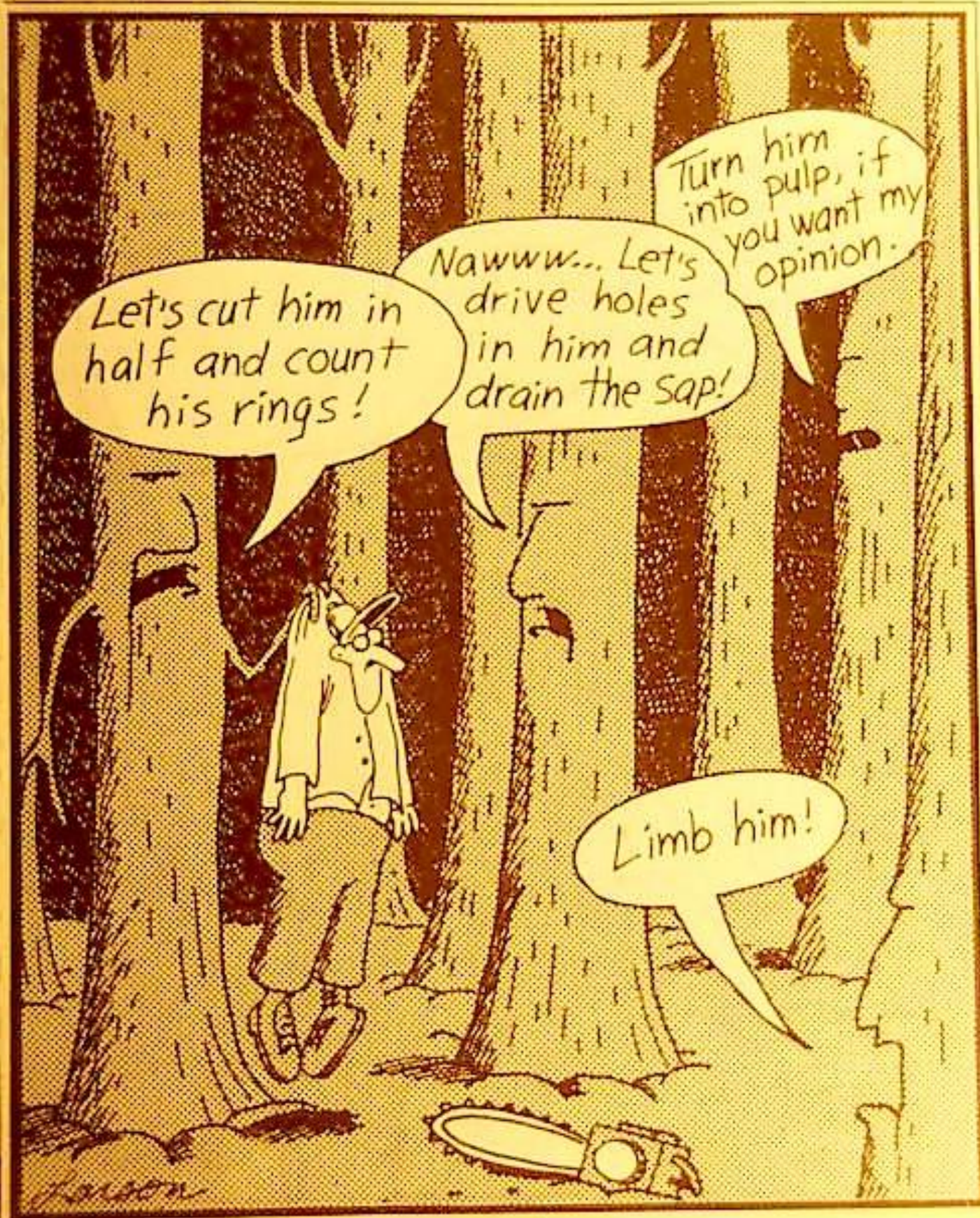


# Our Living Ancestors: The History and Ecology of Old-Growth Forests in Wisconsin



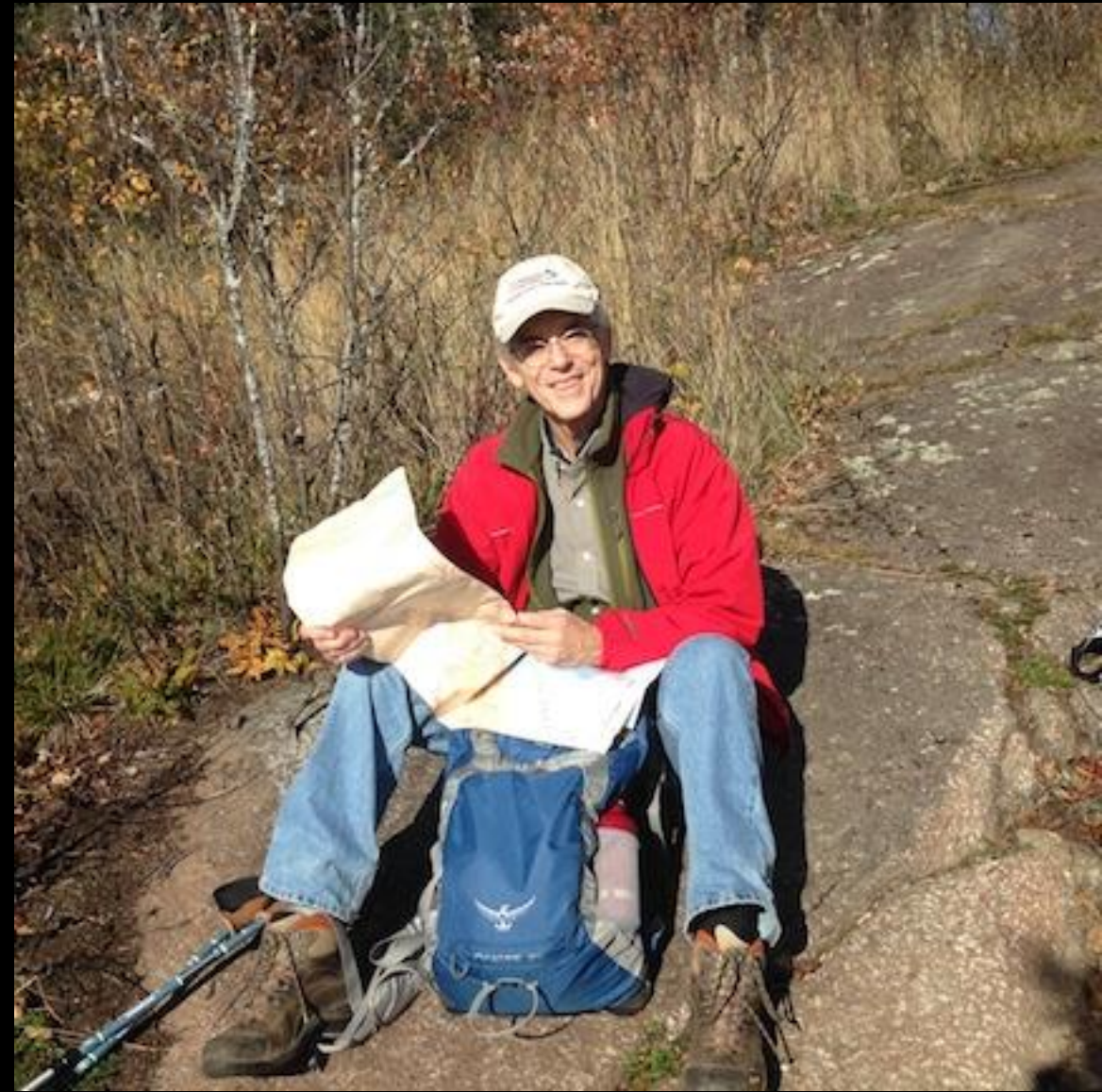
Forest violence



# Our Living Ancestors

*The History and Ecology  
of Old-growth Forests in Wisconsin  
and Where to Find Them*

**John Bates**







## Three Myths:

### Myth 1:

Not all of NWI was old-growth.

60%-70% of the northern forests were mature and old-growth

## *2nd Myth? Untouched Virgin Forest*

*There has been no timeless wilderness in a state of perfect changelessness, no climax forest in permanent stasis . . . It is tempting to believe that when Europeans arrived in the New World they confronted Virgin Land, the Forest Primeval, a wilderness which had existed for eons uninfluenced by human hands. Nothing could be further from the truth. In Francis Jennings's telling phrase, the land was less virgin than it was widowed . . . William Cronen*



# Virgin Forest? Cultural Disturbance

Native Americans utilized 384 species of plants  
25-40% of total flora

(*Plants Used by the Great Lakes Ojibwa* - Meeker, Elias, Heim)

food, medicines, building materials, clothing,  
tools, toys . . .

(pitch, snowshoes, canoes, twine, mats,  
basketry, dyes, tanning, musical  
instruments, bows and arrows, pipes and  
smoking, fire making, sleds, torches, fish  
nets, knives, axes, beadwork . . . )

see *Chippewa Customs* - Frances  
Densmore



## *CHIPPEWA CUSTOMS*

BY FRANCES DENSMORE

With an introduction by Nina Marchetti Archabal





# Fire History at Frog Lake and Pines

SNA

Jed Meunier, DNR

Red Pine Pith: 1805

Fire Scars:

1833

1846

1855

1864

1877

1895

1909 and 1910 in nearby sites







Myth 3:  
Most of NWI was  
a pinery

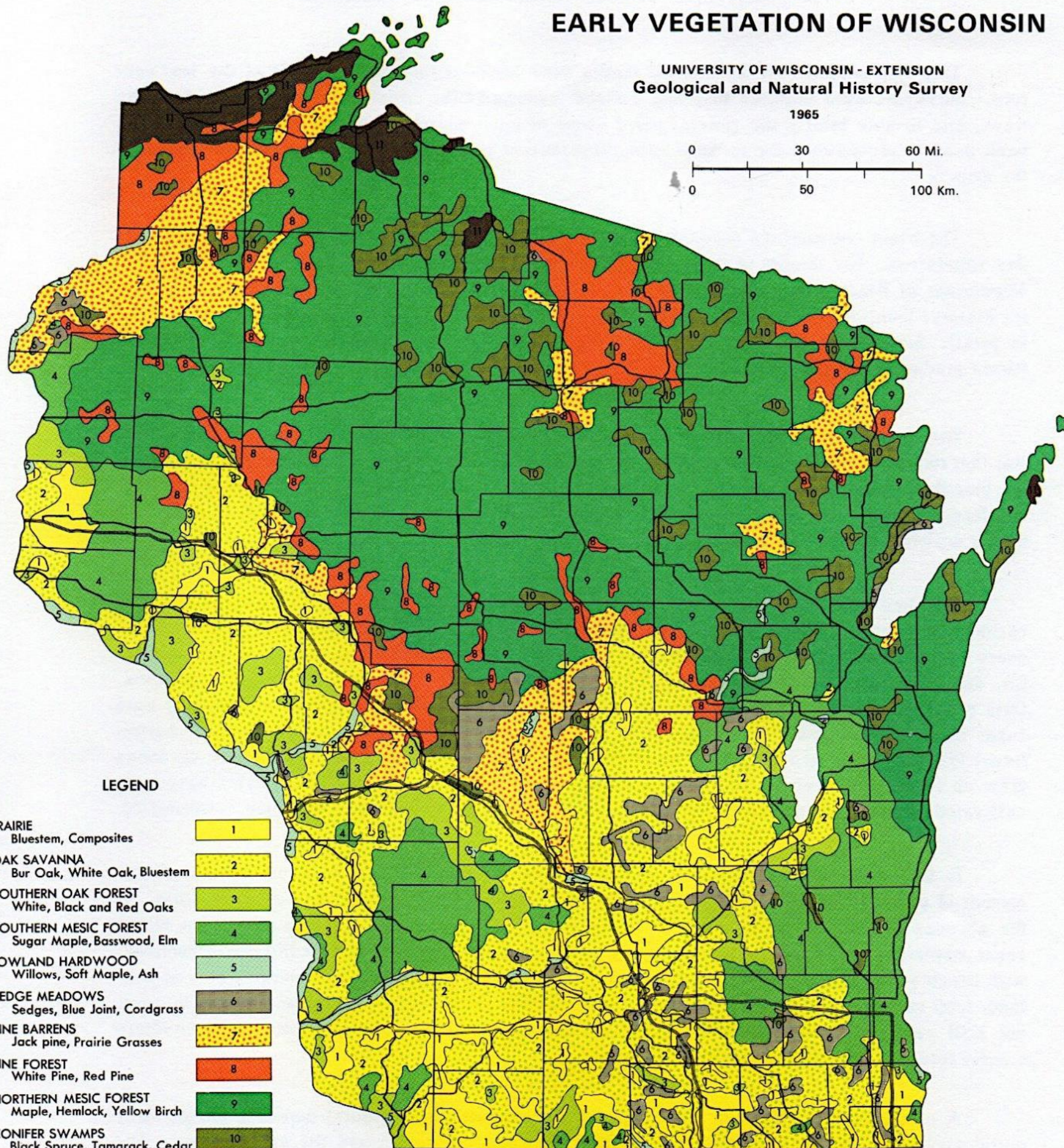
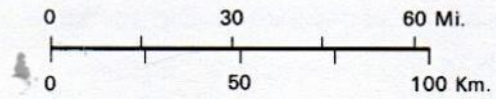
No!  
Hemlock-  
hardwoods with  
some super-  
canopy  
white pines!



# EARLY VEGETATION OF WISCONSIN

UNIVERSITY OF WISCONSIN - EXTENSION  
Geological and Natural History Survey

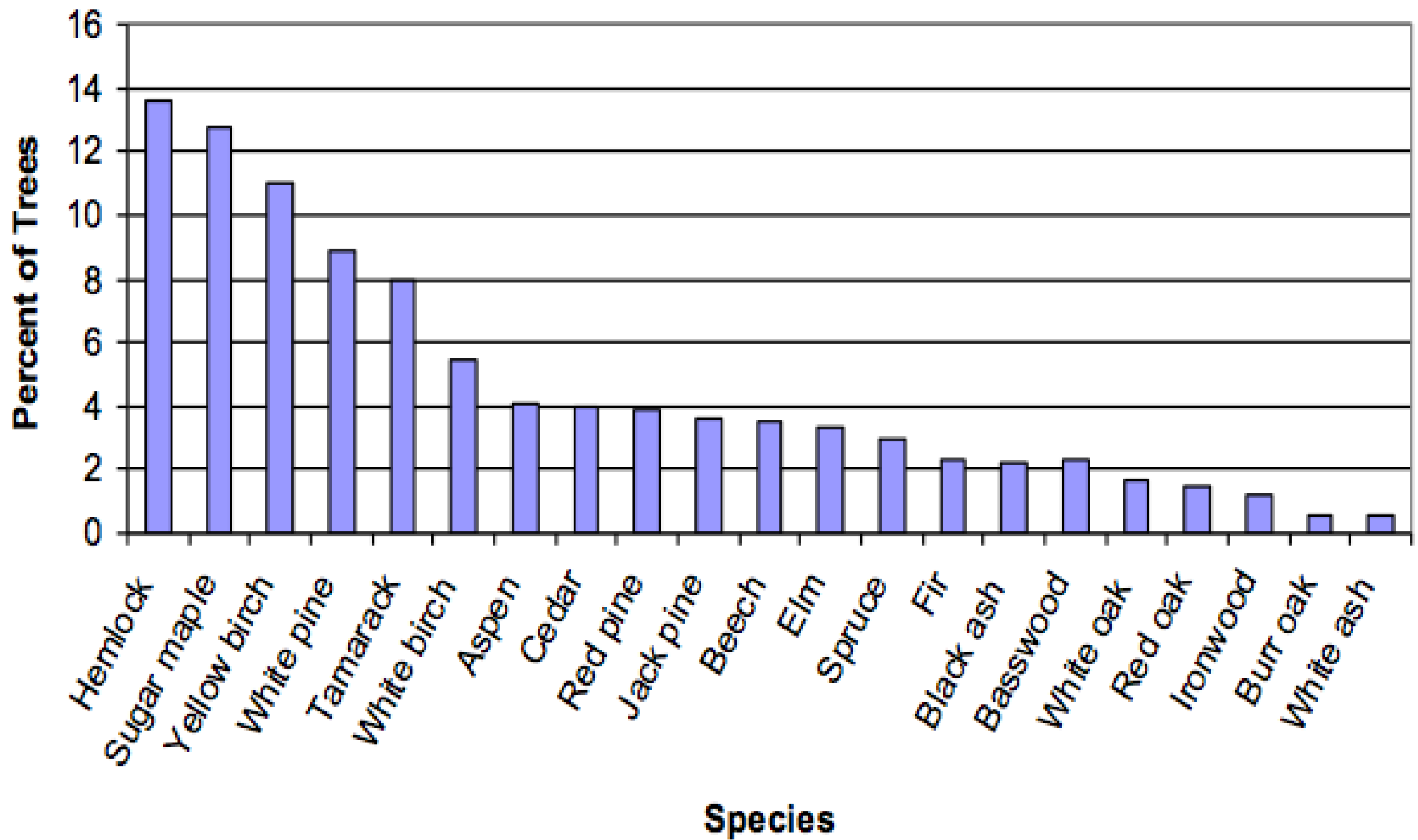
1965



## LEGEND

- |  |    |
|--|----|
| <b>PRAIRIE</b><br>Bluestem, Composites                       | 1  |
| <b>OAK SAVANNA</b><br>Bur Oak, White Oak, Bluestem           | 2  |
| <b>SOUTHERN OAK FOREST</b><br>White, Black and Red Oaks      | 3  |
| <b>SOUTHERN MESIC FOREST</b><br>Sugar Maple, Basswood, Elm   | 4  |
| <b>LOWLAND HARDWOOD</b><br>Willows, Soft Maple, Ash          | 5  |
| <b>SEDGE MEADOWS</b><br>Sedges, Blue Joint, Cordgrass        | 6  |
| <b>PINE BARRENS</b><br>Jack pine, Prairie Grasses            | 7  |
| <b>PINE FOREST</b><br>White Pine, Red Pine                   | 8  |
| <b>NORTHERN MESIC FOREST</b><br>Maple, Hemlock, Yellow Birch | 9  |
| <b>CONIFER SWAMPS</b><br>Black Spruce, Tamarack, Cedar       | 10 |
| <b>BOREAL FOREST</b><br>Balsam Fir, White Spruce             | 11 |









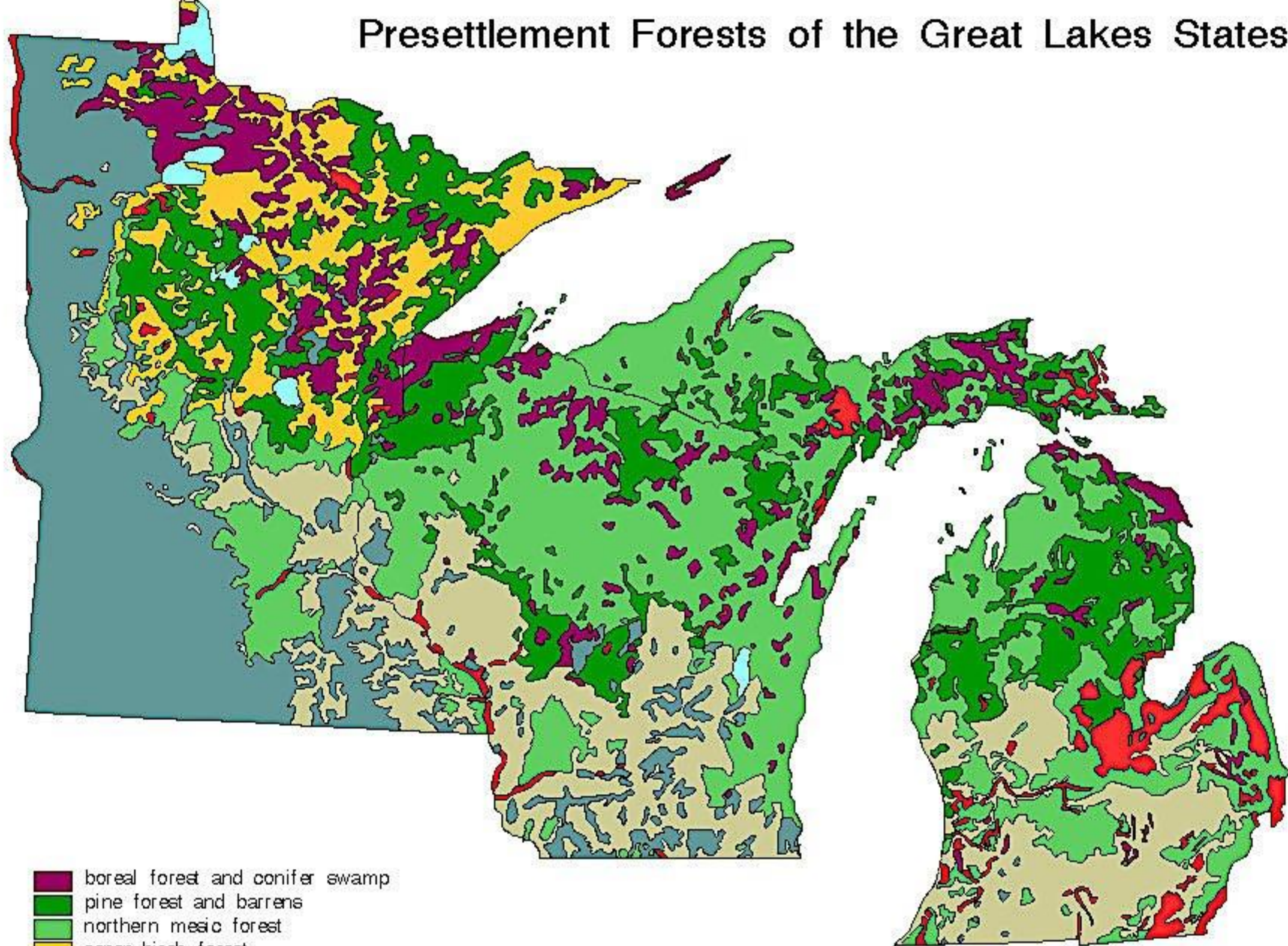
Of Wisconsin's 36 million acres,  
20 million acres were forested land

11-14.5 million acres hemlock-  
hardwoods,  
about 2/3 or 66%.

