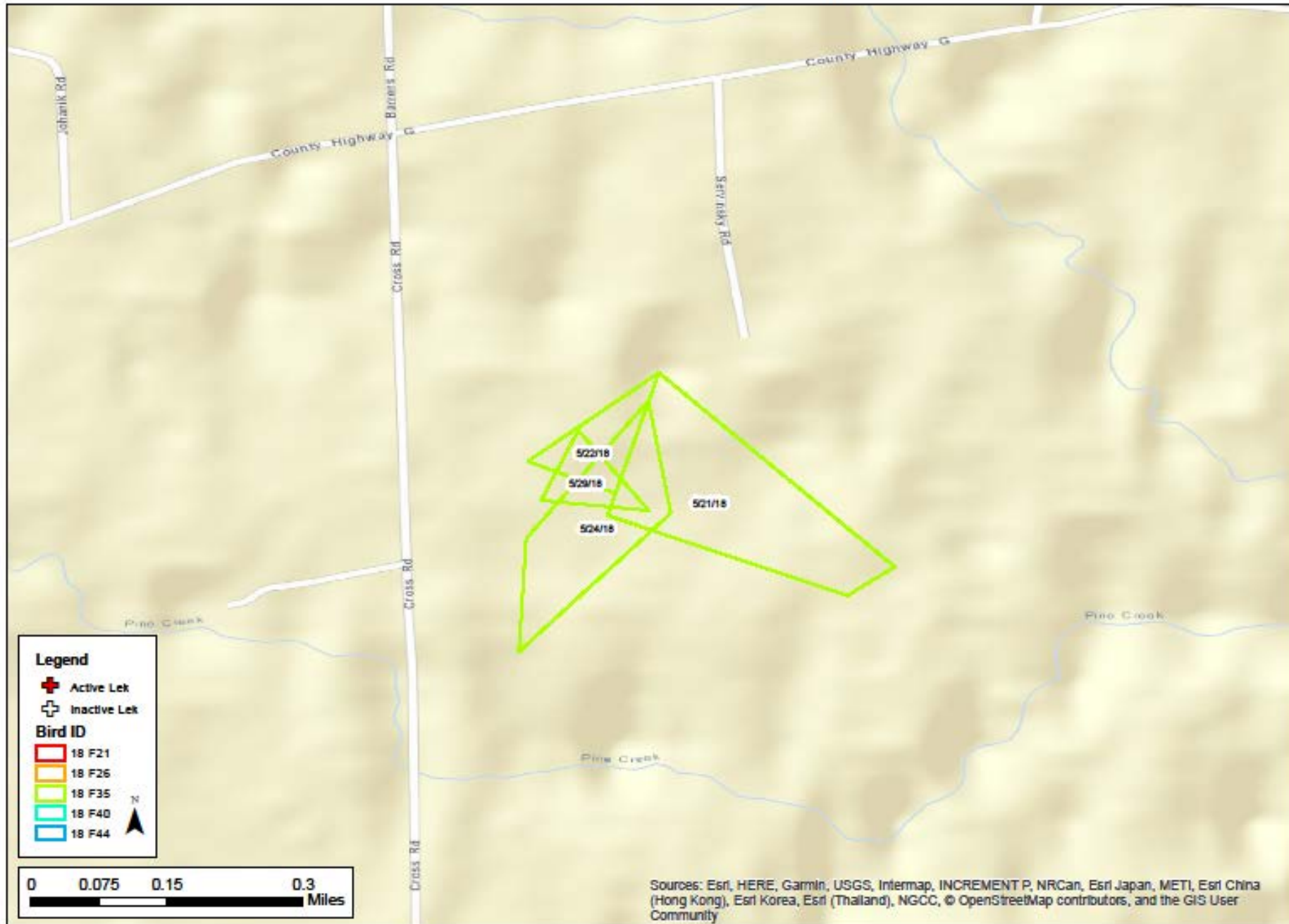


# 2018 Female Triangulation, CNNF Barrens



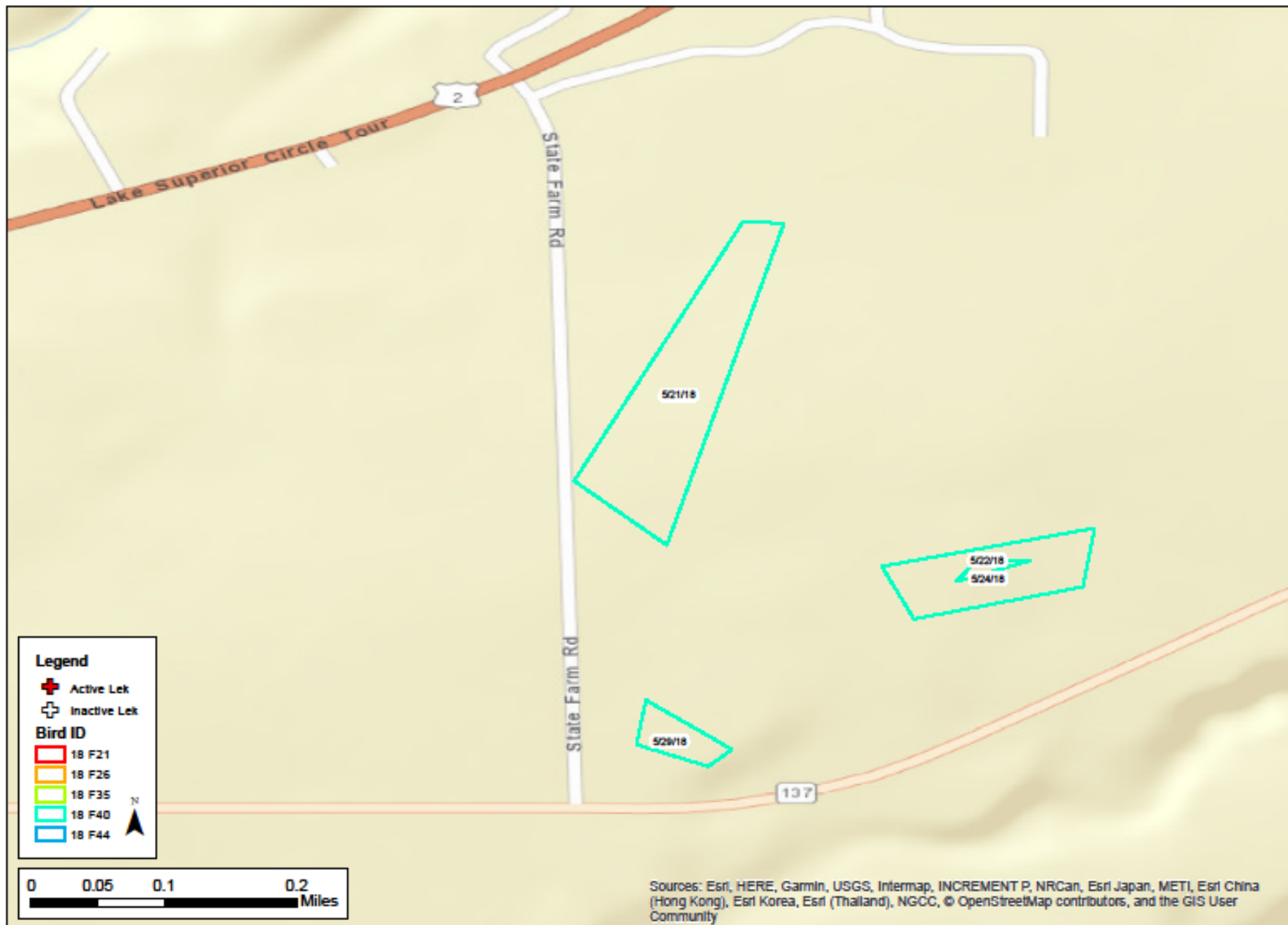


# 2018 Female Triangulation, Moquah





# 2018 Female Triangulation, W. Ashland

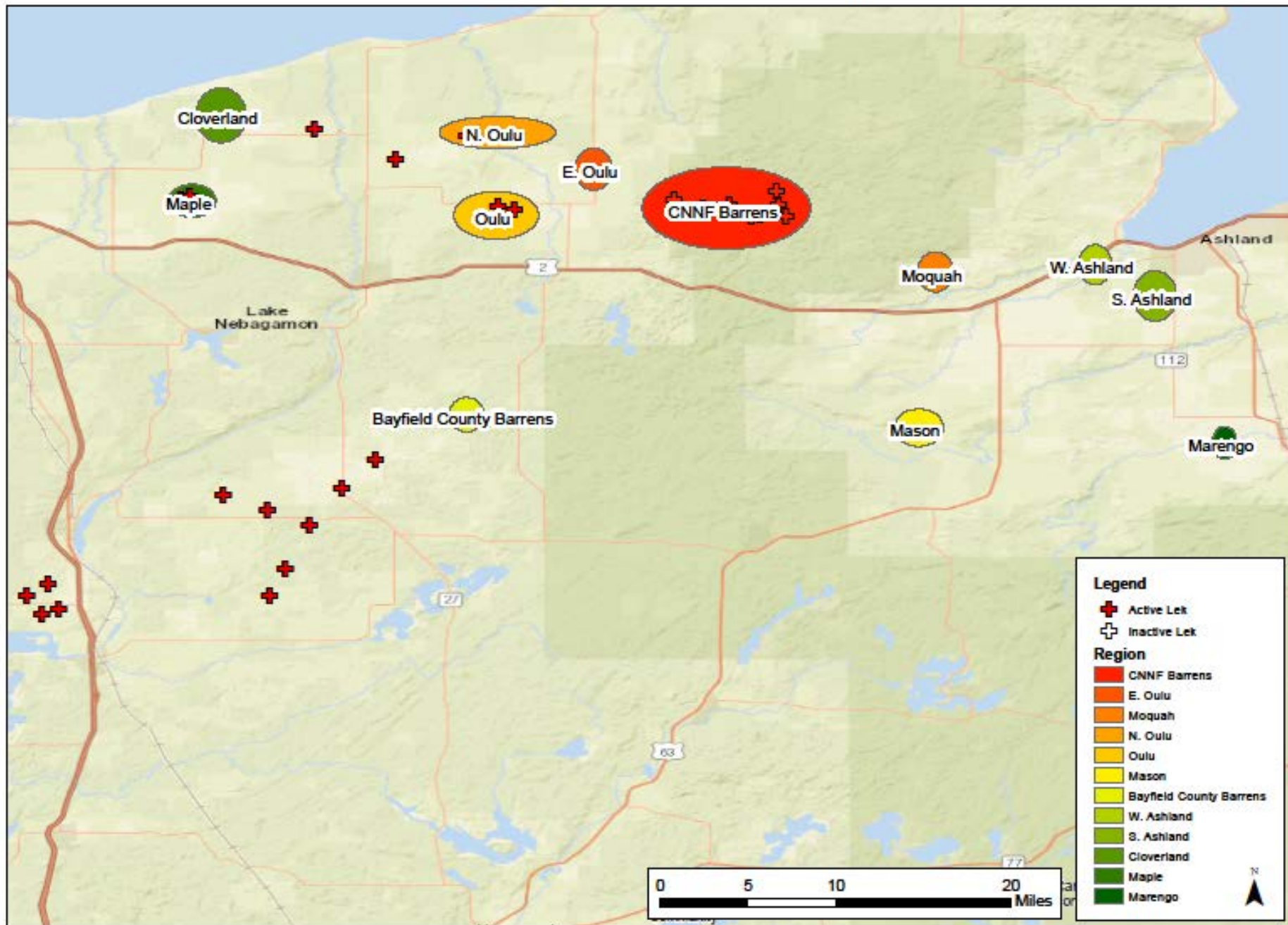