2 million acres were dominated by  
pines,  
about 10%.



# Presettlement Forests of the Great Lakes States



- boreal forest and conifer swamp
- pine forest and barrens
- northern mesic forest
- aspen-birch forest
- oak forest and savanna
- wet mesic forest
- non-forest
- lakes

100 0 100 200 Kilometers





Why did we cut nearly all of it down?

Wood was the way and wood was in the way.





# The Great Swarming

| YEAR | POPULATION | INCREASE | %<br>INCREASE | URBAN     | RURAL     | %<br>URBAN |
|------|------------|----------|---------------|-----------|-----------|------------|
| 1830 | 3,245      | —        | —             | —         | —         | —          |
| 1836 | 11,683     | 8,438    | 247.7         | —         | —         | —          |
| 1840 | 30,945     | 19,262   | 164.0         | —         | —         | —          |
| 1850 | 305,391    | 274,446  | 886.9         | 28,623    | 276,768   | 9.4        |
| 1860 | 775,881    | 470,490  | 154.1         | 111,874   | 664,007   | 14.4       |
| 1870 | 1,054,670  | 278,789  | 35.9          | 207,099   | 847,571   | 19.6       |
| 1880 | 1,315,497  | 260,827  | 24.7          | 317,204   | 998,293   | 24.1       |
| 1890 | 1,693,330  | 377,833  | 28.7          | 562,286   | 1,131,044 | 33.2       |
| 1900 | 2,069,042  | 375,712  | 22.2          | 790,213   | 1,278,829 | 38.2       |
| 1910 | 2,333,860  | 264,818  | 12.8          | 1,004,320 | 1,329,540 | 43.0       |
| 1920 | 2,632,067  | 298,207  | 12.8          | 1,244,858 | 1,387,209 | 47.3       |
| 1930 | 2,939,006  | 306,939  | 11.7          | 1,553,843 | 1,385,163 | 52.9       |
| 1940 | 3,137,587  | 198,581  | 6.7           | 1,679,144 | 1,458,443 | 53.5       |
| 1950 | 3,434,575  | 296,988  | 9.5           | 1,987,888 | 1,466,687 | 57.9       |
| 1960 | 3,952,765  | 517,202  | 15.1          | 2,522,179 | 1,429,598 | 63.8       |
| 1970 | 4,418,083  | 465,318  | 11.8          | 2,910,418 | 1,507,313 | 65.9       |

Sources: *Wisconsin Blue Book*, 1970, p. 716; 1971, p. 204, for 1970 figures. The federal





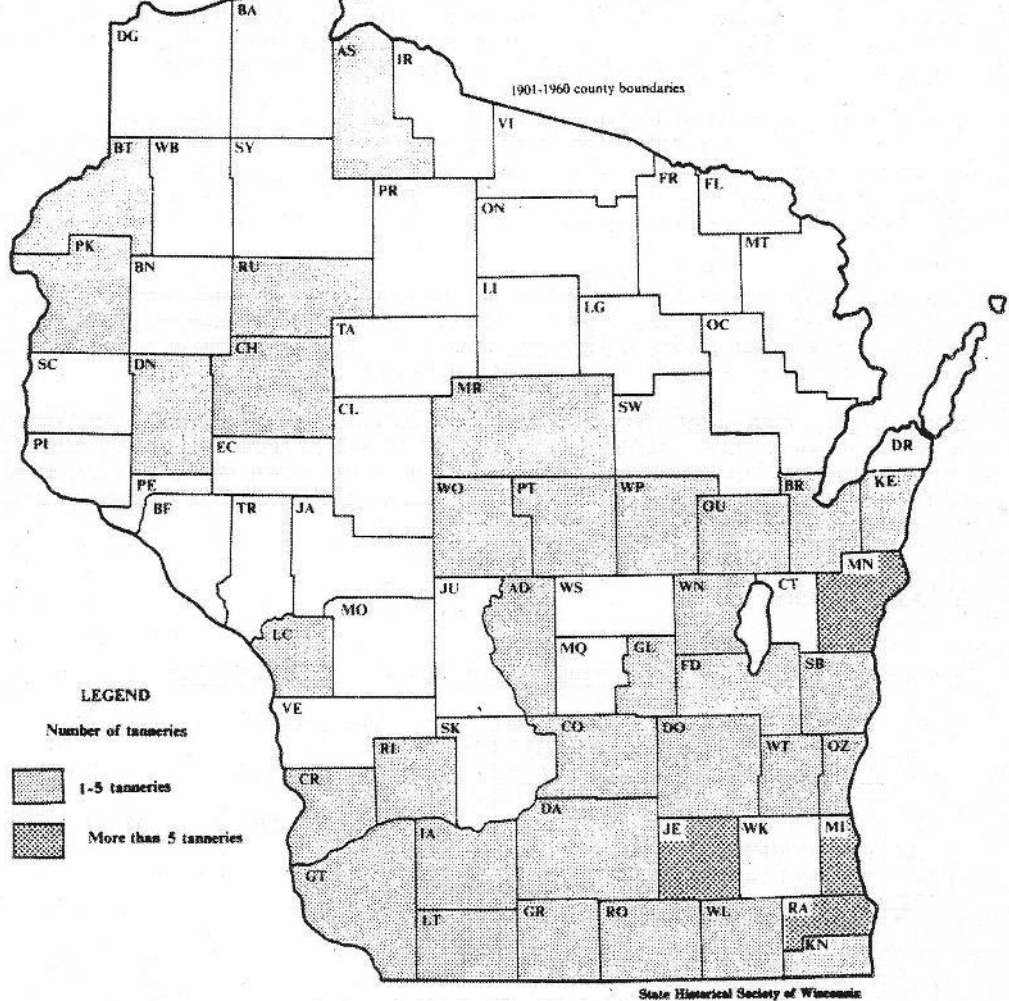


Gouging of river banks - widening and shallowing.  
Many rivers still impacted.



LOG JAM. CHIPPEWA FALLS. 1869





Location of Tanneries, 1872-1910

Source: Charles Schefft, *The Tanning Industry in Wisconsin* (M.A. thesis, University of Wisconsin, 1938).



# Hemlock Tanning





# Slash?

A photograph of a forest fire. In the foreground, several birch logs with white bark and black charred spots are scattered across the ground. The background is filled with intense orange and yellow flames, with dark smoke rising from the fire. The scene is captured from a low angle, looking through the branches of charred trees.

*Fire is “the pillar . . . lighting the path of Empire on its westward way. - William Butler Ogden*





**Ax was the right hand, the match the left hand.**



The Detroit Post saw the 1881 fires as:

[a] “chance for new settlers . . . where the fires have raged, the forests have been killed, the underbrush burned and the ground pretty effectively cleared. There are square miles and whole townships where the earth is bare of everything except a light covering of ashes; and other square miles where all that is needed to complete the clearing is to gather up a few scattered chunks per acre and finish burning them.

“These lands are now in such a condition that they are all ready for seeding . . . The trees, the underbrush, and all the impediments to agriculture, it usually costs so much in toil for the pioneer to remove, have been swept away, and the rich land lies open and ready cleared for the settler . . .

“There are other great advantages too. The insects and forest pests of the farmer are nearly all extinct. There will be no potato bugs, no weevils, or army worms, very few birds or squirrels for several years to come on these lands . . . There can be no more fires, because there are no more brush or swamps to burn.”



Plow was to follow  
the ax





**Dean William Henry - U. of W. College of Agriculture**  
***Northern Wisconsin: A Handbook for the Homeseeker (1896)***  
**50,000 copies in English, German, Norwegian**

**Blue Grass Land Company Brochures: *A Farm in Wisconsin Will Make Money for You From the Start: Crops Never Fail***  
***"The land is rich, clay-bottomed, making it the most productive hay land in America, just as good as those famed 'blue grass' lands of Kentucky."***

***Land Clearing Special* - train traveled N. WI to demonstrate the state of the art in stump-pulling**

**By 1927, one-quarter of land in Wisconsin's 17 northern-most counties had been offered for sale as tax-delinquent**



Markets?



Winter?





## Soils of northern and eastern Wisconsin

- Forested, red, sandy, and loamy soils
- Forested, red, sandy, and loamy soils over dolomite
- Forested, silty soils
- Forested, loamy soils
- Forested, sandy soils
- Forested, red, clayey or loamy soils

## Soils of central Wisconsin

- Forested, sandy soils
- Prairie, sandy soils
- Forested, silty soils over igneous/metamorphic rock

## Soils of southwestern and western Wisconsin

- Forested, silty soils
- Prairie, silty soils
- Forested soils over sandstone

## Soils of southeastern Wisconsin

- Forested, silty soils
- Prairie, silty soils

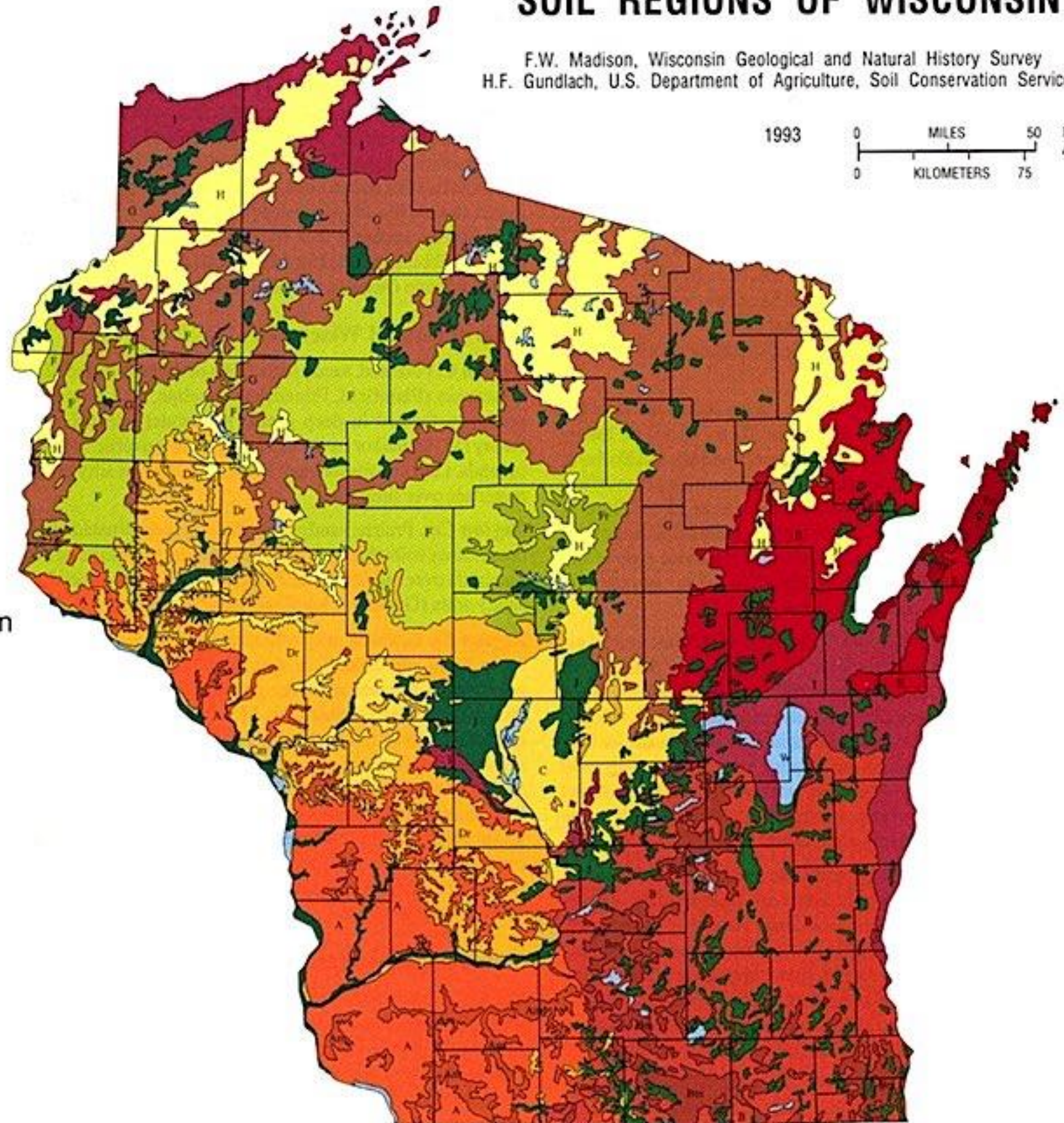
## Statewide

- Streambottom and major wetland soils
- Water

# SOIL REGIONS OF WISCONSIN

F.W. Madison, Wisconsin Geological and Natural History Survey  
H.F. Gundlach, U.S. Department of Agriculture, Soil Conservation Service

1993  
0 50 MILES  
0 75 KILOMETERS



Published by and available from



# Response to cutting and fire?

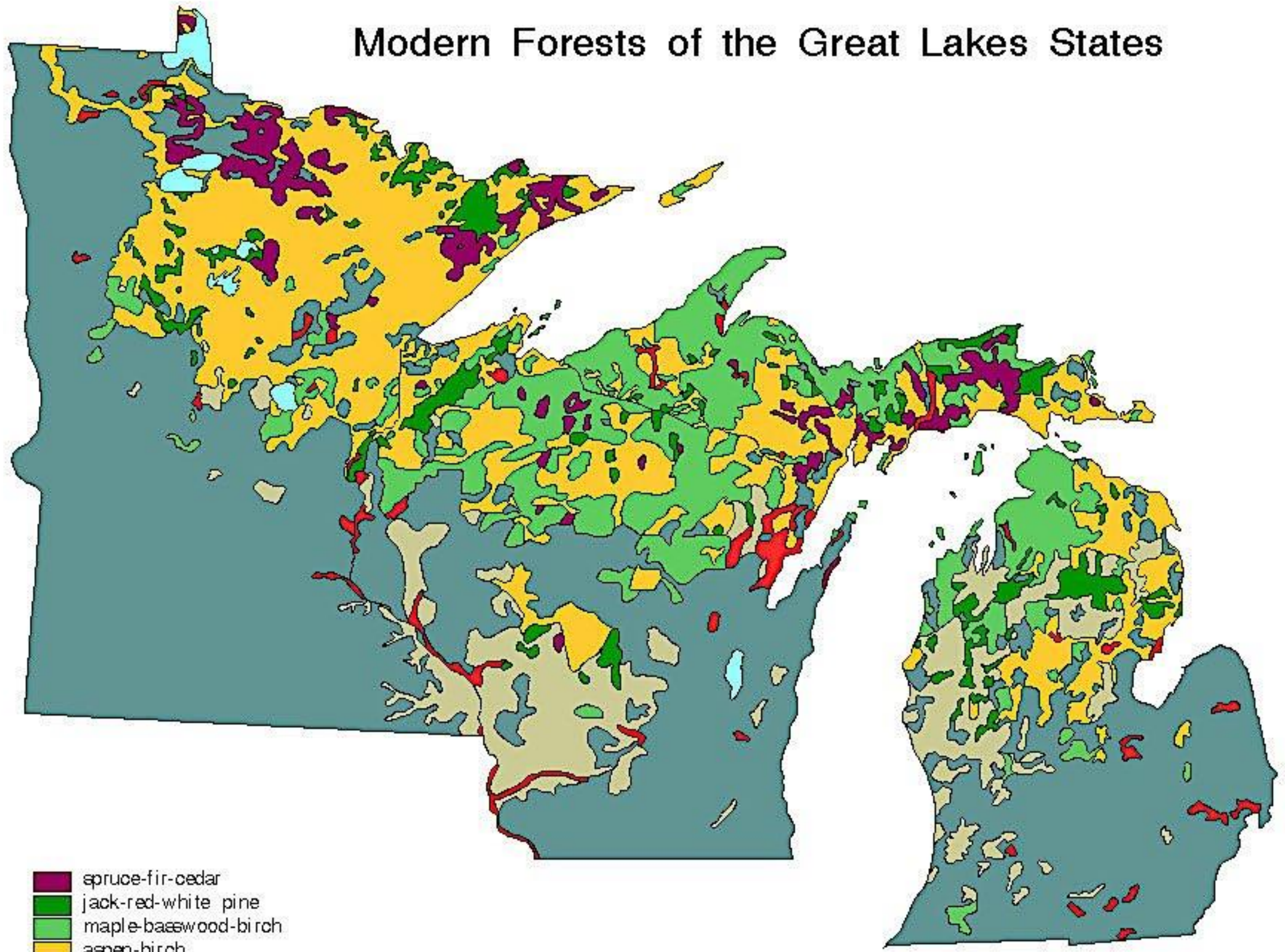
## White Birch and Aspen

“Probably the largest human-caused forest type conversion in history”. This monumental ecological event resulted in over 17 million acres of aspen in the Lake States initially occupying the cutover/burnover.





# Modern Forests of the Great Lakes States



- spruce-fir-cedar
- jack-red-white pine
- maple-basswood-birch
- aspen-birch
- oak-hickory
- elm-ash-cottonwood-soft maple
- non-forest
- lakes

100 0 100 200 Kilometers





# OG: What's Left in the Lake States?

Near-Boreal: 310,000 acres - 2.8% (BWCA)

Northern Hardwood-Hemlock: 72,000 acres - 0.2%

White/Red Pine: 57,000 acres - 0.6% (BWCA)

Other (swamp conifers mostly): 480,000 acres - 2.2%



# What's Left In Wisconsin (2014)?

Of WI's 16 million acres of forest:

| Forest Type  | OG(150+)  | Old (120-150) | Future (100) |
|--------------|-----------|---------------|--------------|
| Hemlock      | 6,644     | 8,698         | 9,901        |
| N. Hardwoods | 2,502     | 23,229        | 54,231       |
| White Pine   | 1,044     | 19,726        | 33,668       |
| White Cedar  | 16,551    | 31,888        | 32,707       |
|              | (c)26,000 | (c)84,000     | (c)130,000   |

Wisconsin has 505 golf courses, each averaging perhaps 175 acres: (c) 88,000 acres.

Wisconsin's old-growth forests (over 150 years in age) less than one-third of that.



# Values of Old-growth?

Scientific benchmarks

Ecological - plant/animal/community diversity

Genetic repository - fittest trees!

Ecosystem services

Recreation/Aesthetic/Spiritual

Economic - big tree silviculture

Innate - God's/evolution's creation - reverence



A large, weathered log lies horizontally across the forest floor, heavily covered in vibrant green moss. The log has a hollowed-out section in the middle, revealing a dark interior. The surrounding forest is dense with trees and undergrowth, including various ferns and small plants. The ground is covered with fallen leaves and wood chips. The text "Ecological Process of Old-growth" is overlaid in yellow on the log.

## Ecological Process of Old-growth



## Leopold - *A Sand County Almanac*

### November: "A Mighty Fortress"

"Soon after I bought the woods a decade ago, I realized that I had bought almost as many tree diseases as I had trees . . . . But it soon became clear that these same diseases made my woodlot a mighty fortress, unequaled in the whole country . . . .

"The real jewel of my disease-ridden woodlot is the prothonotary warbler. He nests in an old woodpecker hole . . . . The flash of his gold-and-blue plumage amid the dank decay of the June woods is in itself proof that dead trees are transmuted into living animals and vice versa. When you doubt the wisdom of this arrangement, take a look at the prothonotary."





Disease

Heart-  
rot







Dens

American Marten



Porcupine

Fisher





# Cavity Nesters - 30 sps in WI







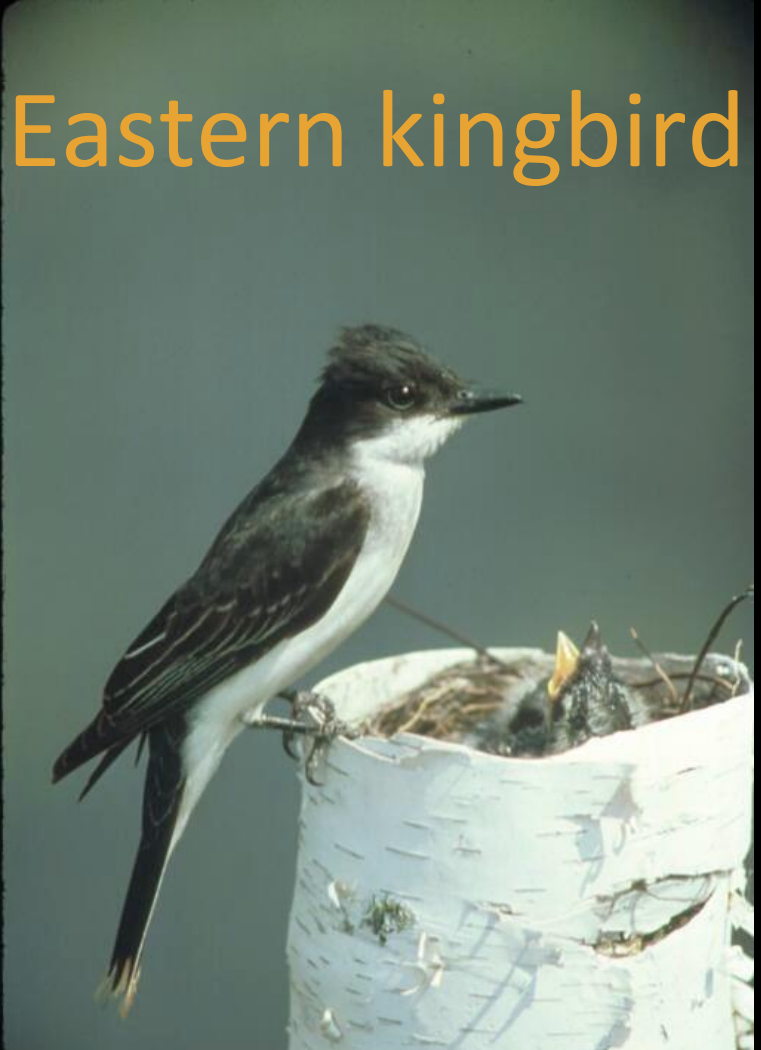
Brown creeper

Black-capped chickadee



Great-crested flycatcher

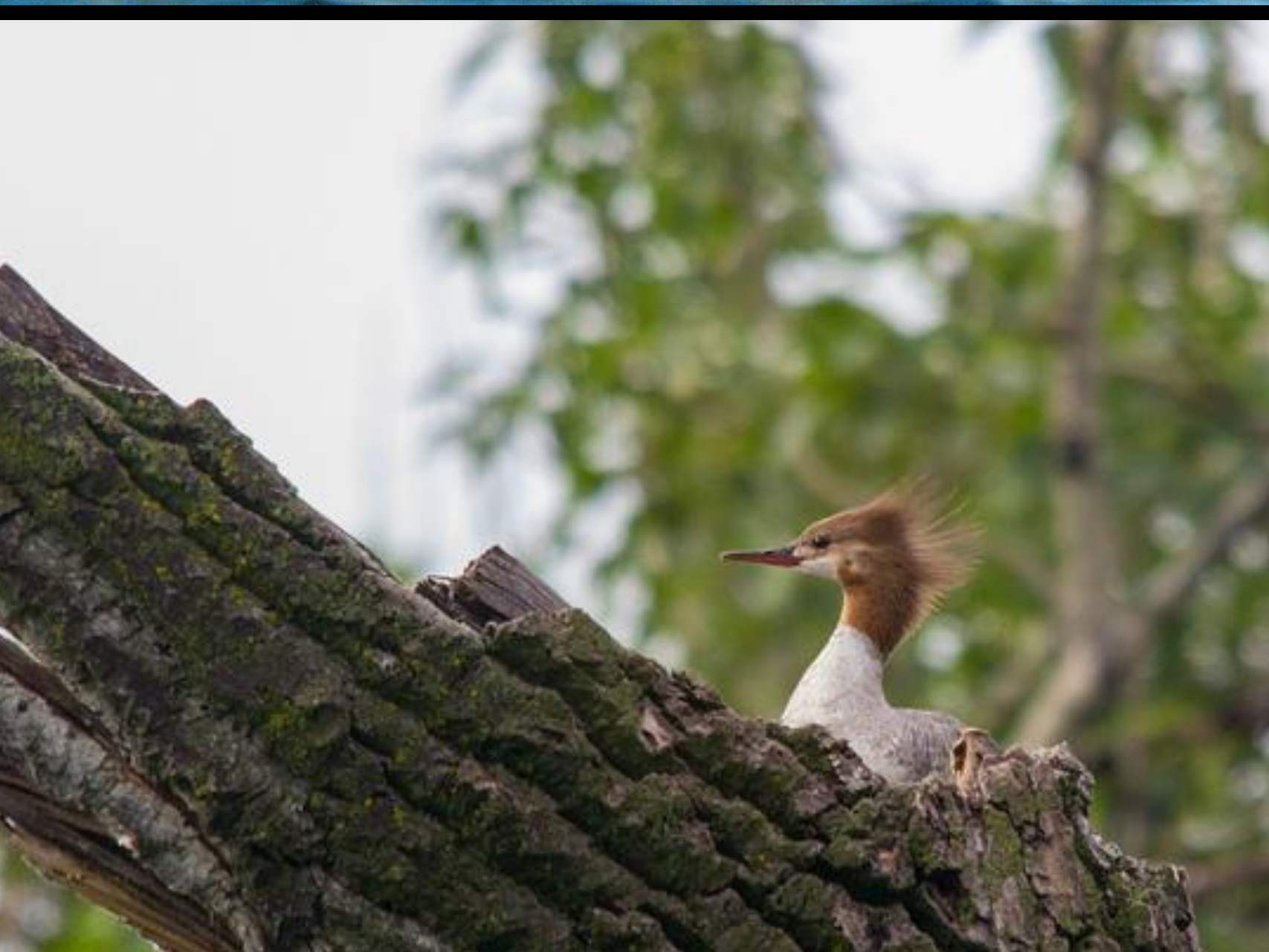
Eastern kingbird







Common Merganser





# Osprey nest at top of landscape







photo by Bob Kovar

3/4 of nests in tall white pines usually 1/4 of the way down

photo by Ron Eckstein







## Ground-Nesting Birds

American woodcock

Black-and-white  
warbler

Blue-winged warbler

Bobolink

Canada warbler

Connecticut warbler

Dark-eyed junco

Golden-winged  
warbler

Hermit thrush

Le Conte's sparrow

Lincoln's sparrow

Louisiana waterthrush

Mourning warbler

Nashville warbler

Northern waterthrush

Ovenbird

Palm warbler

Ruffed grouse

Rufous-sided towhee

Savannah sparrow

Sedge wren

Sharp-tailed grouse

Song sparrow

Spruce grouse

Tennessee warbler

Veery

Whip-poor-will

White-throated sparrow

Wild turkey

Wilson's warbler

Winter wren

Yellow-bellied flycatcher



# Coarse woody debris on forest floor provides nesting cover

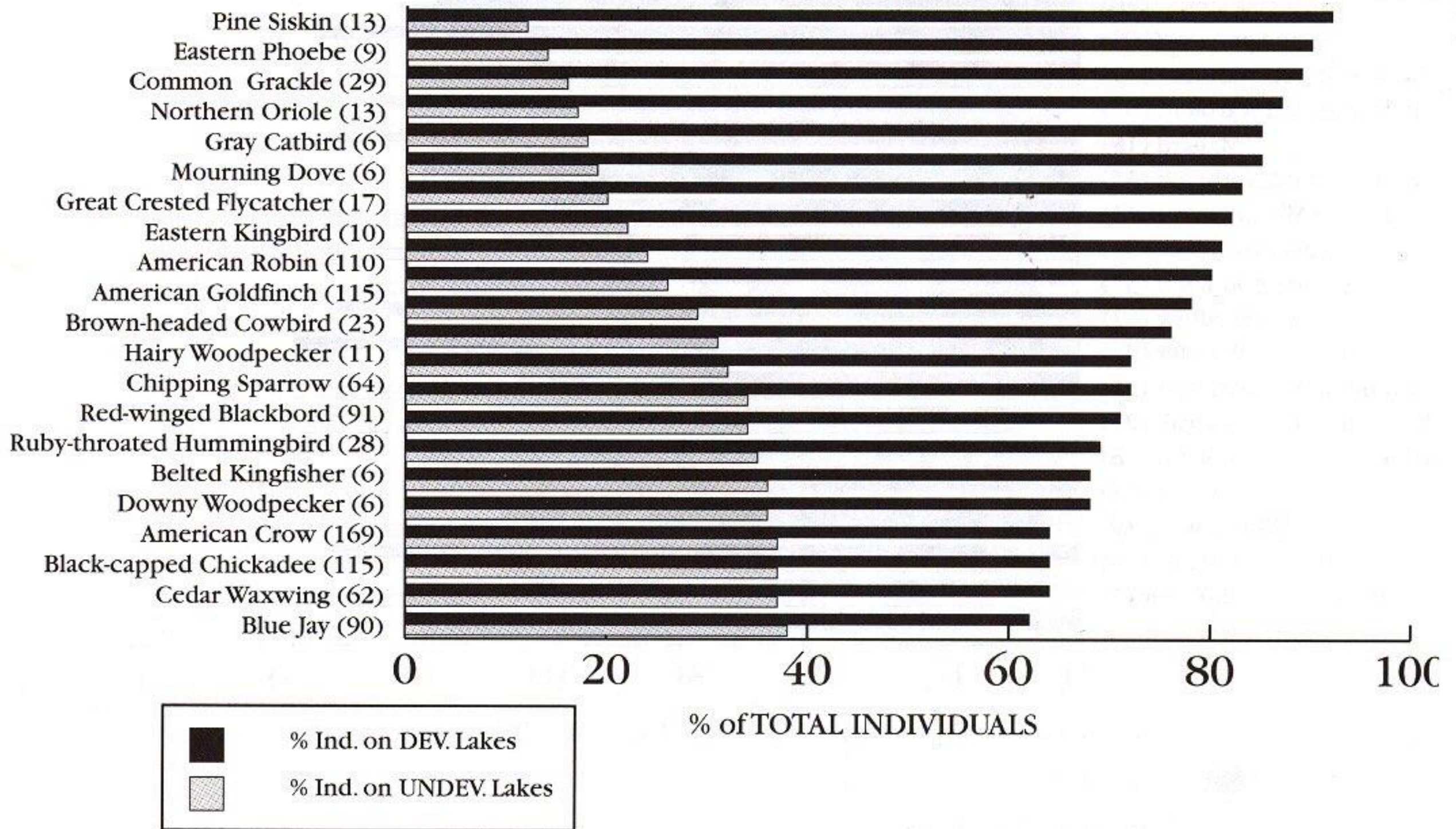


Hermit thrush



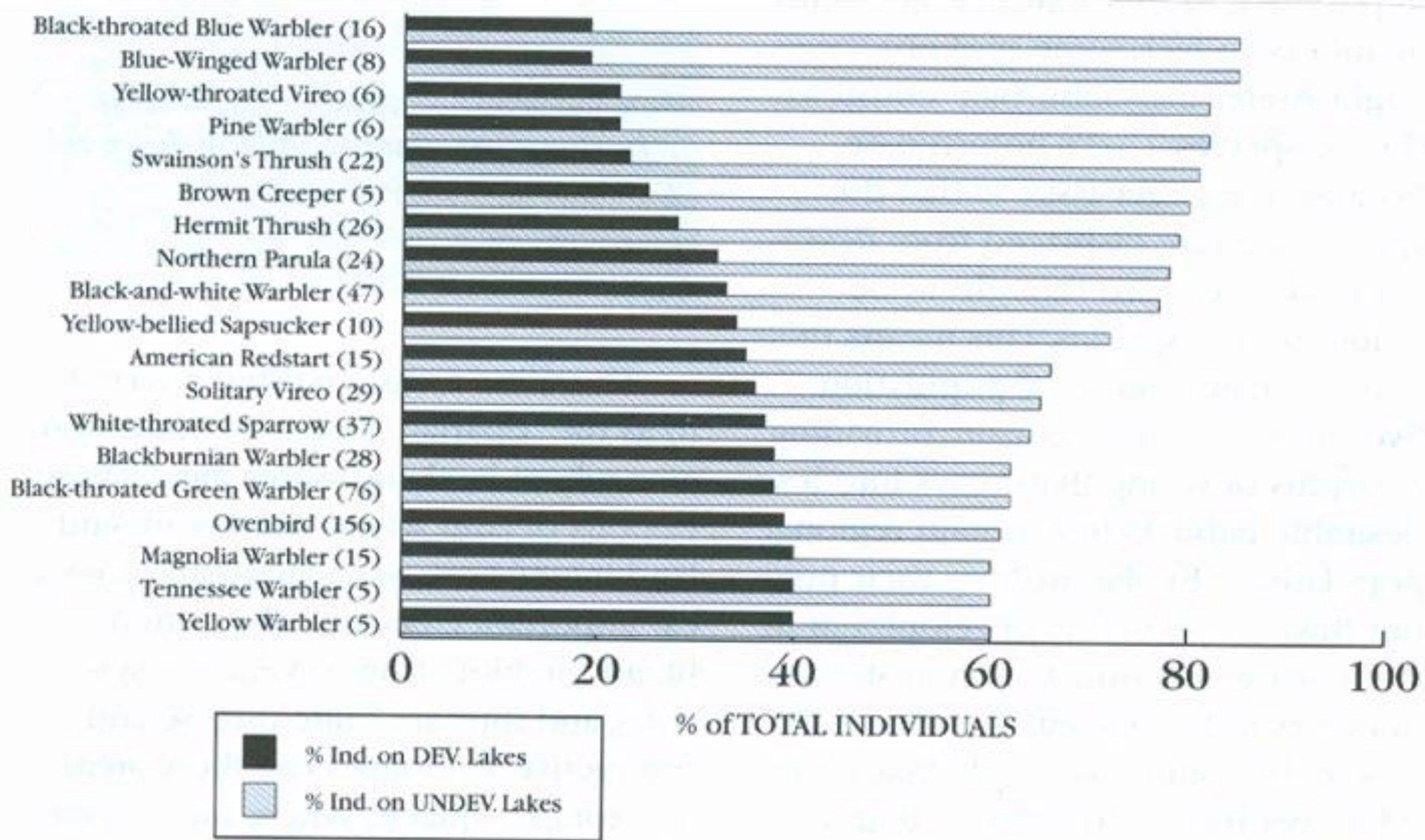
Ovenbird





Avian species who were found primarily on developed lakes during 1996 and 1997 point count surveys in Vilas and Oneida counties. Number in parentheses reflects total individuals observed in both years. From Meyer, Woodford, & Gillum, WDNR (1997).





Avian species who were found primarily on undeveloped lakes during 1996 and 1997 point count surveys in Vilas and Oneida counties. Number in parentheses reflects total individuals observed in both years. From Meyer, Woodford, & Gillum, WDNR (1997).