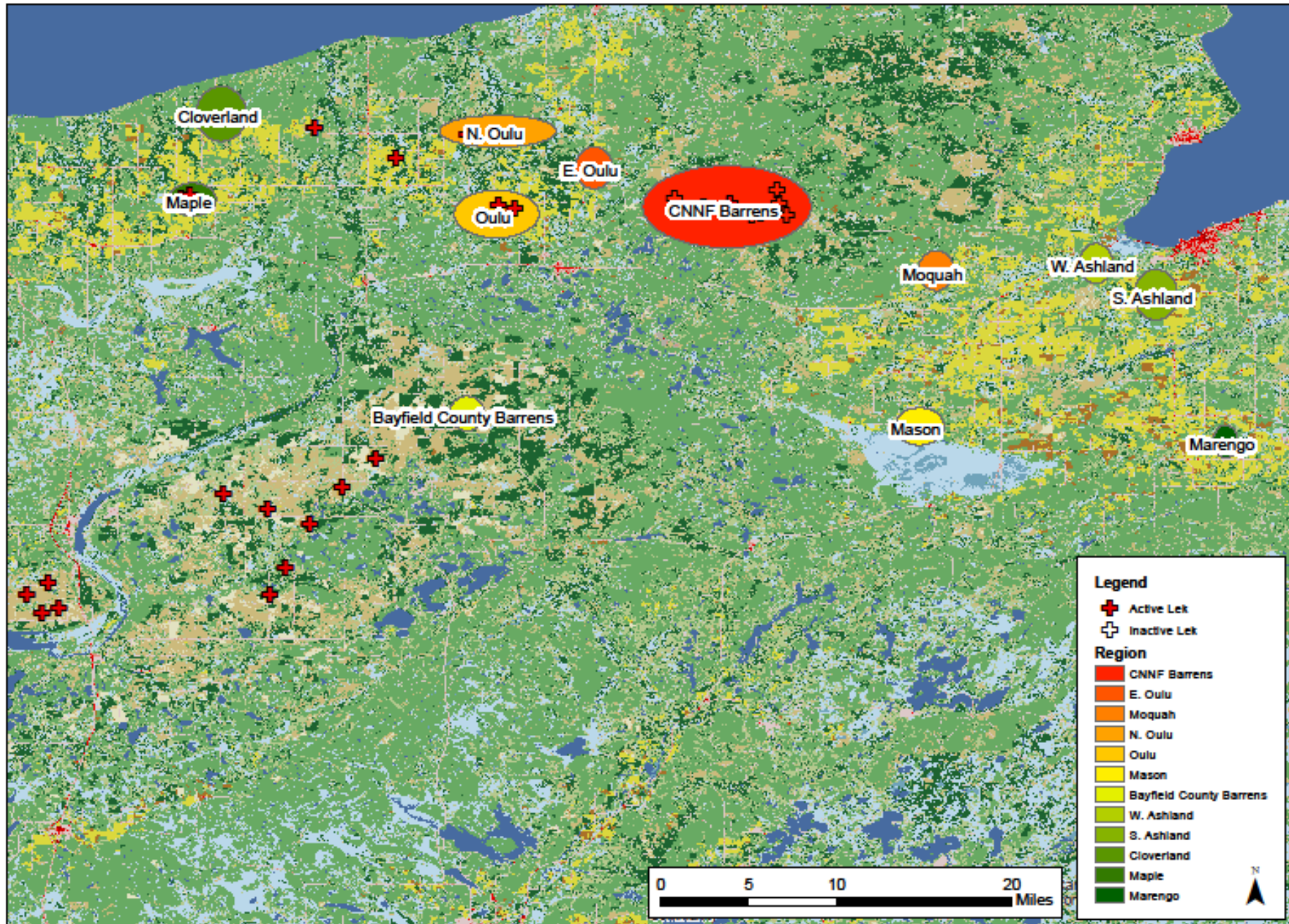


# 2017 - 2018 SharpTailed Grouse Regions



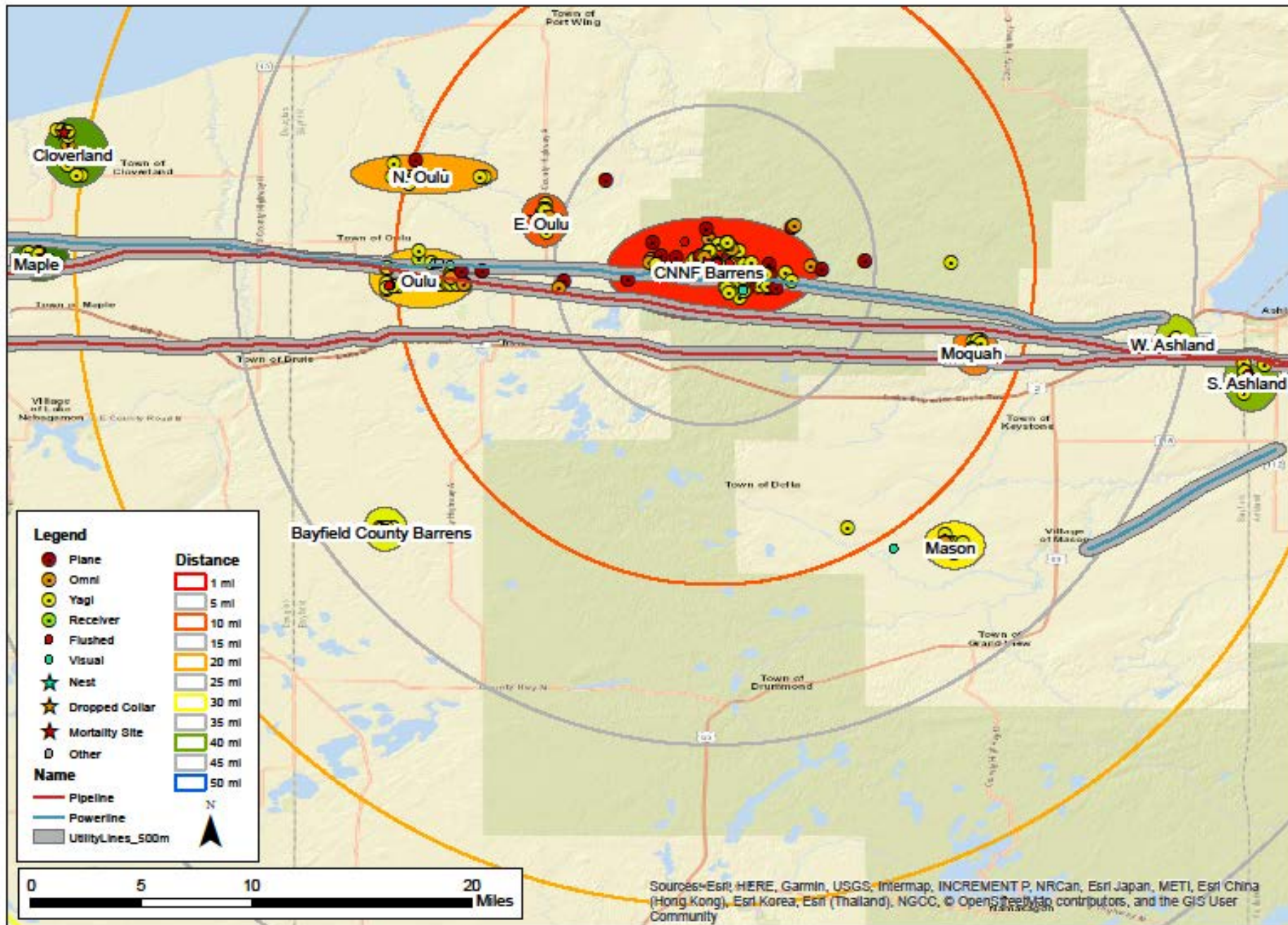


# 2017 - 2018 SharpTailed Grouse Regions





# 2017 - 2018 Locations in Proximity to Utility Lines





# Lek Surveys: Moquah Barrens

- ▶ Spring 2016, before translocation: 2 males visit lek/release site
- ▶ Spring 2017, before translocation in 2017: 4 males
- ▶ Spring 2017, after translocation: 10 birds, 2 hens
- ▶ Fall 2017: 9 birds, all males. Visiting lek/release site.
- ▶ Spring 2018, before translocation in 2018: 11 males
- ▶ Spring 2018, after translocation: 18 birds, maximum of 5 hens
- ▶ Fall 2018: 11 birds visiting lek/release site and 3-poles lek.
- ▶ Using color bands, we know that at least **23 different birds** have showed up to the lek/release site in 2018