# Perches

Tree swallows - CWH



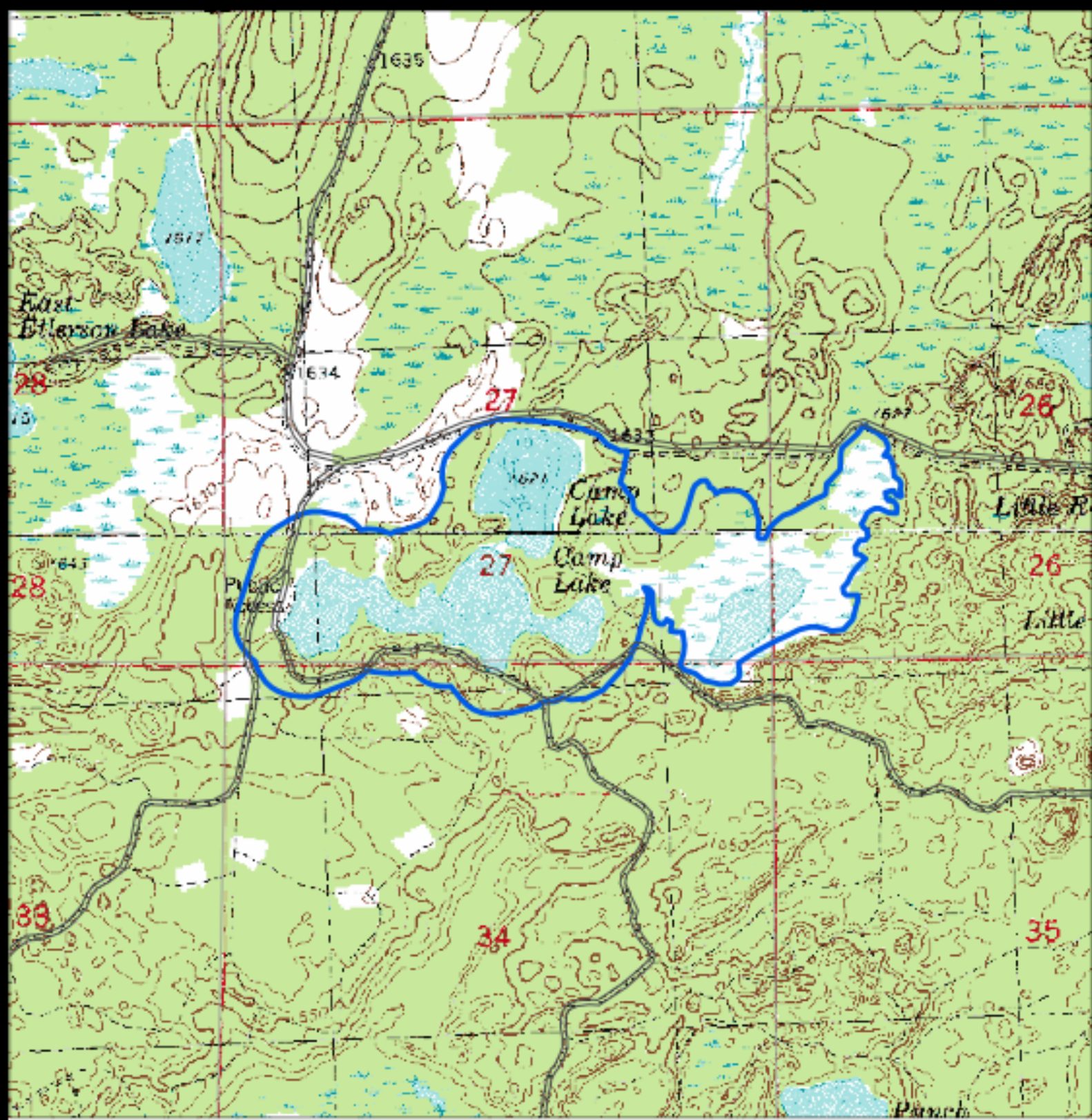






Camp Lake  
UW Trout Lake Study  
Rock Lake

CWH for Fish





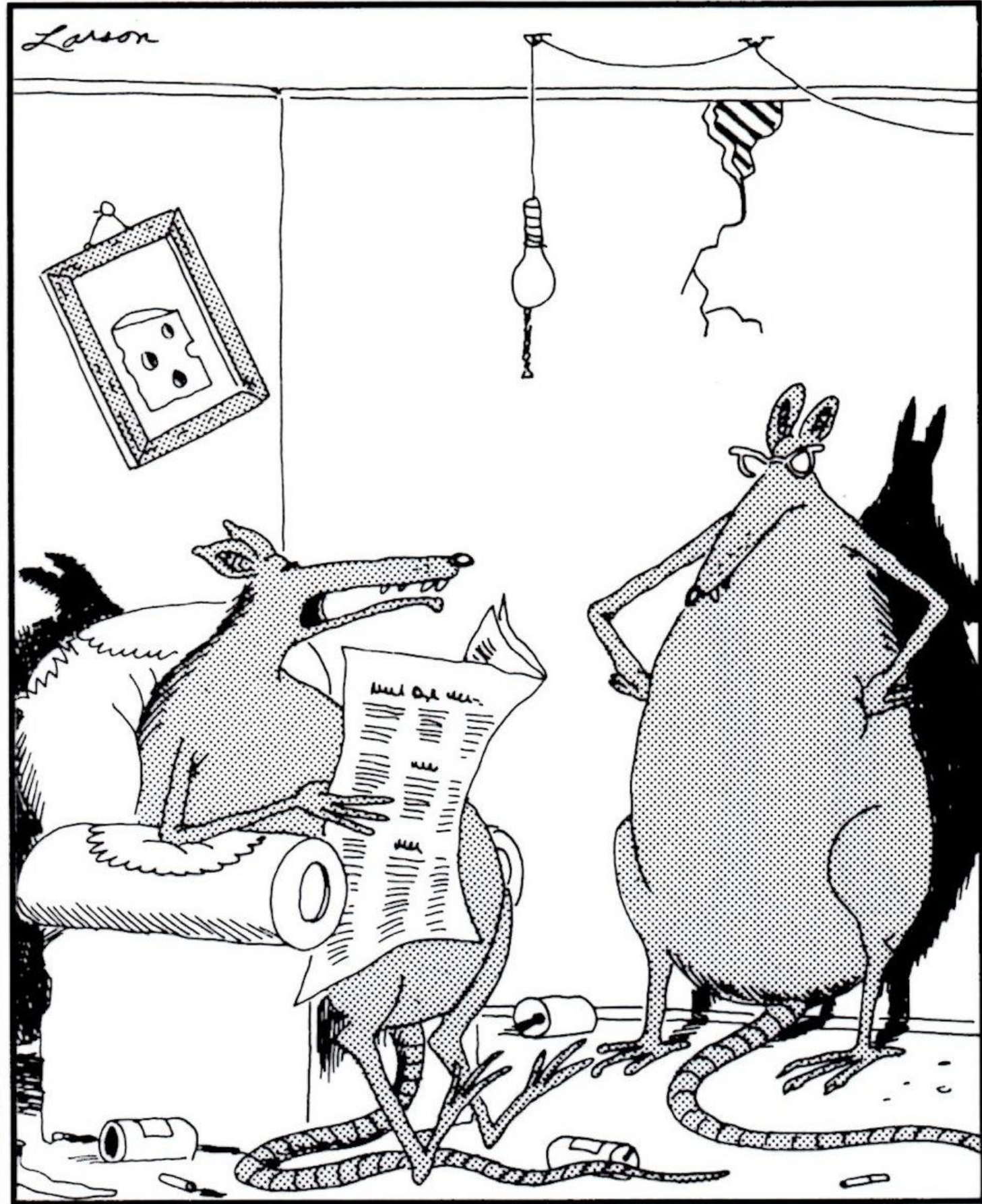
Yellow perch eggs deposited in a gelatinous strand (commonly 10,000-40,000), a characteristic unique among North American freshwater fishes. Egg strands are commonly draped over weeds, the branches of submerged trees or shrubs, or some other structure.

Almost every cool to warm water predatory fish species are predators of the yellow perch. Birds also prey on them.





Larson



“Clean it up? Clean it up? Criminy, it’s supposed to be a rathole!”

So . . .  
Cleanliness is not next  
to Godliness  
Need random chaos on  
forest floor,  
along lake shores,  
and within lakes.  
Dead and dying trees  
provide habitat



# Nurse Logs



Can take 200 years  
for a large hemlock to  
decompose.



Tip-up mound  
cradle/knoll topography  
a biological topography





# Where Is It?



Ten Best Paddles  
Near or In  
Old-Growth

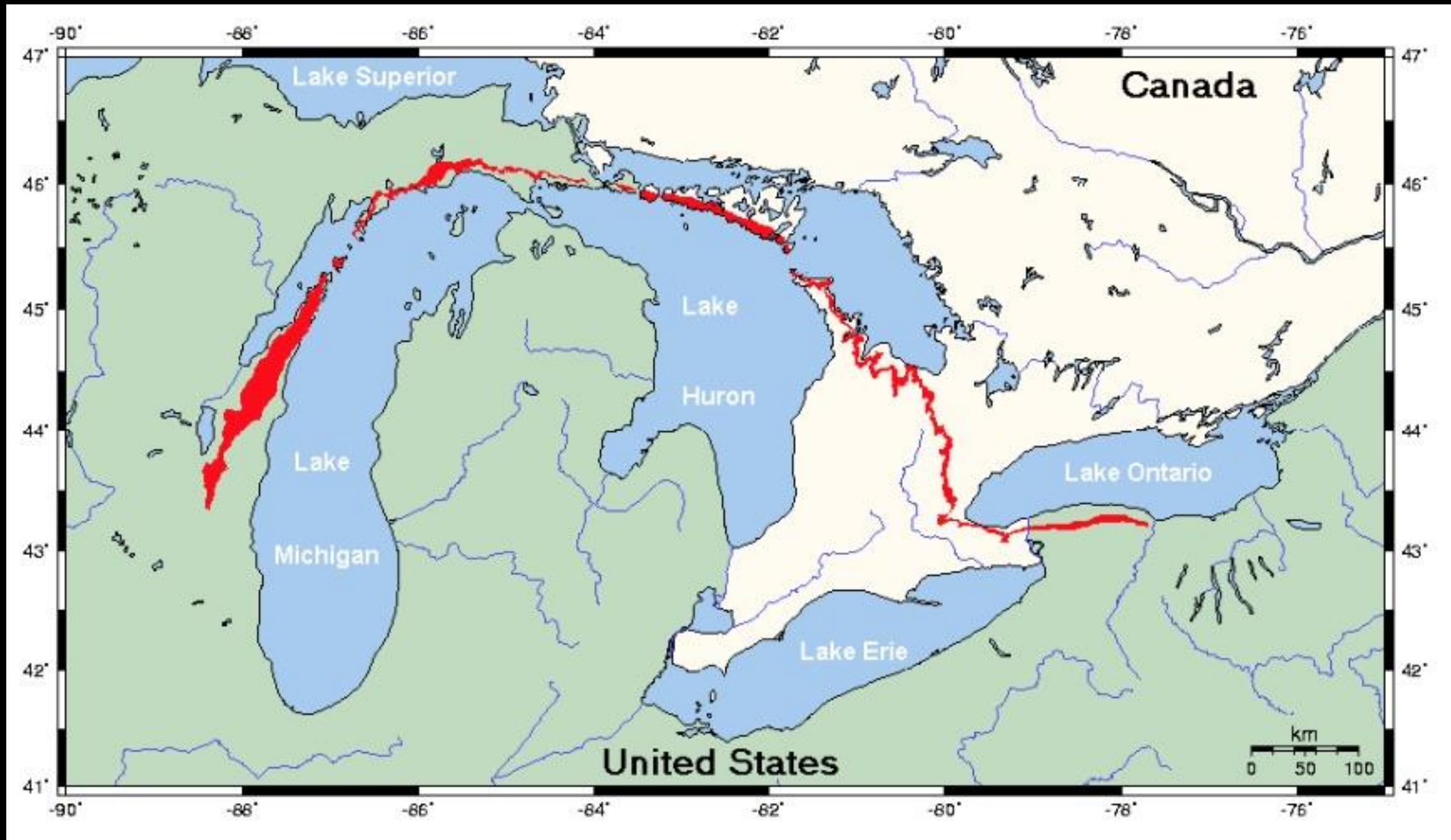


## Top Ten Old-Growth and Paddle Sites in Wisconsin

1. Door County Northwest shore – Peninsula State Park
2. Cathedral Pines SNA
3. Outer Island, Apostle Islands National Lakeshore, Ashland County
4. Franklin and Butternut Lakes SNA, CNNF, Forest County
5. Plum Lake Hemlock Forest SNA, NHAL State Forest, Vilas County
6. Guido Rahr Sr. Tenderfoot Forest, The Nature Conservancy, Vilas County
7. Scott Lake and Shelp Lake SNA, CNNF, Forest County
8. Van Vliet Hemlocks SNA
9. Frog Lake and Pines SNA, NHAL State Forest, Iron County
10. Tucker Lake SNA



# Our oldest trees are white cedars on the Niagara Escarpment



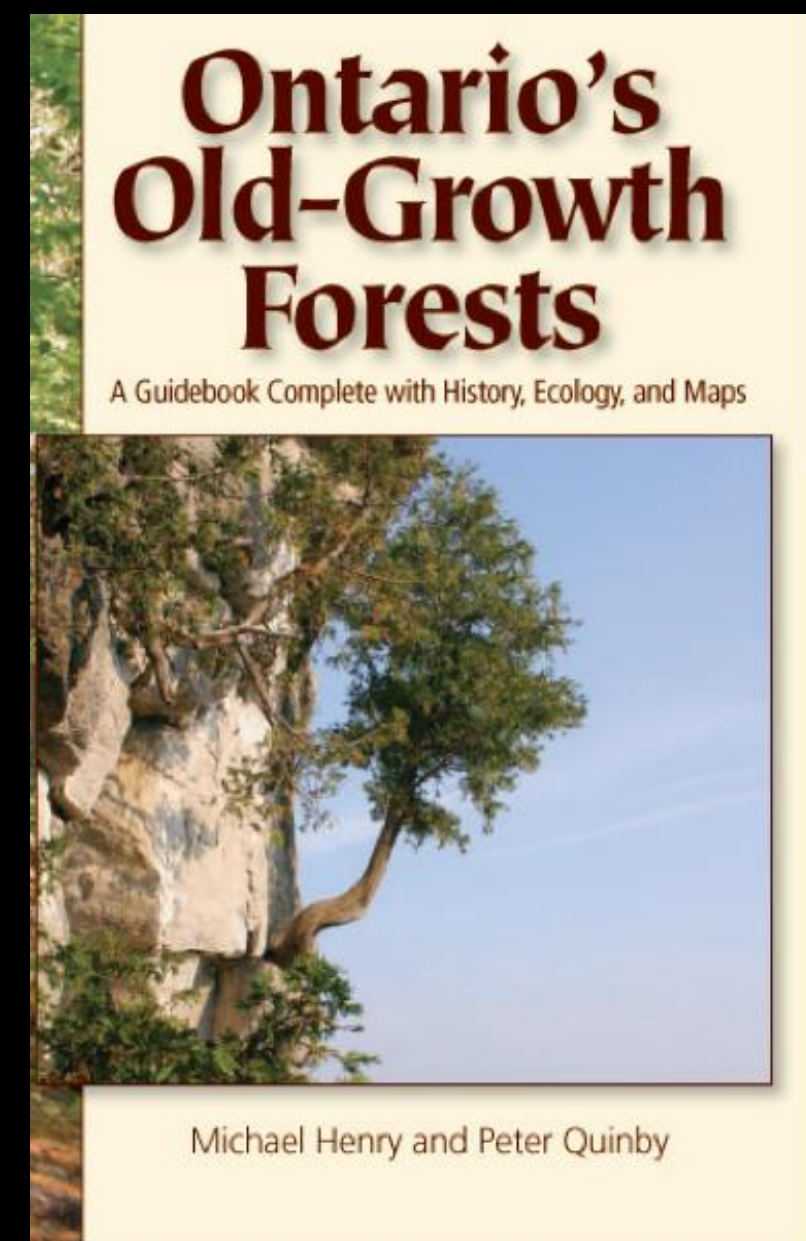
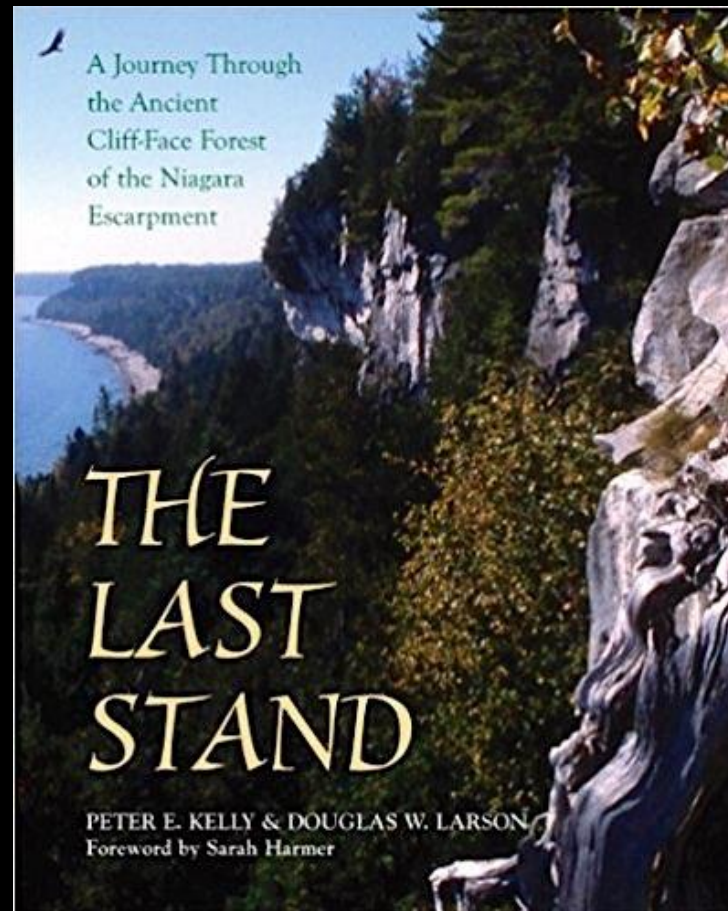
The Niagara Escarpment supports the most extensive old-growth forest east of the Rockies.



Oldest Tree in E. North America?

A white cedar on the Niagara Escarpment at Lion's Head, ON, germinated 688 AD now 1330 yrs. old.

A dead white cedar was found on Flowerpot Island, ON that had lived for 1,890 years.







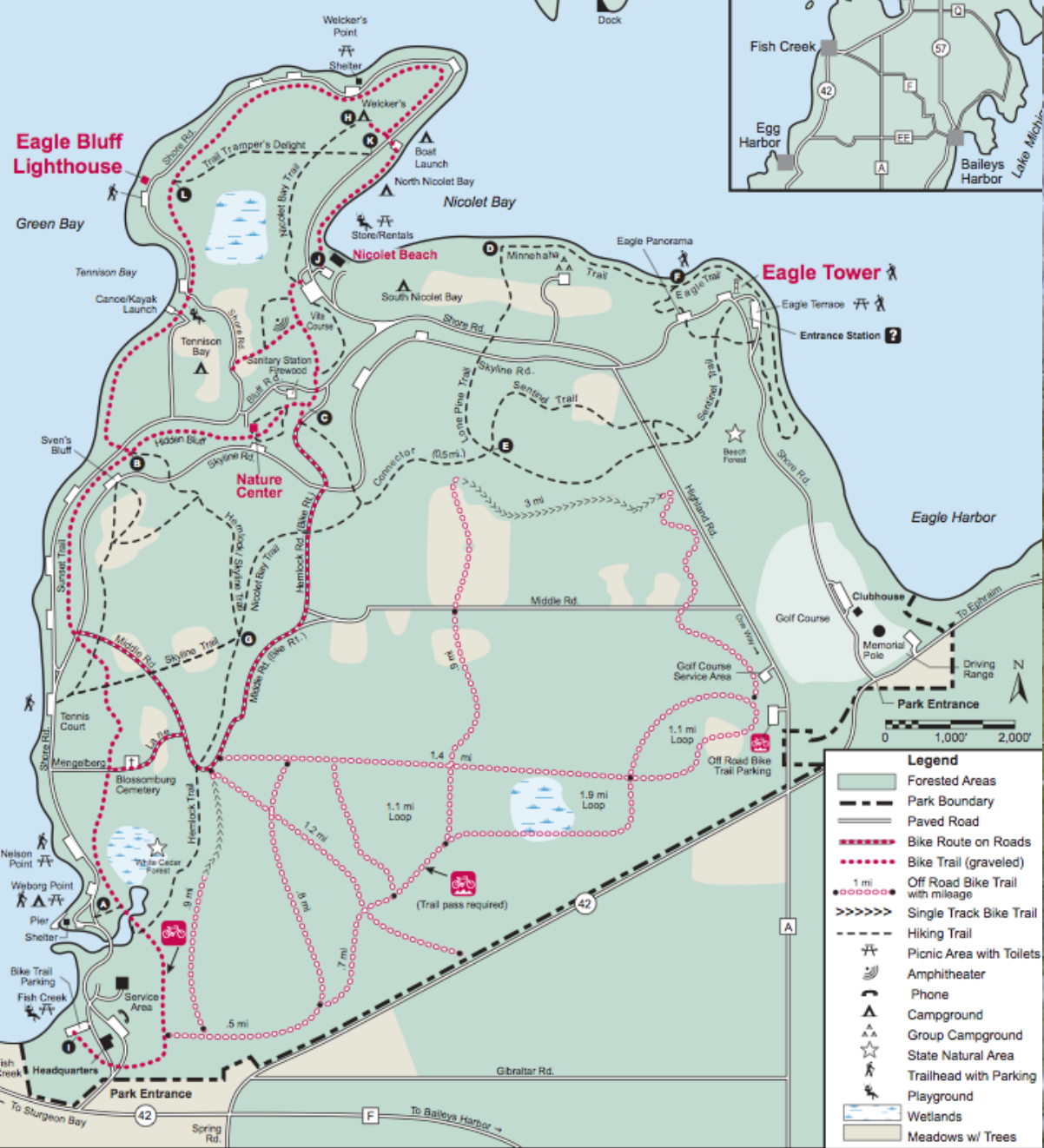
# Door County Public Beaches on Lake Michigan