# Tracking Surveys

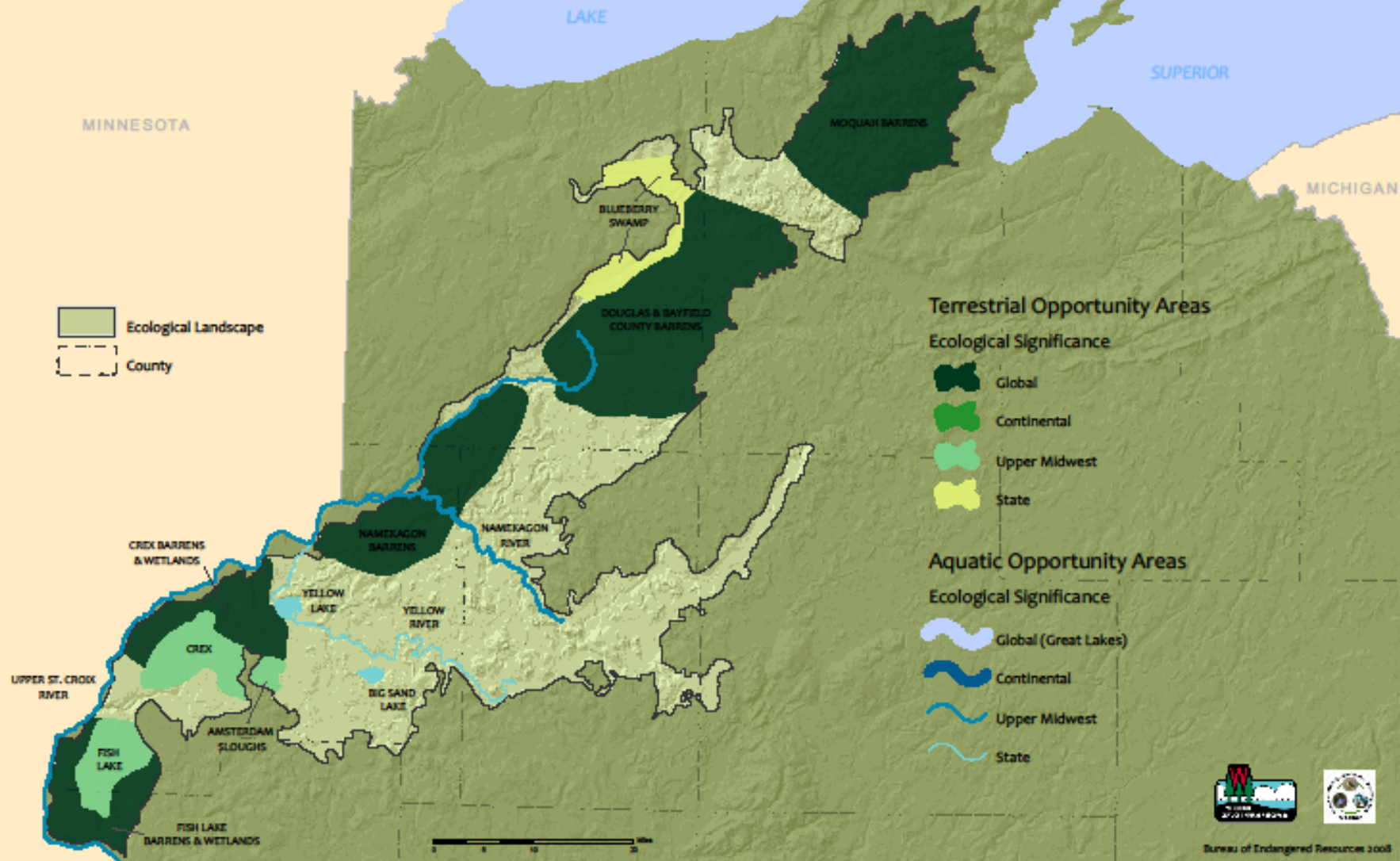




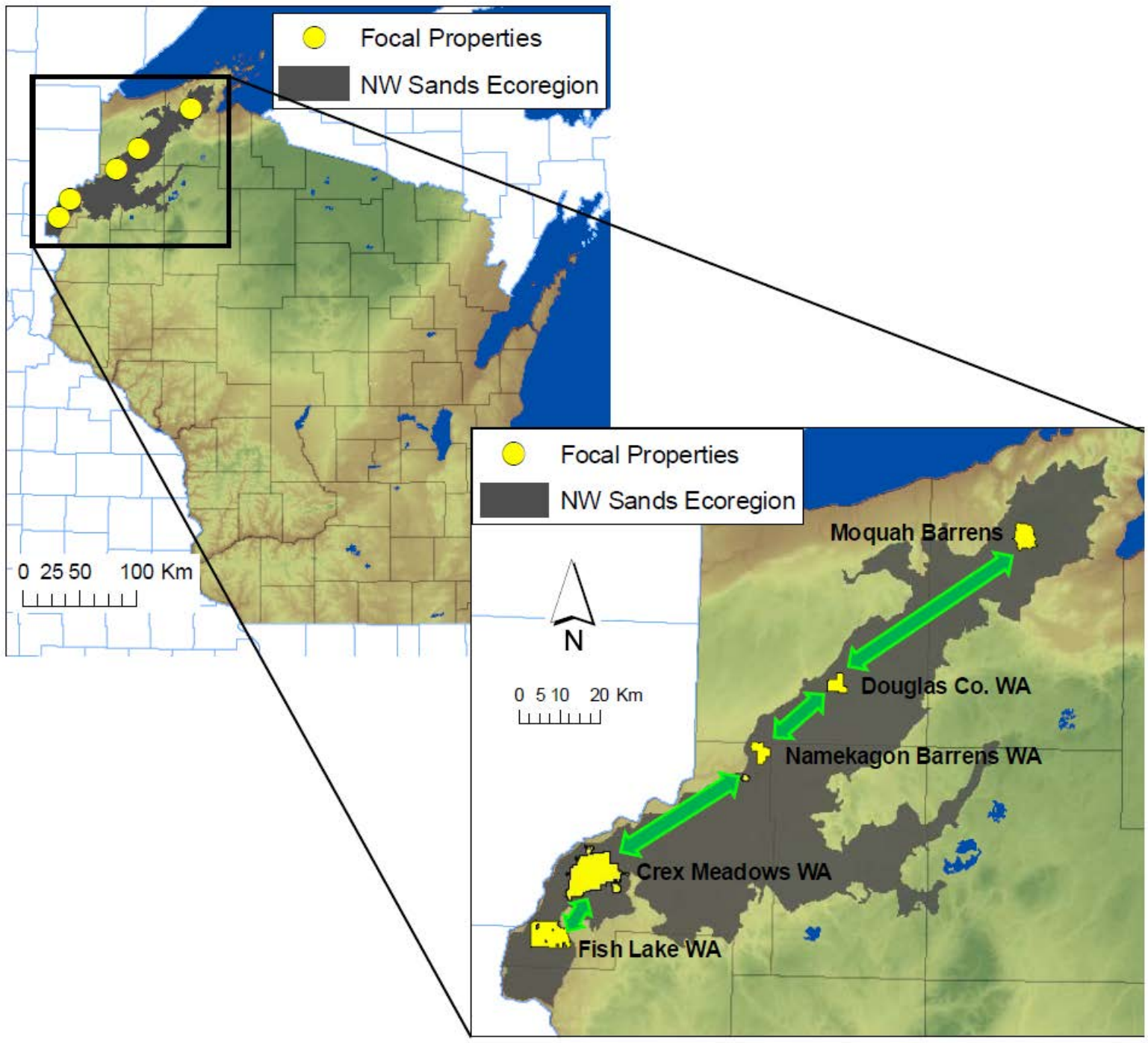


# Wisconsin's Priority Conservation Opportunity Areas for Wildlife Species of Greatest Conservation Need 2008-2015

## Northwest Sands Ecological Landscape



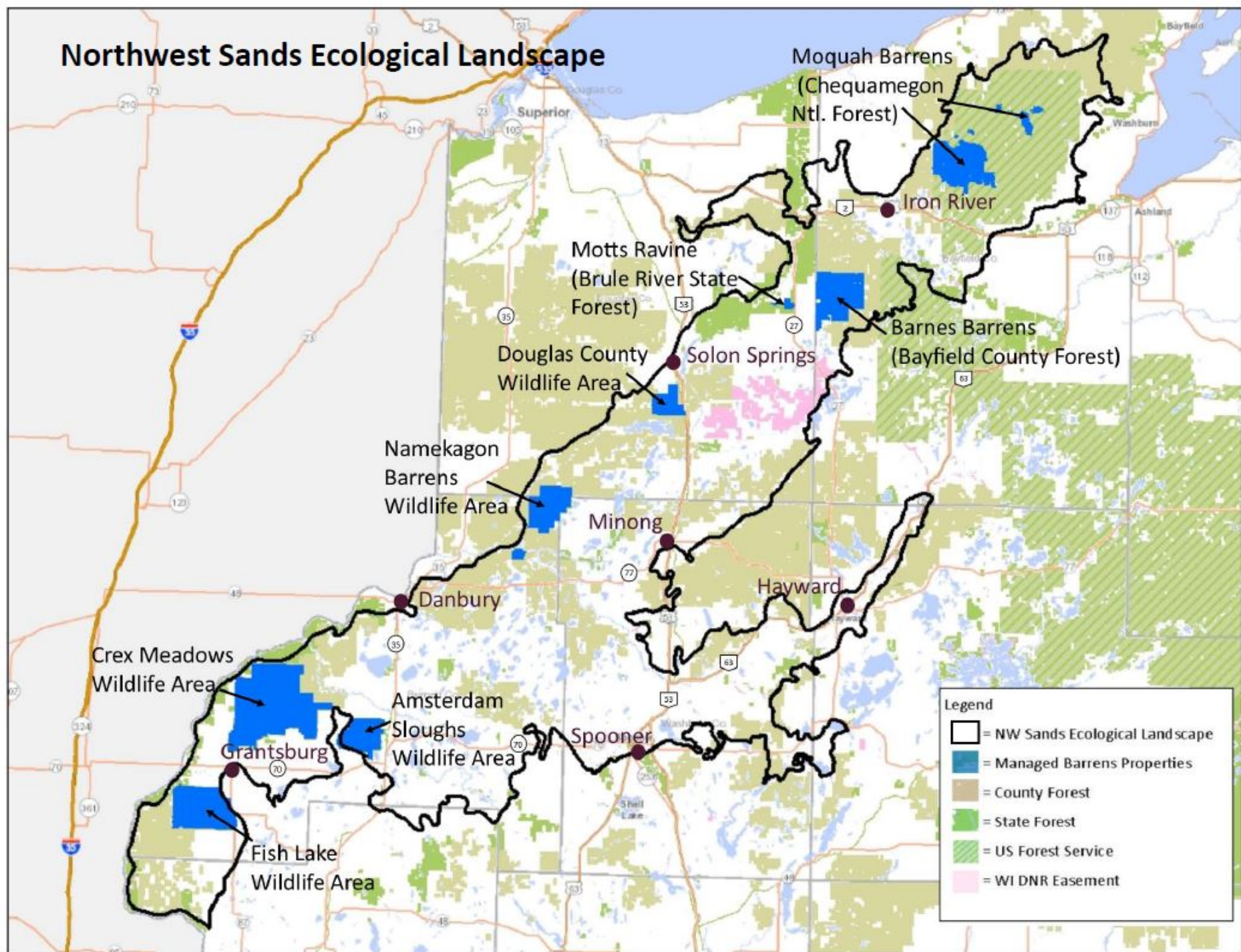




# Northwest Sands Corridor



# Northwest Sands Ecological Landscape

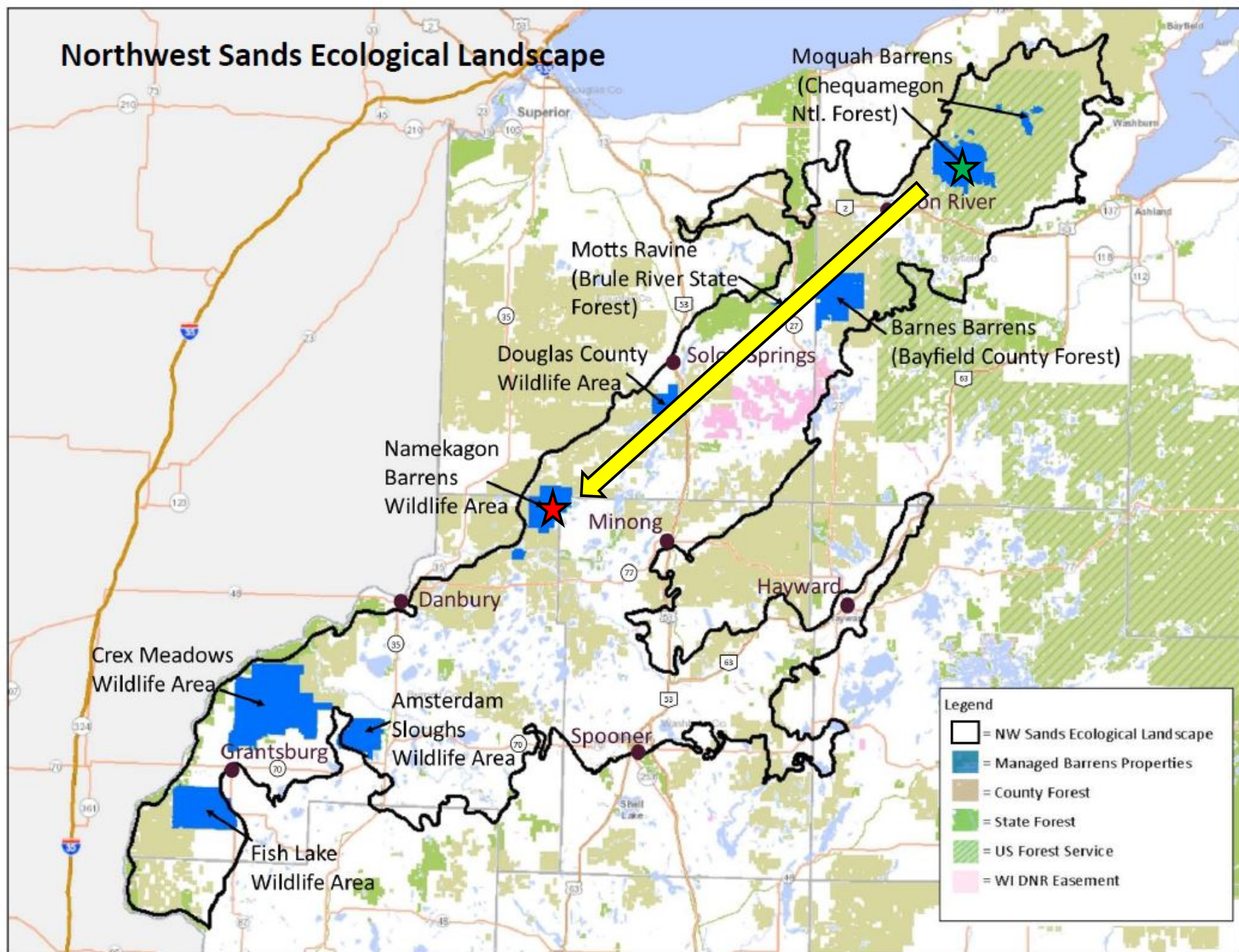


**Legend**

- [Black outline] = NW Sands Ecological Landscape
- [Blue square] = Managed Barrens Properties
- [Light brown square] = County Forest
- [Light green square] = State Forest
- [Green square with diagonal lines] = US Forest Service
- [Pink square] = WI DNR Easement



# Northwest Sands Ecological Landscape







## FUTURE PLANS – Sharpies, Barrens, and Surrounding Habitats

- Agreement with WSGS continues through 2020
  - Continue monitoring Moquah population
  - Investigate Genetics
  - Conduct local trapping, banding, telemetry efforts
  - Public outreach & education (presentations, signage, etc.)
- Continue NW Sands Project Implementation
- Greenwood and future vegetation projects – complimentary barrens habitat



# Questions



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# Lake States Fire Science Consortium

A JFSP KNOWLEDGE EXCHANGE CONSORTIUM



2018 - 2019 Webinar Series  
December 12, 2018

## Landowner attitudes toward prescribed fire on the Chequamegon-Nicolet National Forest.

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