Michigan Upper Peninsula





# Peninsula State Park



# Peninsula State Park



# White Cedars

Sven's Bluff at  
Peninsula State Park:  
507-year-old

another at Fish Creek  
south of the park:  
616 years old

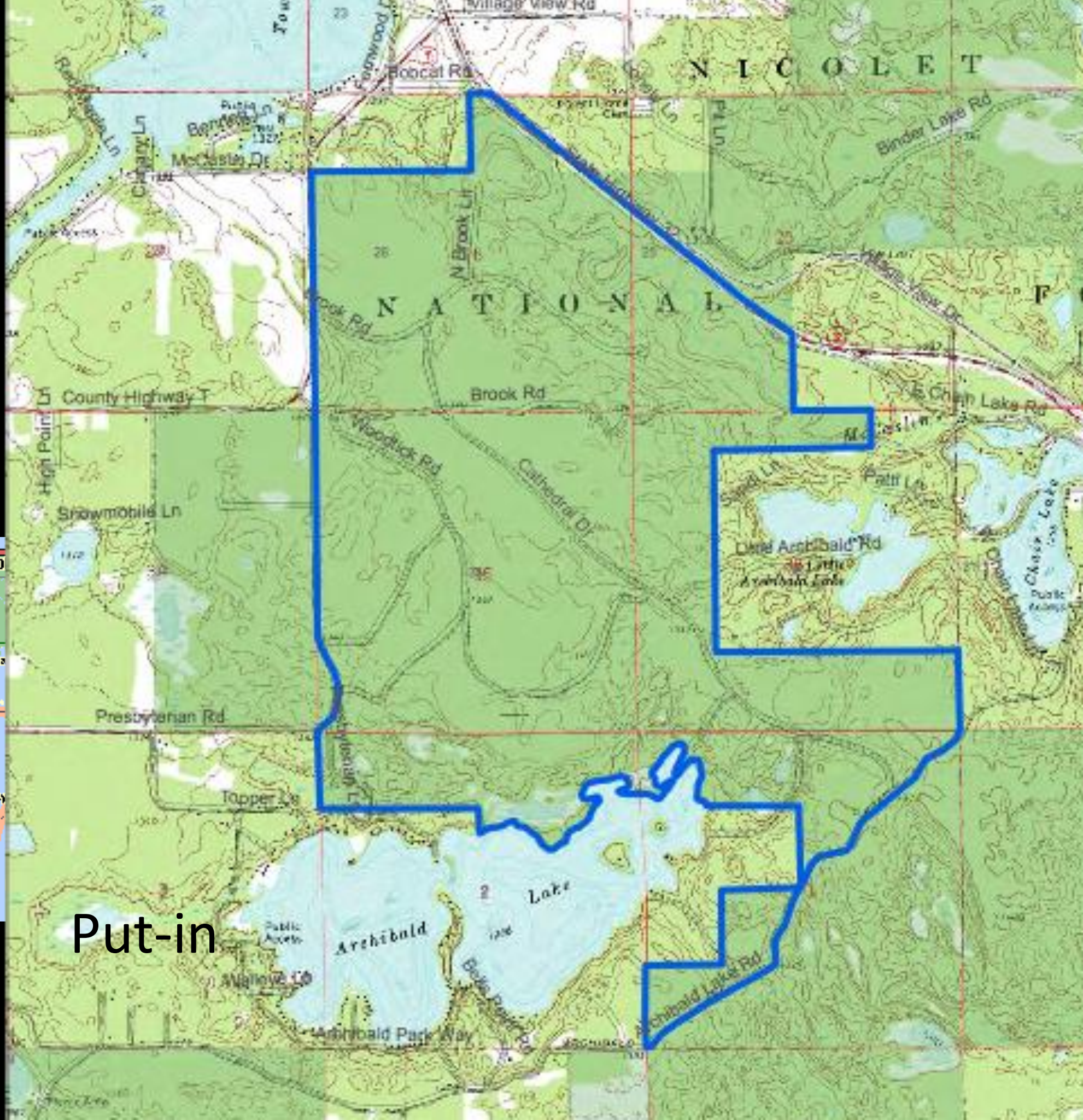
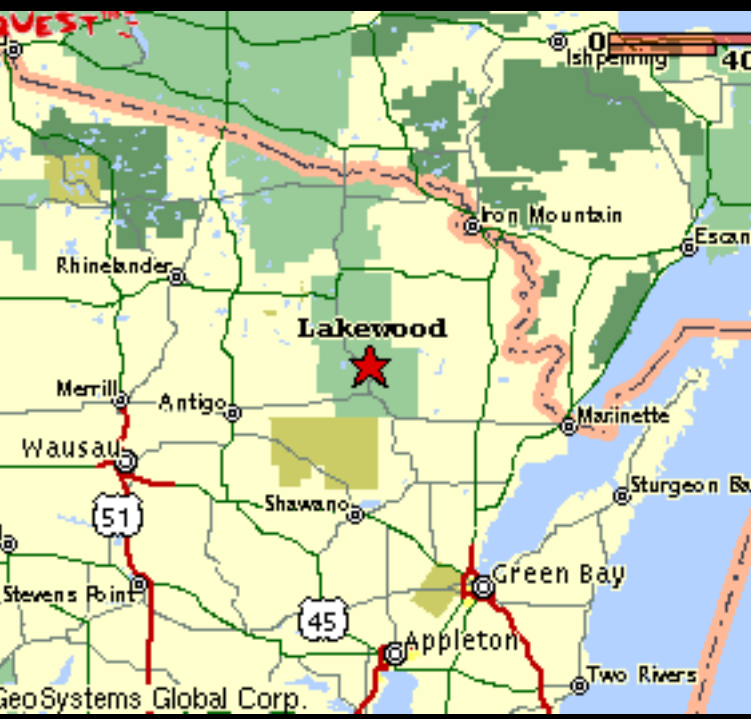




# Biggest Trees?

Cathedral  
Pines  
SNA

1874 acres  
22 acres OG



Put-in



# Biggest White Pines: 48" dbh, 154' tall







Trail to Archibald Lake



# Apostle Islands

1300 acres of relict old-growth left

Lighthouse Reservations on:  
Outer, Raspberry, and Devils









“Unbrowsed vegetative communities in the Apostle Islands represent a unique resource with national and international significance. They provide a living baseline record for understanding the pervasive impacts deer are having . . . [and] a priceless 'living laboratory' for us to understand”

- Don Waller

Canada Yew

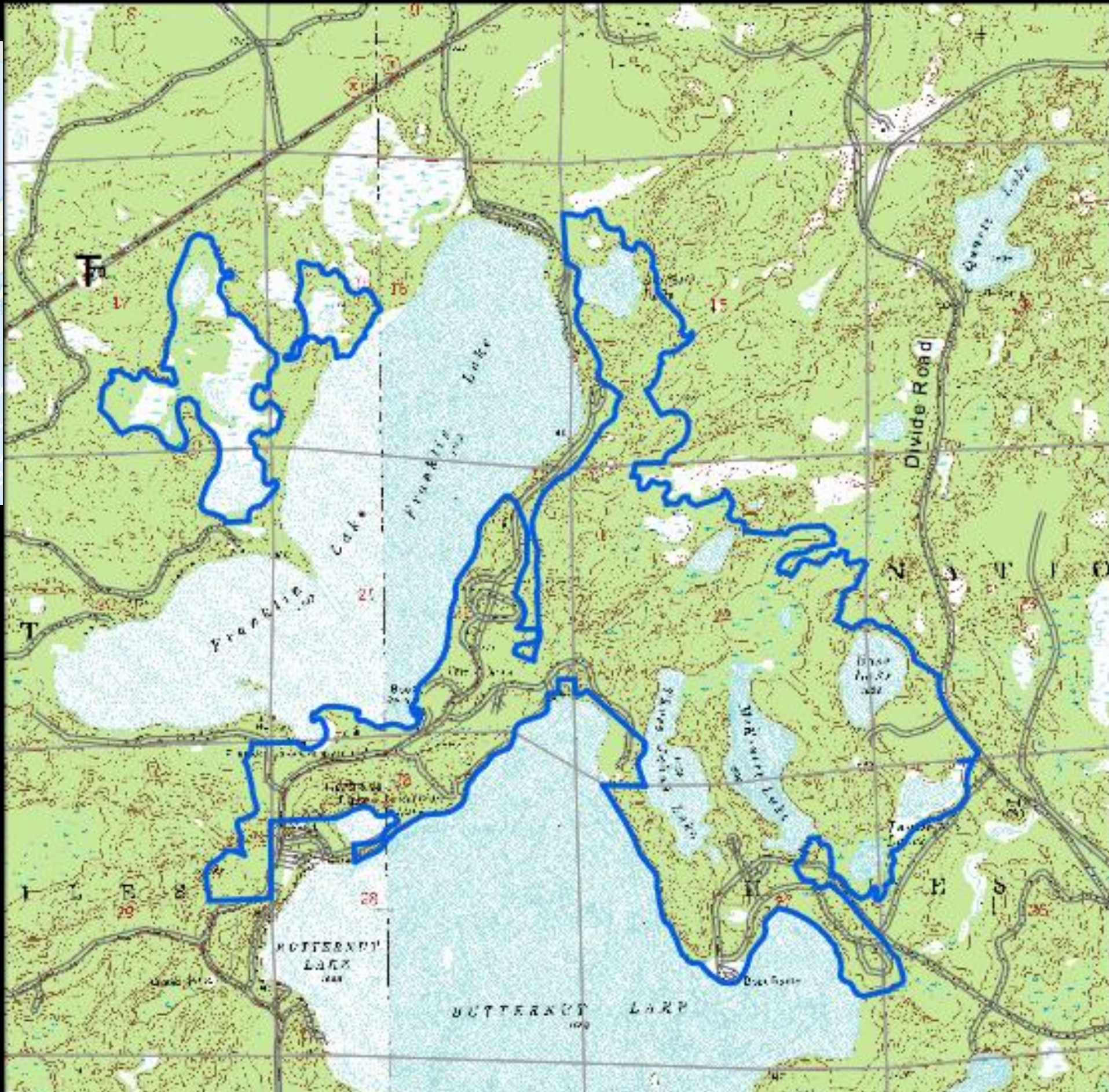




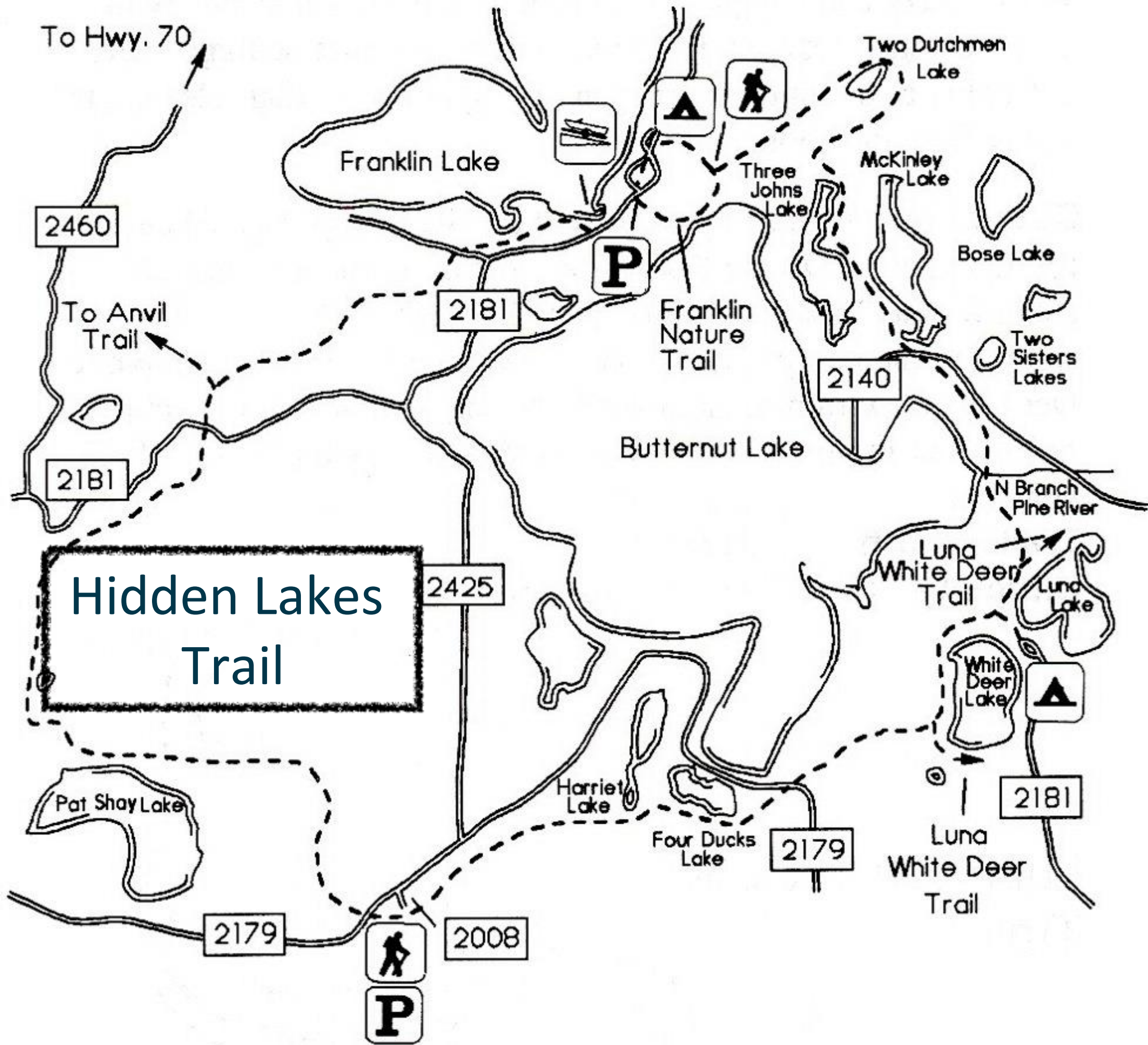




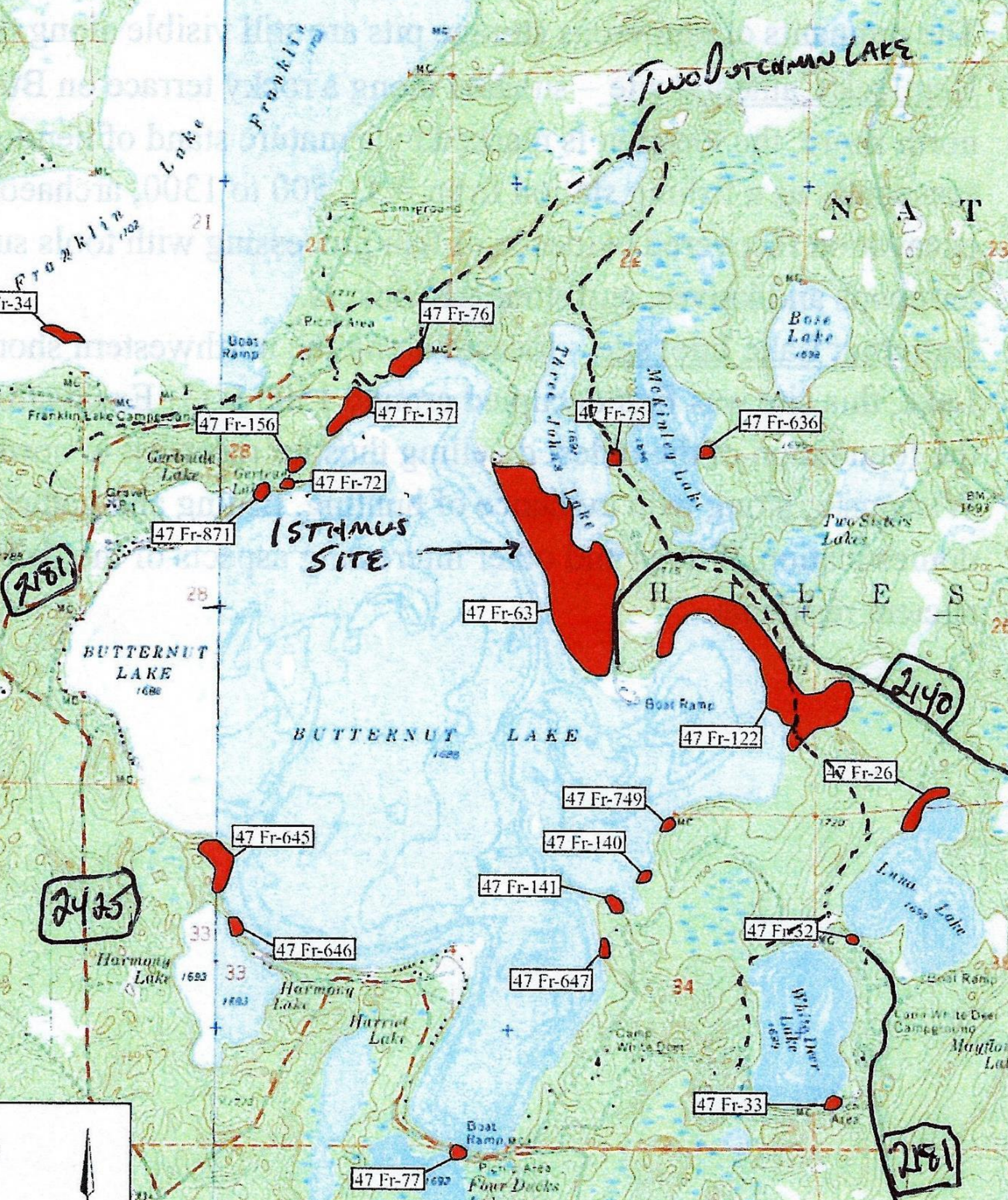
# Franklin and Butternut Lakes SNA 1396 acres











20 archaeological sites

\* Butternut Lake village site – occupied between A.D. 700 and 1600

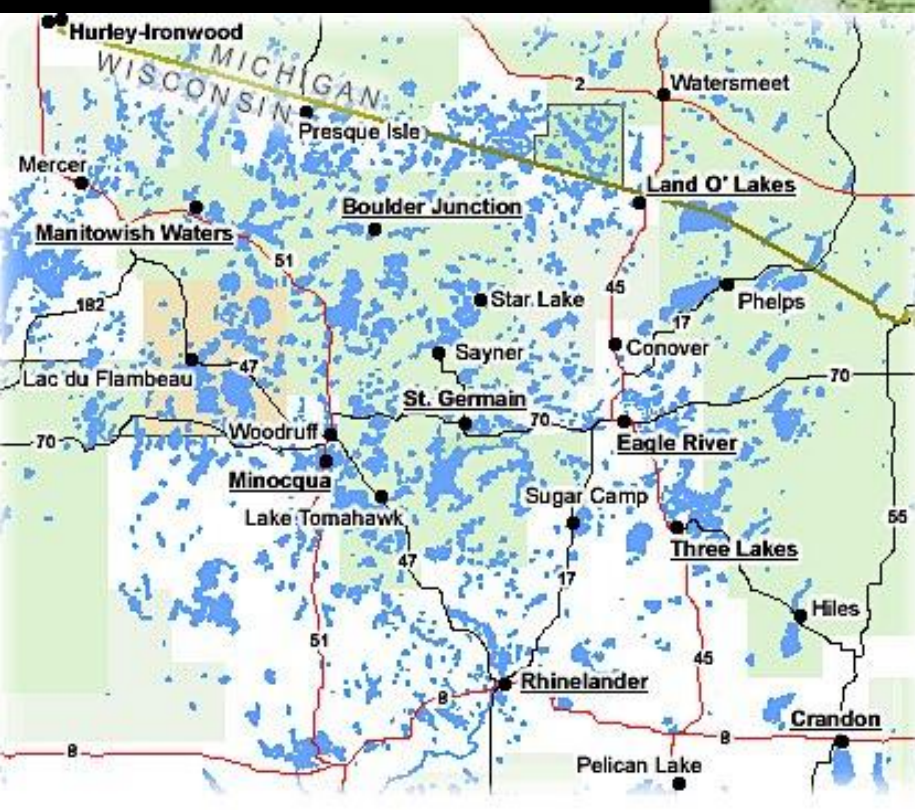
\* Isthmus site – processing/storing food. A.D. 800 to 1200.

\* Hemlock Cathedral site – a fishing station from A.D. 500 to 1300 -

\* Butternut Lake Inlet site – occupied around 1500 B.C. foundation of oldest dwelling thus far recorded in NWI, plus evidence domestication of dogs.








# Plum Lake Hemlock Forest SNA

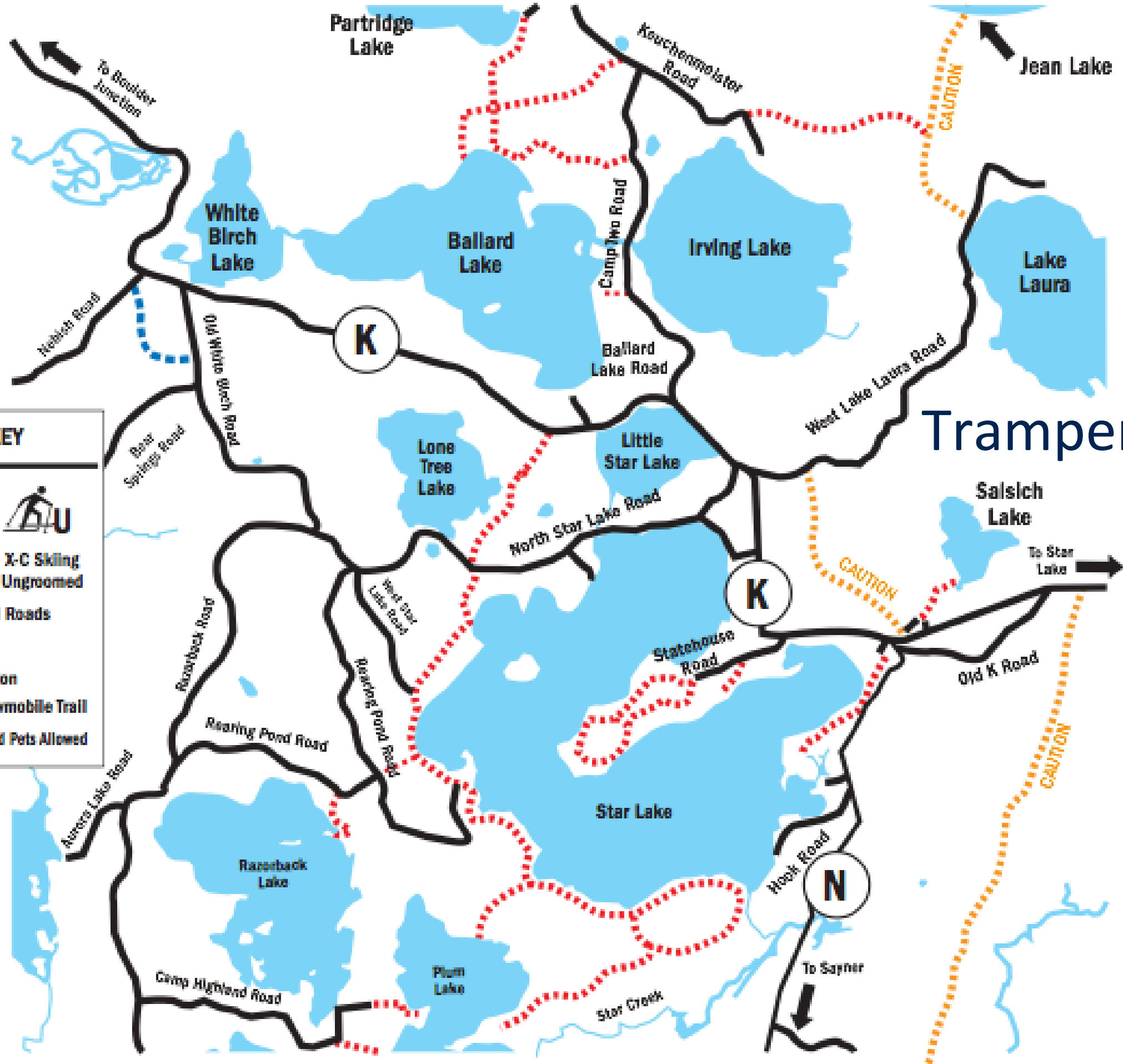




# Tramper Trails

**MAP KEY**

|   |   |
|---|---|
|    |  |
| Hiking  | X-C Skiing<br>Un-groomed  |
|  | Paved Roads   |
|  | Trail   |
|  | Caution   |
|  | Snowmobile Trail  |
|  | Leashed Pets Allowed  |

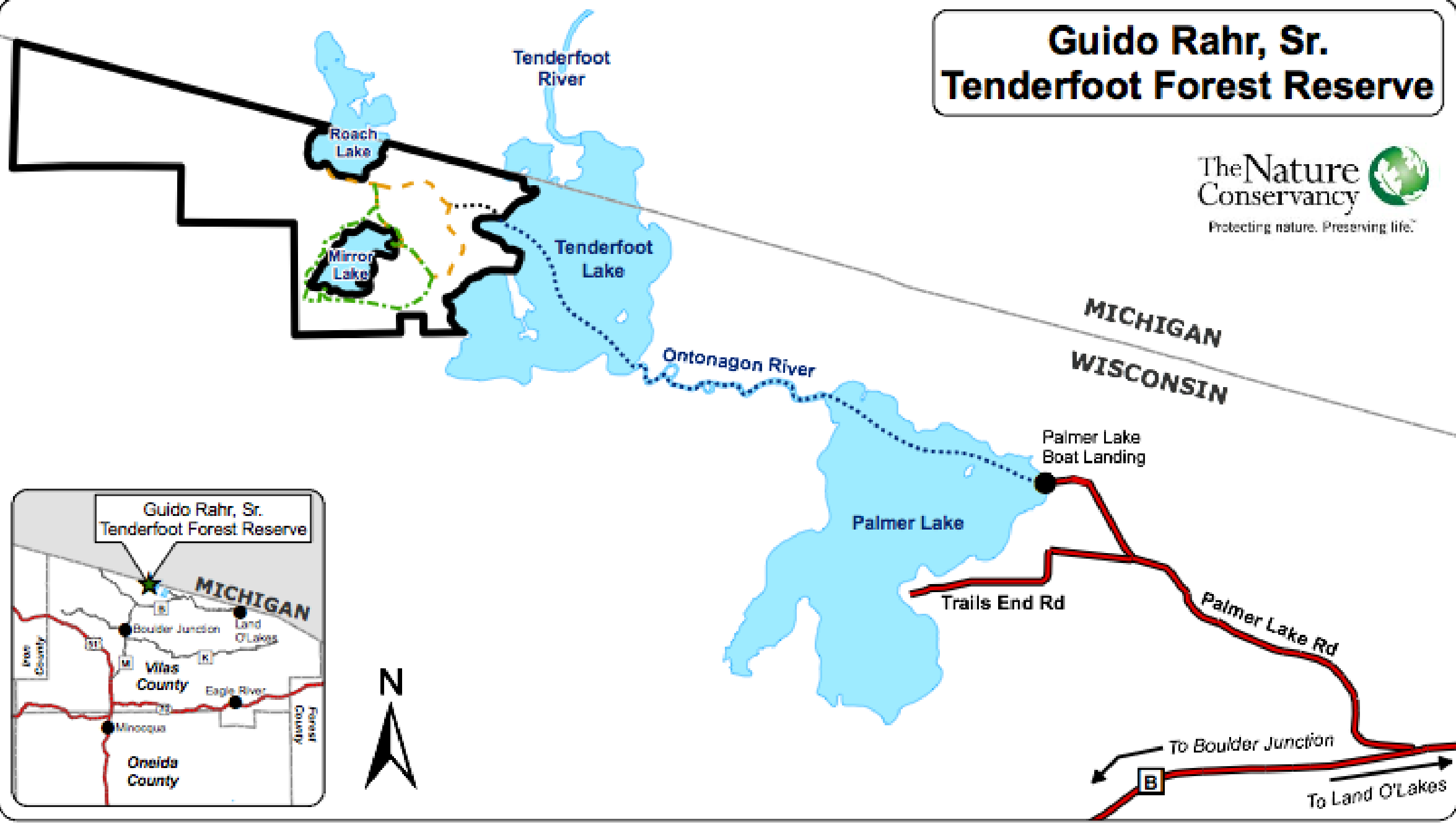








# Guido Rahr, Sr. Tenderfoot Forest Reserve



- Preserve boundary
  - Lake
  - Borden Family Trail - 2 mile loop
  - Mirror Lake Trail - 1.9 mile loop
  - Boat Route
  - Entrance Trail - 0.3 miles
  - Road
  - State Border
- 0 0.25 0.5 1 1.5 2 Miles

Directions: Access to Tenderfoot is by water from the Palmer Lake boat landing.

From Minocqua (approximately 27 miles): Take Hwy 51 north to County Hwy M through Boulder Junction to County Hwy B. Turn right (east) on Hwy B and go approximately 9 miles to Palmer Lake Road. Go 2 miles on Palmer Lake Road to boat launch.

Travel by boat/canoe across north end of Palmer Lake to Ontonagon River. Travel down river to Tenderfoot Lake, around the island, and northwest across the lake to TNC boat landing on opposite shore. Total distance is approximately 3 miles one way; travel time by canoe/kayak is about 1 hour one way.

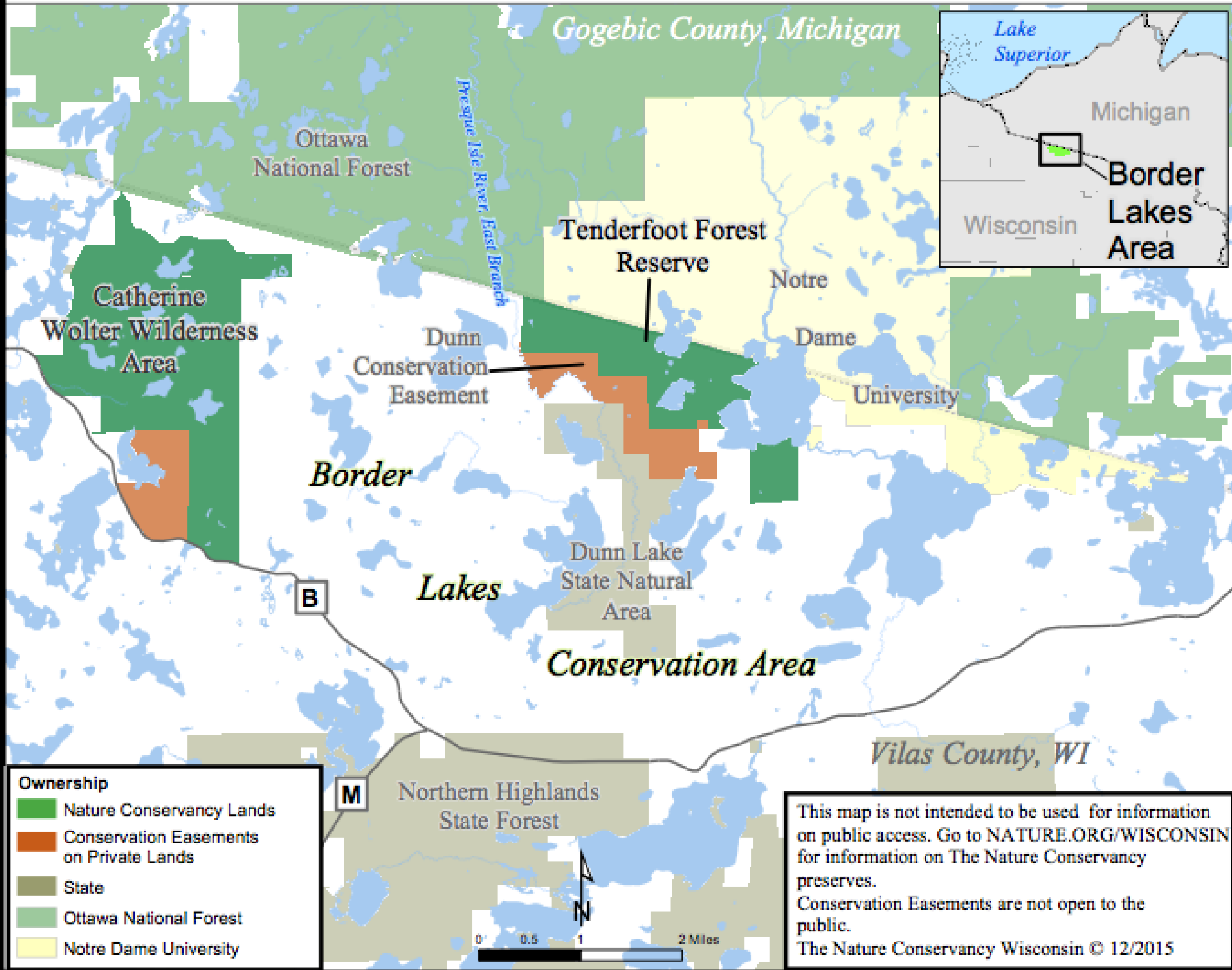
September 15, 2009



September 15, 2009



# The Border Lakes Conservation Area



**Ownership**

- Nature Conservancy Lands
- Conservation Easements on Private Lands
- State
- Ottawa National Forest
- Notre Dame University

This map is not intended to be used for information on public access. Go to [NATURE.ORG/WISCONSIN](http://NATURE.ORG/WISCONSIN) for information on The Nature Conservancy preserves. Conservation Easements are not open to the public. The Nature Conservancy Wisconsin © 12/2015





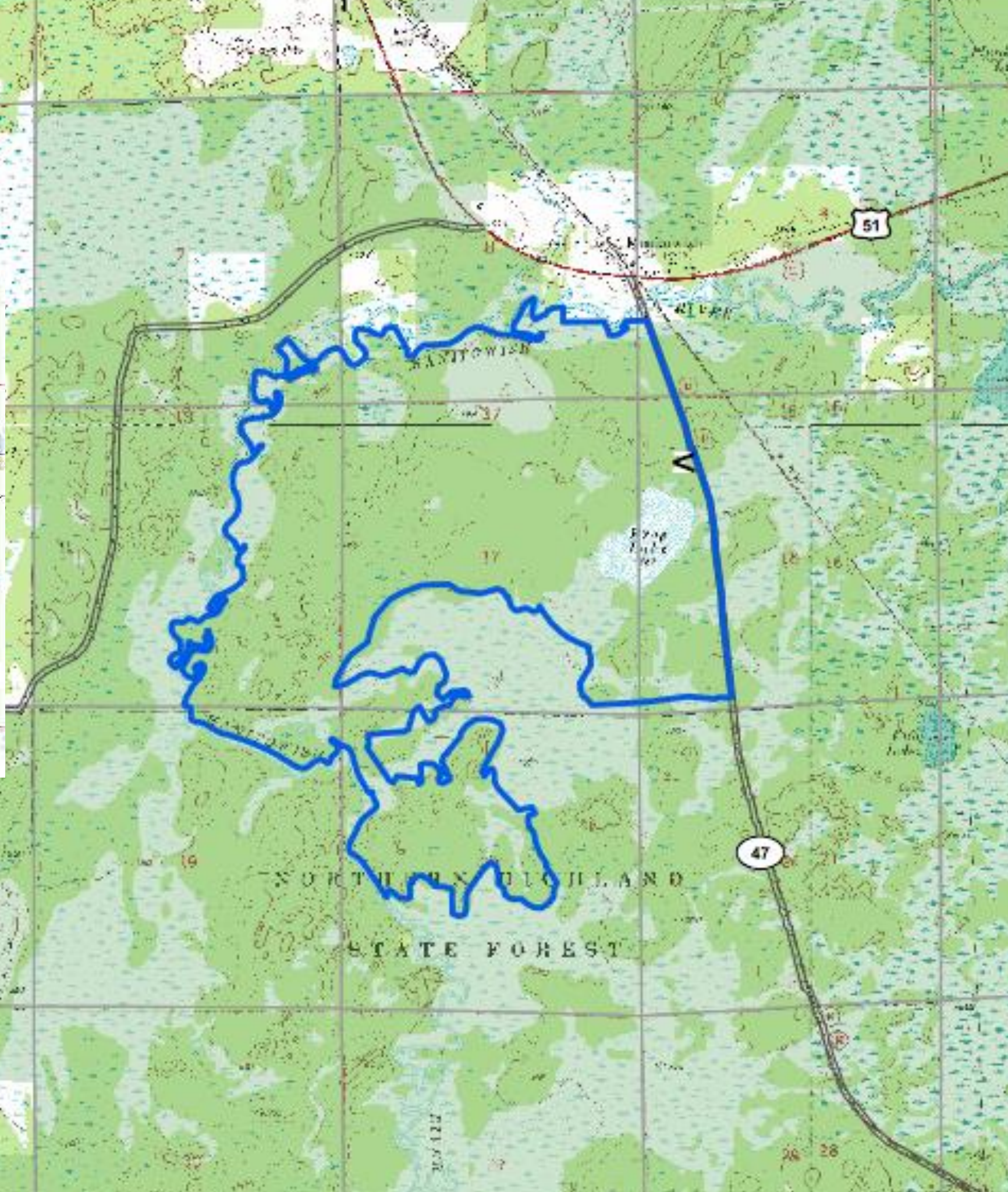
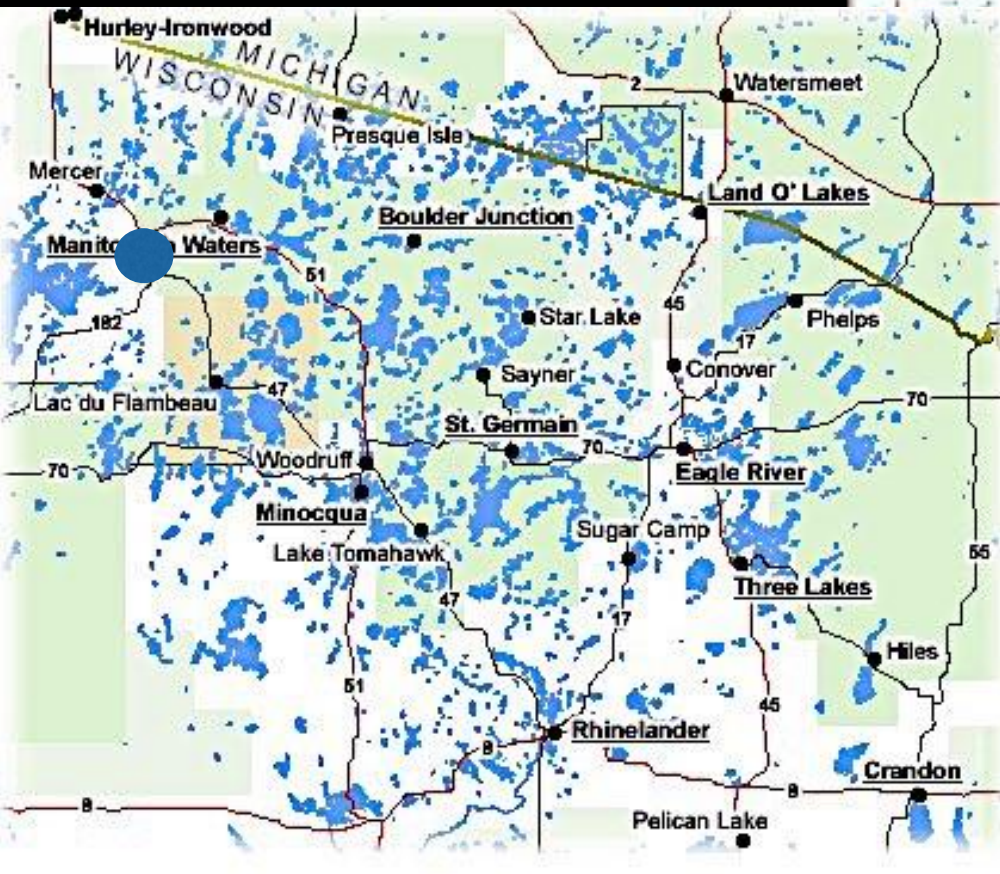






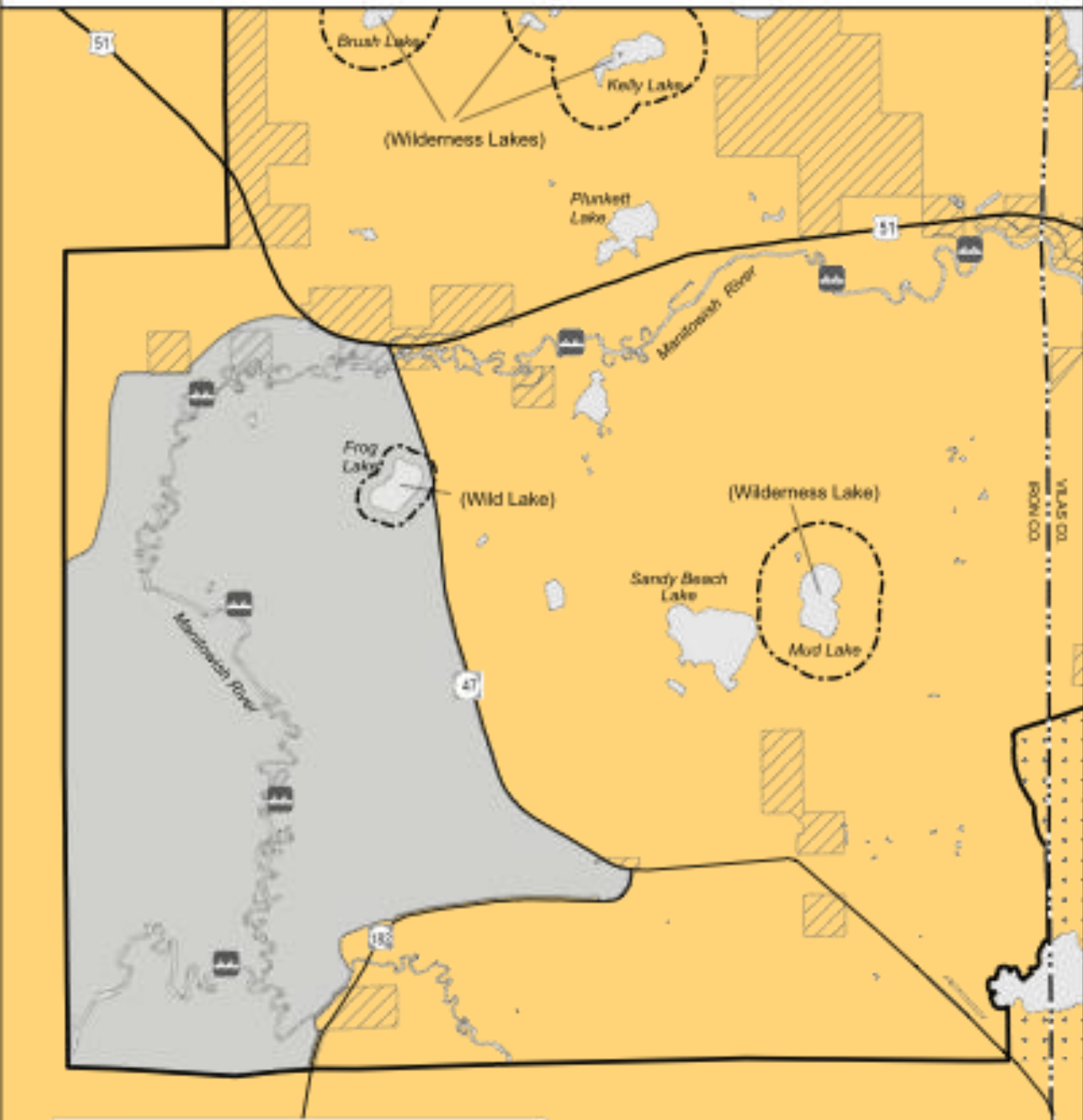
# Frog Lake and Pines SNA

1176 acres





### Map 45. Area 17 - Manitowish River Wilderness



- State Forest Project Boundary
- Area 17 - Manitowish River Wilderness  
*Wild Resource Management - Type 2 Setting*
- Other State Forest Management Areas
- Private Land within State Forest Project Boundary
- Land outside State Forest Project Boundary
- Canoe Campsite
- Open Water



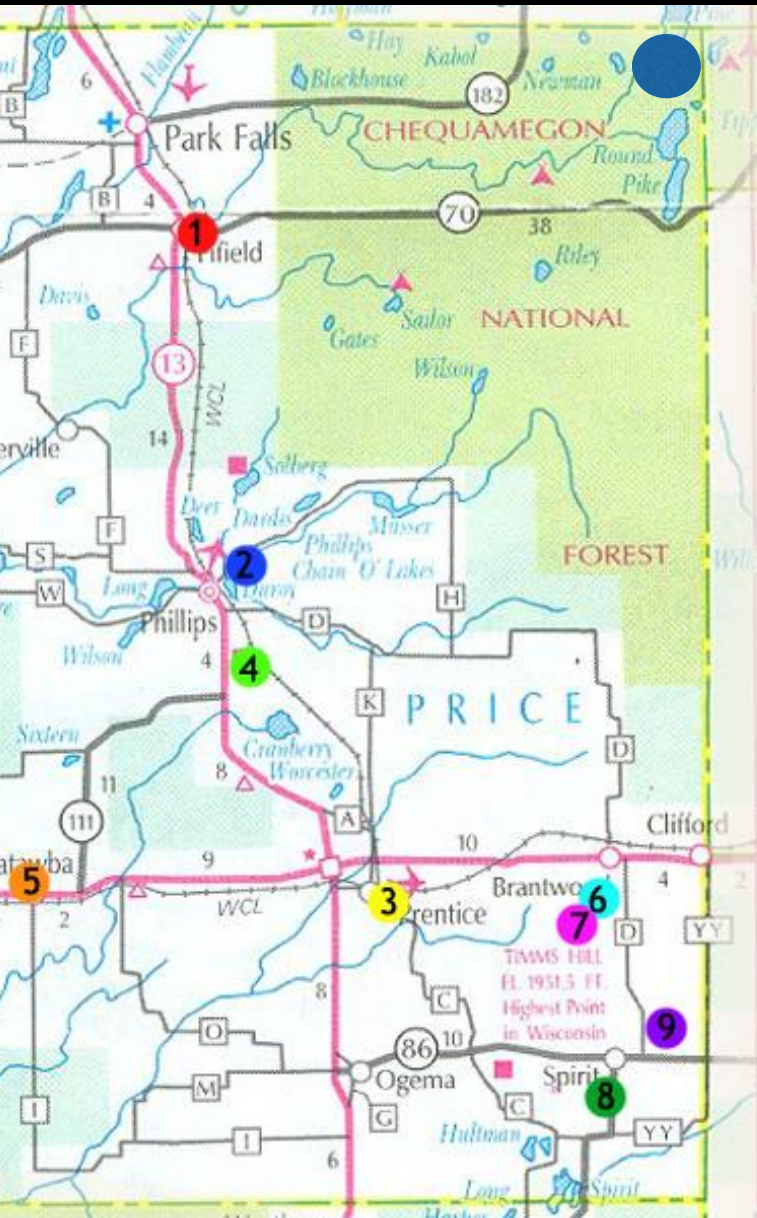








# Tucker Lake Hemlocks SNA







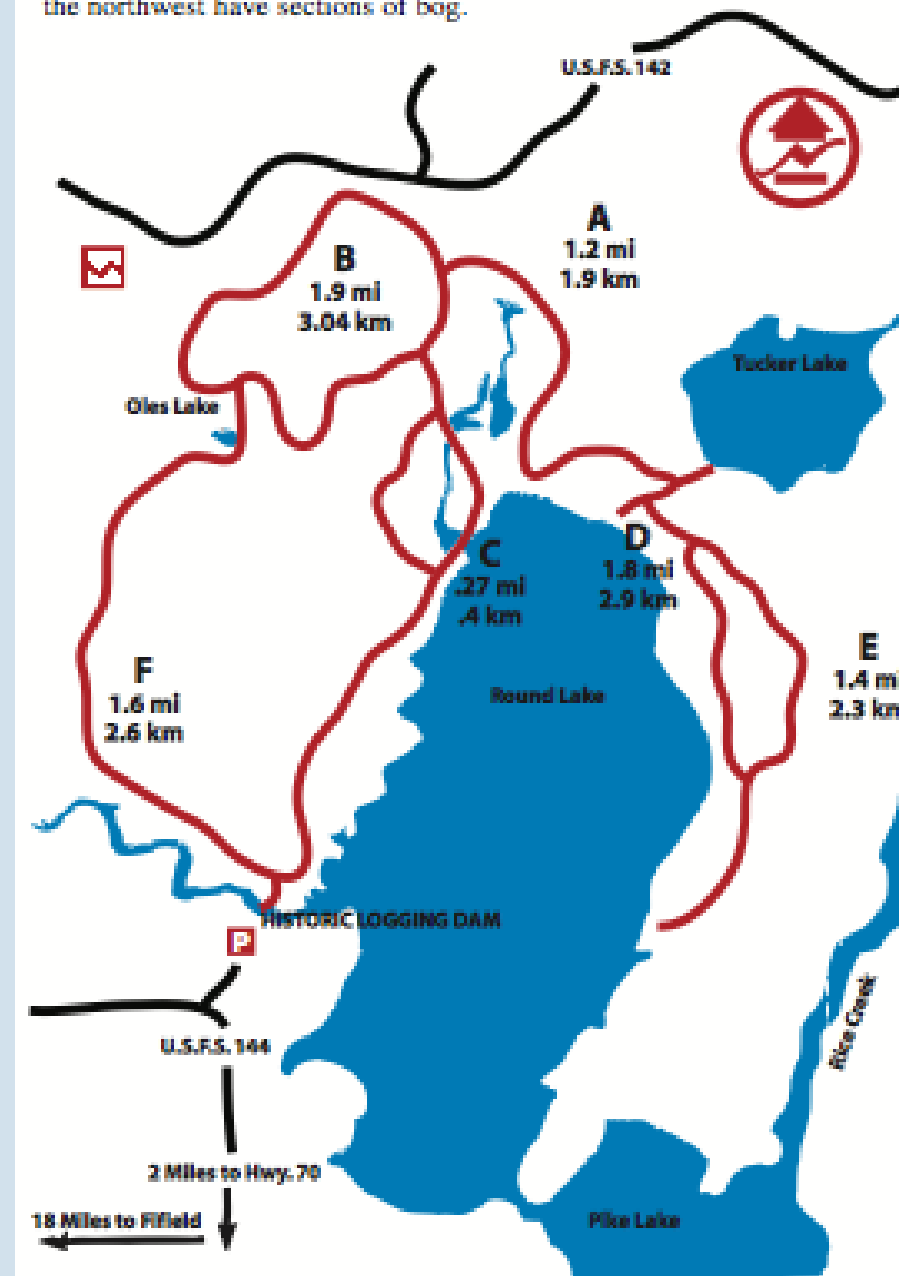
## Round Lake Trail

9.3 MILES – 15 KM

CHEQUAMEGON-NICOLET NATIONAL FOREST

Parking Fee Required

**Trail Description:** Traversing rolling terrain and traveling around the perimeter of Round Lake, this wide set twin track trail provides a truly natural experience. Enjoy the sights and the sounds of the forest while on this hardwood and hemlock-lined forest trail. A historic logging dam and interpretive signs are found near the trailhead. The loops to the northwest have sections of bog.



**Location:** 16 miles east of Fifield on State Hwy. 70, 2 miles north on Forest Road 144 to Round Lake Dam parking area.

**Trail Type:** Loop

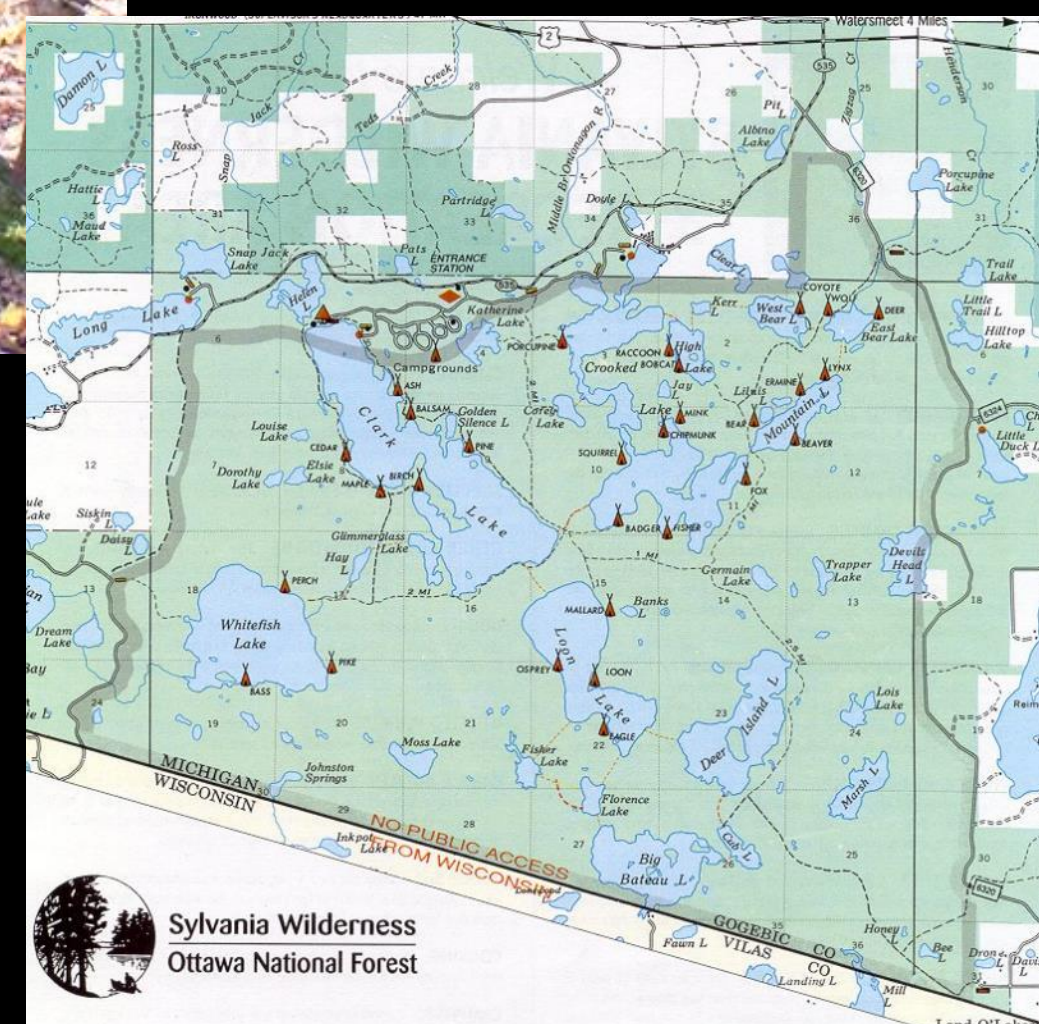
**Skill Level:** Technical Difficulty: Easy to moderate;  
**Aerobic Level:** Moderate.





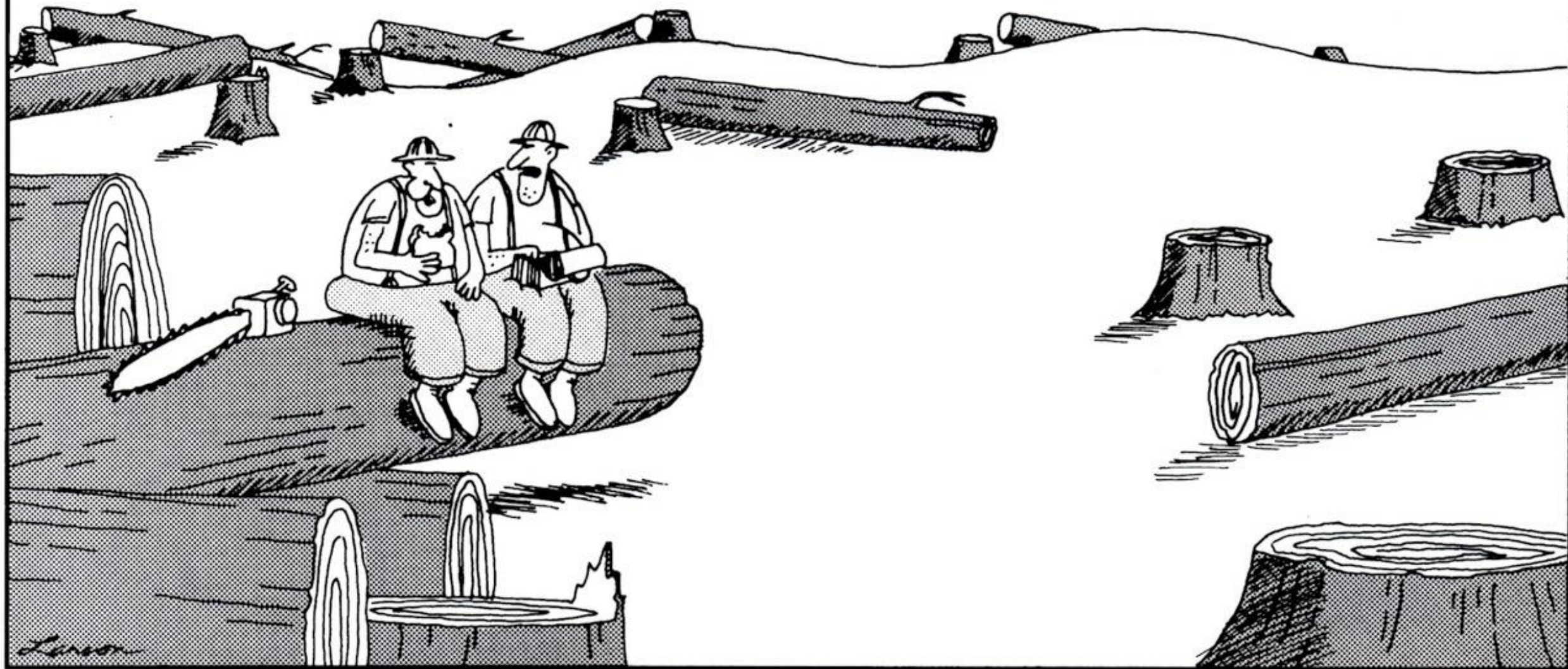
# The Best Combo of Hiking/Paddling?

Sylvania - 15,000  
acres of o.g.



 Sylvania Wilderness  
Ottawa National Forest





“You know what I’m sayin’? Me, for example. I couldn’t work in some stuffy little office.... The outdoors just calls to me.”





*To stand amid the last uncut old-growth groves of giant cedar, white pine, and hemlock—some of the trees nearly a thousand years old—is to be reminded that we are still capable of experiencing the greatest depths of peace and humility.... Love these endangered places with all your heart while they are still here.... A great society's legacy should be the wild places it protects, not the ones it removes. Love them not less, but harder, and more passionately.*

*- Rick Bass*



**7/19 Moose Lake Paddle for North Lakeland Discovery Center (NLDC) and Iron County Outdoor Enthusiasts (ICORE)**

**7/30: Wild Lakes Paddle In Iron County for ICORE**

**8/5: Hidden Lakes Trail Hike: Pat Shay SNA for Nicolet College**

**8/9-11 Old-growth/Wilderness Hiking Weekend at Forest Lodge for Northland College.**

**8/16 Frog Lake SNA Old-growth Hike for Natural Resources Foundation (NRF)**

**8/17: Van Vliet Hemlocks SNA Old-growth Hike for NRF.**

**8/20: Plum Lake Hemlocks SNA Hike for Nicolet College**

**8/21: Island Lake Hemlocks Old-growth Hike for NLDC and ICORE**

**[www.manitowish.com](http://www.manitowish.com)**





# Our Living Ancestors

*The History and Ecology  
of Old-growth Forests in Wisconsin  
and Where to Find Them*

**John Bates**

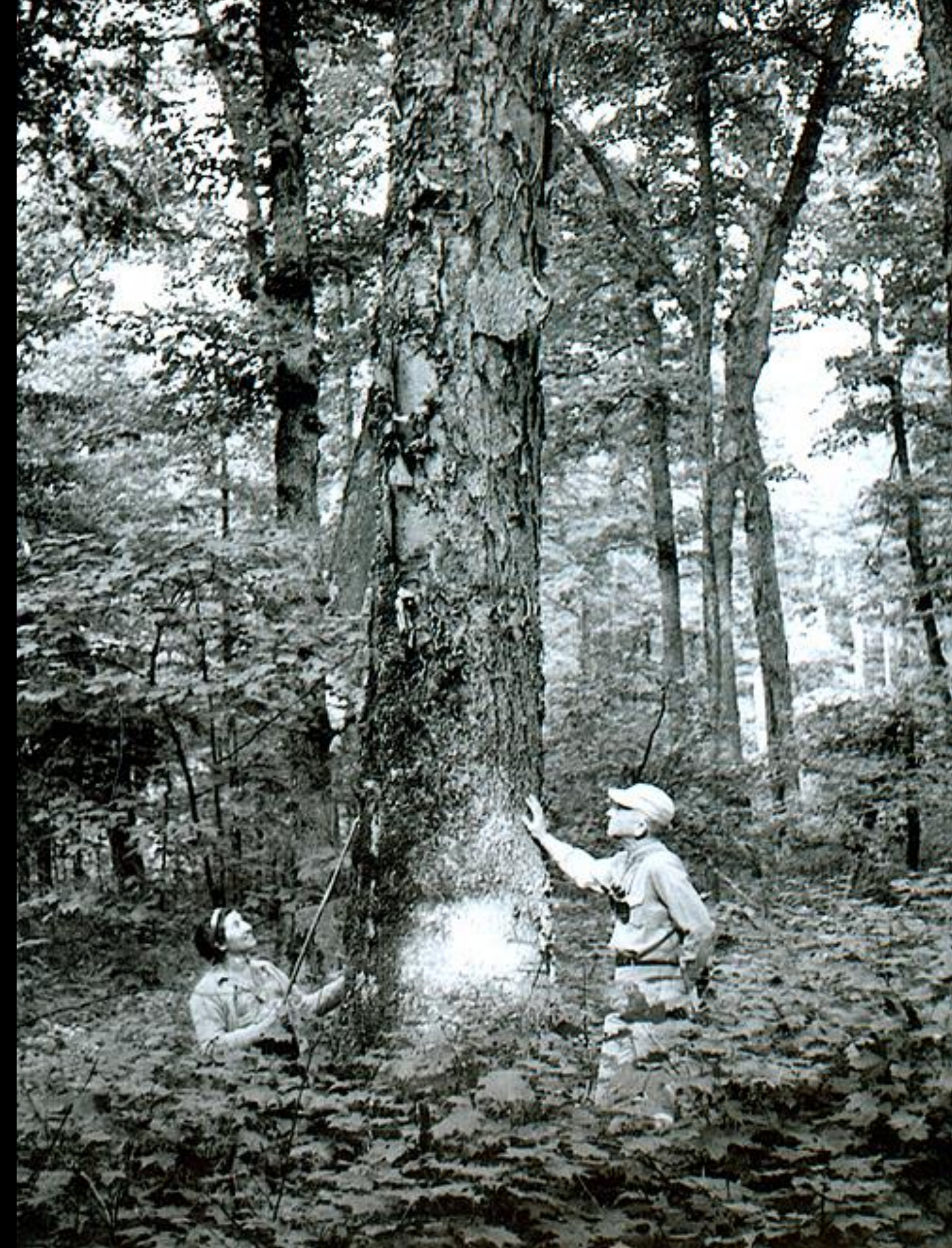
John Bates  
Mercer, WI

[www.manitowish.com](http://www.manitowish.com)  
[manitowish@centurytel.net](mailto:manitowish@centurytel.net)









"Aldo Leopold with daughter, Estella in a stand of old growth woods near Tenderfoot Lake. They visited us up there one summer I remember their knowledge of plants and birds seemed limitless, and their daughter Estella could imitate the call of a great horned owl as well as play the guitar."

1940's photo by Philip Miles



# Apostle Islands Yew Forests SNA

## Cat, Rocky, Raspberry, York Islands

- Raspberry - no deer
- Cat - moderate pop
- Rocky - once high pop. now died out
- York - deer recently established, now trying to eliminate





# NOTHING TOO GOOD FOR BABY



HIS HEALTH AND COMFORT  
ALWAYS COME FIRST

Thousands of mothers, also physicians and  
nurses everywhere strongly recommend the

**"LULLABYE"**  
SELF-SWINGING CRIBS  
For Health and Comfort of Babies.

The "LULLABYE" winds like a clock.

Starts or stops at a touch. A motion based on healthful and scientific principles. No hard rocking, just a quiet gentle glide that soothes your baby to refreshing slumber. Operates fan if desired.

ASK YOUR DEALER or  
write us and get one on Ten  
Days Free Trial at your  
home.

Catalog of Lullabye Cribs,  
Bassinettes and Three-in-One  
Baby Chairs, also Lullabye  
Book of dear old songs Free.



No. 12

AUTOMATIC CRADLE CO. 22 SECOND ST.  
STEVENS POINT, WIS.

# ARE YOU BUSY?



LET THE  
**AUTOMATIC** (SELF SWINGING)  
**CRADLE** TEND THE **BABY**

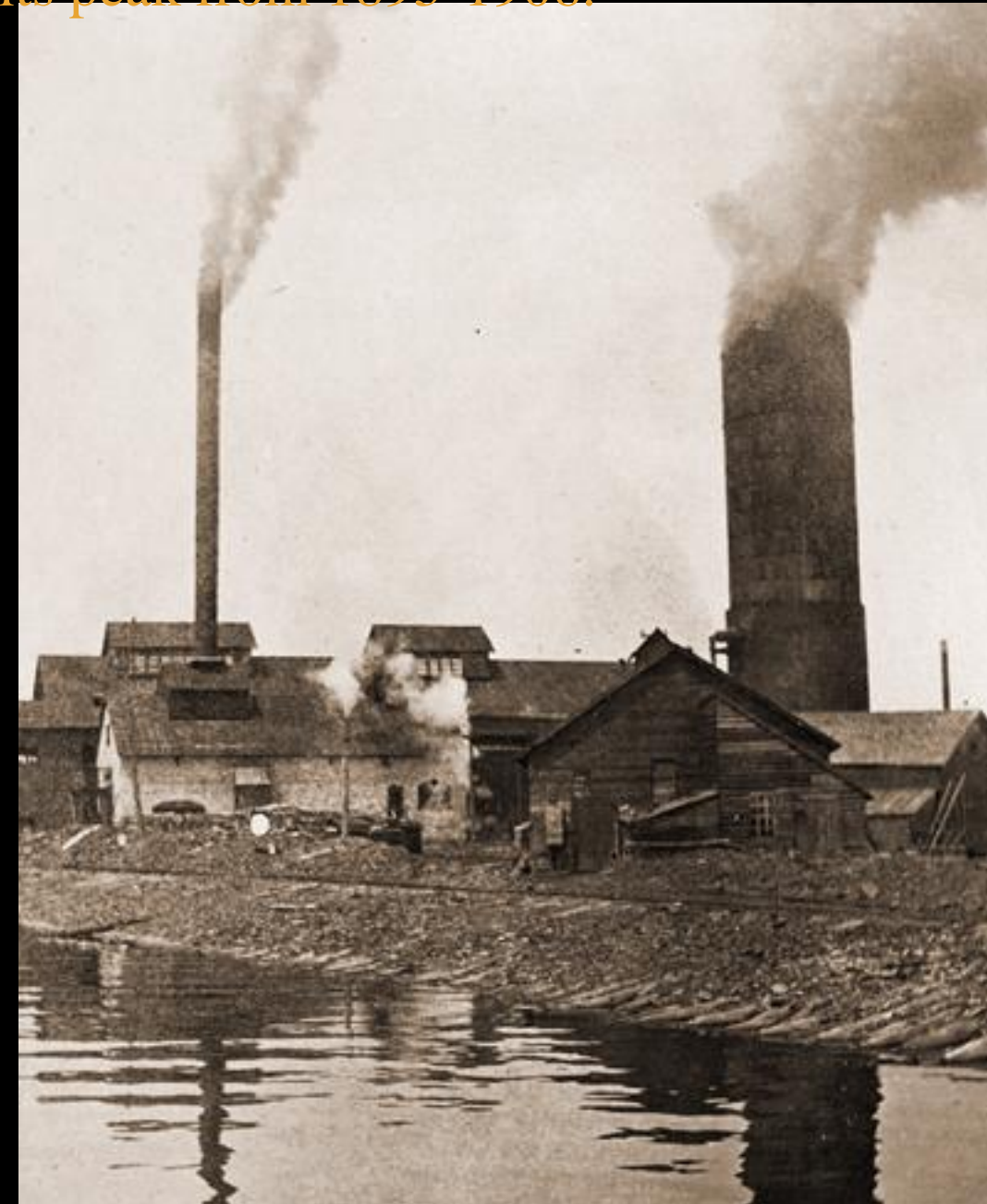
FOR SALE HERE



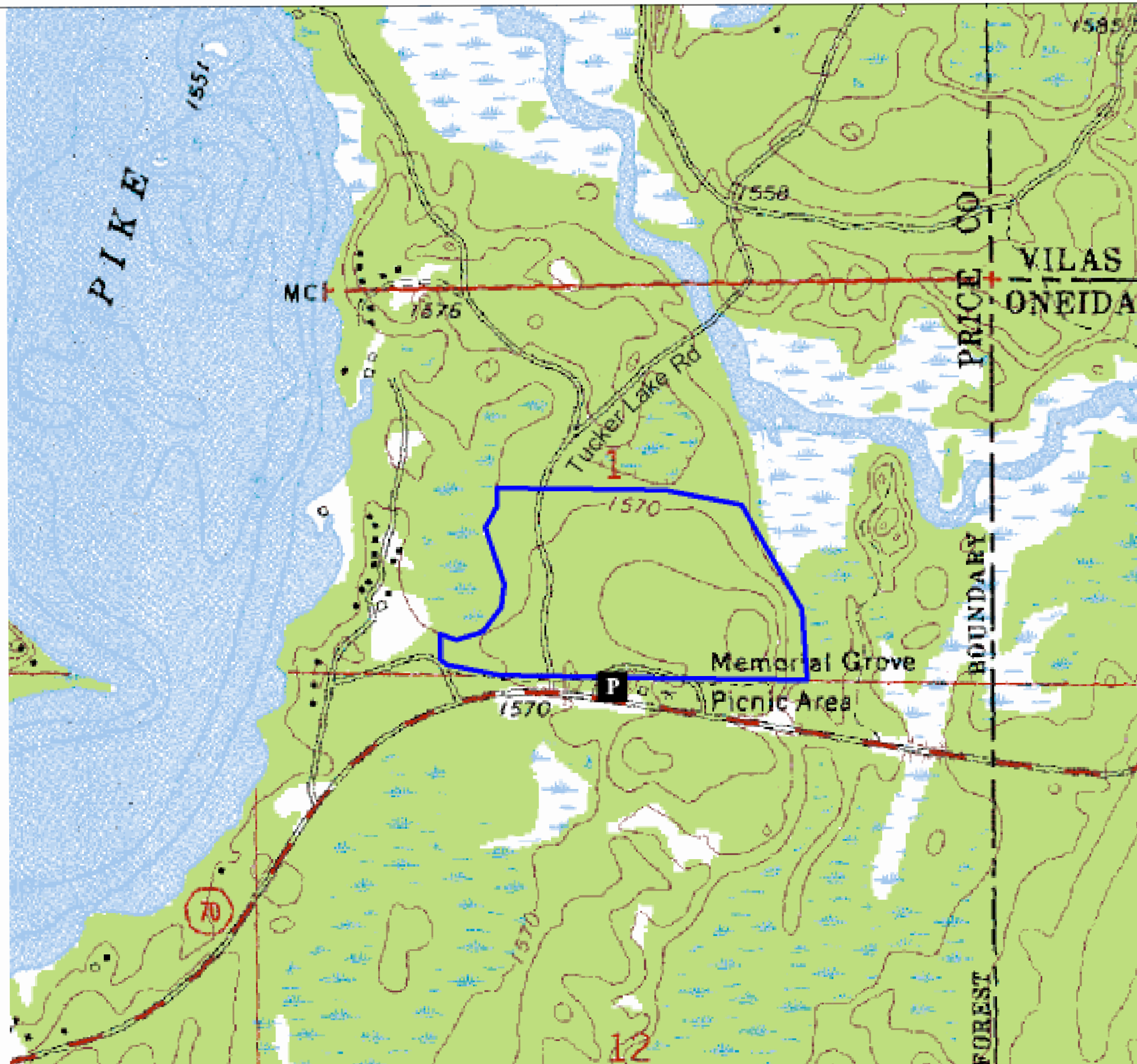
## Star Lake 1900



a sawmill, a planing mill, warehouses, company offices, a hotel, a boarding house, 84 company houses, a general store, a railroad depot, a post office, a three-room school, a town hall, a doctor's office, a butcher shop, and a barbershop. Perhaps 600 or more people lived here at its peak from 1895-1906.







Memorial Grove  
Hemlocks  
State Natural Area

#294  
Price County

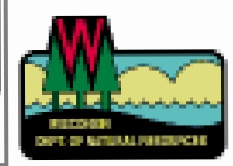
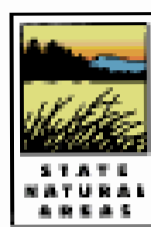


 Natural Area boundary

0  0.2 Miles

1:12000

USGS Map: Pike Lake 7.5'



The data shown on this map have been obtained from various sources, and are of varying age, reliability and resolution. This map is not intended to be used for navigation, nor is this map an authoritative source of information about legal land ownership or public access. Users of this map should confirm the accuracy of land through other means in order to avoid trespassing. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map.

Map Creator: dmh 4/2004  
Bureau of Endangered Resources





You are here: [NRS Home](#) / [Research Programs](#) / [Research Natural Areas](#) / [Established RNAs](#) / [Memorial Grove Hemlocks](#)

## Research Natural Area

### Memorial Grove Hemlocks



**State:** Wisconsin

**County:** Price

**Forest:** Chequamegon

**District:** Park Falls

**Established:** 1989

**Acres:** 64

**Description:** This RNA contains an excellent example of relatively undisturbed, old-growth forest dominated by eastern hemlock (*Tsuga canadensis*) and yellow birch (*Betula alleghaniensis*). The understory composition is typical of an old, hemlock-dominated stand.

#### Ecological Information

##### Physical and Climatic Conditions:

**Nearest weather station, with distance and direction from RNA:** The nearest weather station is in Park Falls, Wisconsin, approximately 22 miles (35.2 km) to the west, northwest of the RNA.

**Annual precipitation (type, seasonal distribution) :** The average annual precipitation is 33.9 inches (84.8 cm). Average snowfall is 70 inches (175 cm).

**Maximum and minimum temperatures :** The mean annual temperature is 40.5 °F. The maximum summer temperature is 106 °F. and winter minimum temperature -45°F.

**Elevation:** The elevation is 1560 feet to 1590 feet (475 m to 485 m).

**Geology and Soils:** The topography is an excellent example of pitted glacial moraine, with numerous kettles. The area is a relatively level to rolling topography segment of a pitted outwash plain and is well drained. The soil is closest to Vilas Loamy Sand Series.

#### Ecological Classification & Inventory

**Section:** Southern Superior Uplands (212J)

**Subsection(s):** Northern Highlands Pitted Outwash (212Jm)

**Plant Communities:** *Quercus prinus*, *Quercus velutina*, *Sassafras albidum*, *Carya* spp.

SAF Cover Types (list acres):  
24 Hemlock-yellow birch (64)

Kuchler Types (list acres):  
98 Northern hardwoods-Spruce Forest (64)

#### Complete Plant List

[View or download \(pdf\)](#)

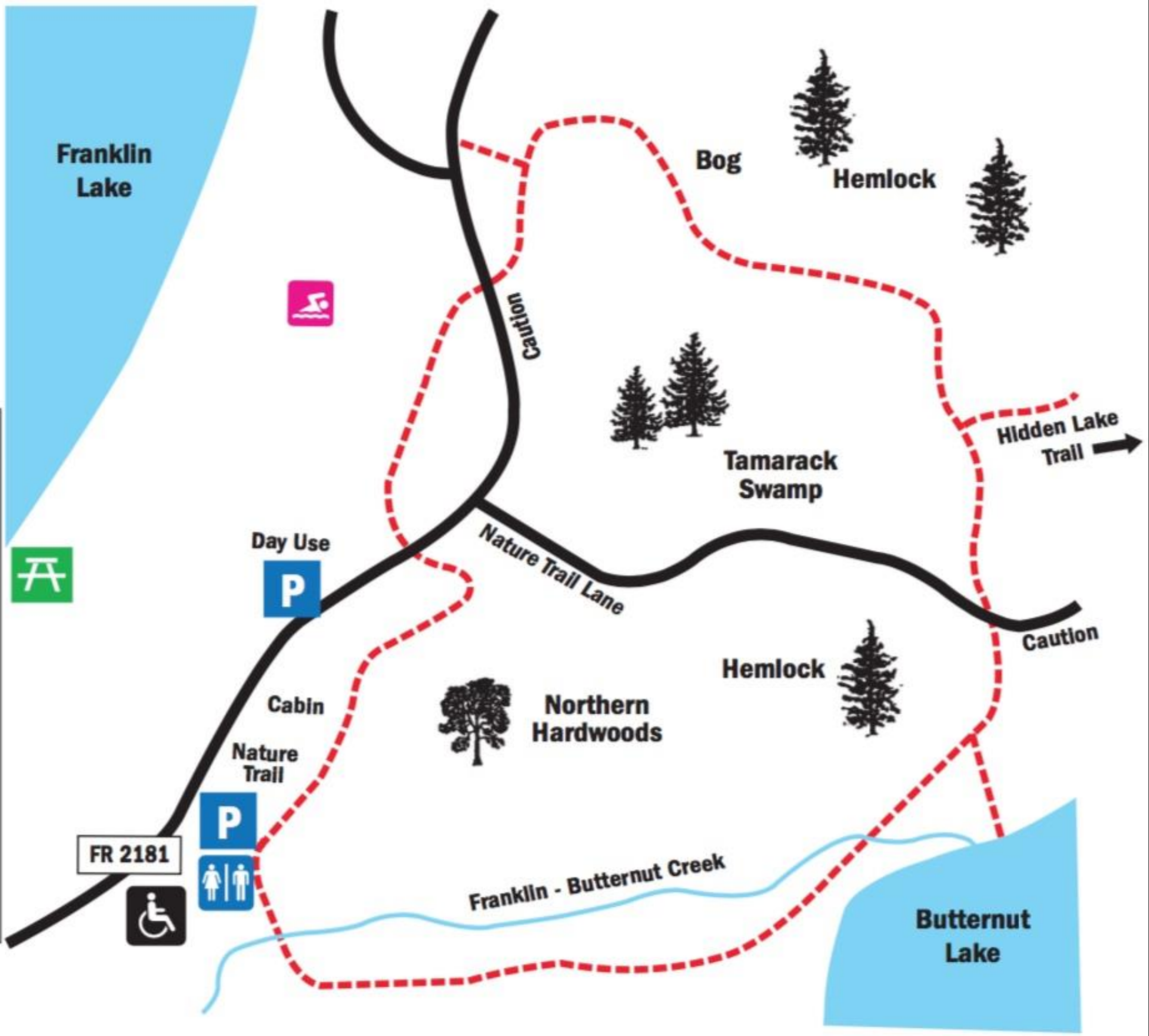




Maidenhair fern

Hemlock  
varnish  
shelf





**MAP KEY**

|  |  |
|--|--|
|  |  |
| Hiking   | Bird Watching  |
|  |  |
| Paved Roads  | Trail  |
|  |  |
| Parking  | Restroom   |
|  |  |
| Picnic Area  | Swimming Beach   |
|  |  |
| Handicap Accessible  | Leashed Pets Allowed*  |



"This book is an ideal resource for anyone who wants to understand Wisconsin's forests. It is extremely well researched, clearly presented, and masterfully written. Bates has turned what could be a dry subject into a lively, living symphony of words."

Joan Maloof, Founder and Director of the Old-Growth Forest Network, and author of *Among the Ancients and Nature's Temples*

"The book is a veritable goldmine of information on the sad destruction of Wisconsin's original woodlands. Attitudes toward old growth, then and now, are explored along with an authoritative account of the biological and genetic diversity at risk when nature's true woodlands are compromised. These accounts are followed by an extensive inventory of today's old-growth remnants. There is simply no better book written on these topics for a wide audience...No serious amateur or professional can be without it."

Robert T. Leverett, co-founder, The Native Tree Society; co-author, *The Sierra Club Guide to Ancient Forests of the Northeast*

"*Our Living Ancestors* is a remarkable blend of the beauty, history and ecology of Wisconsin's 16 million acres of forest. It is a captivating account of what our great forests were once like, and how they got where they are today. This book should be required reading for all who depend upon and care about our amazing forests."

Michael Dombeck, PhD, Chief Emeritus, U.S. Forest Service

"What a wonderful book! The text combines deep insights into natural and human history with graceful writing, illuminating our understanding of Wisconsin's precious old growth forests. Combined with photos, sketches, and useful field information, this will be the perfect guide for those who love our forests. I can't wait to get out into the woods with my copy."

Nancy Langston, American environmental historian and author of *Sustaining Lake Superior and Forest Dreams, Forest Nightmares: The Paradox of Old Growth in the Inland West*

"John Bates' passion for old-growth forests comes through on every page of his wonderful book. Bates has spent years visiting the best old-growth forests that survived...and he guides us to the best 50 sites with good maps and descriptions of what we'll see and interesting stories of how these areas were preserved."

Dan Wisniewski, former Secretary of the Wisconsin Public Lands Commission

"John Bates has written an important book on Wisconsin's old-growth forests that not only presents material that covers new ground, but makes the often-missing connections between past ecological and socio-economic events, and conditions in our current forests. The publication is well-illustrated with photographs (current and historical), maps, tables, and charts, and the text is peppered with great quotes from authors who have thought about and are familiar with our complex relationship with the natural world."

Eric Epstein, ecologist

"This book captures the essence of woodlands and documents the remaining forested living museums left in the state. A must read for the natural history enthusiast and professional land manager alike."

Matt Dallman, Director of Conservation, The Nature Conservancy, Wisconsin

Cover photograph:  
Jeff Rennie



Our Living Ancestors

John Bates

Mankowish River Press

# Our Living Ancestors

*The History and Ecology  
of Old-growth Forests in Wisconsin  
and Where to Find Them*

John Bates



*We only grieve for what we know.* - Aldo Leopold

Values of Old-growth?

Scientific benchmarks

Ecological - plant/animal/community diversity

Genetic repository - fittest trees!

Ecosystem services

Recreation/Aesthetic/Spiritual

Economic - big tree silviculture

Innate - God's/evolution's creation



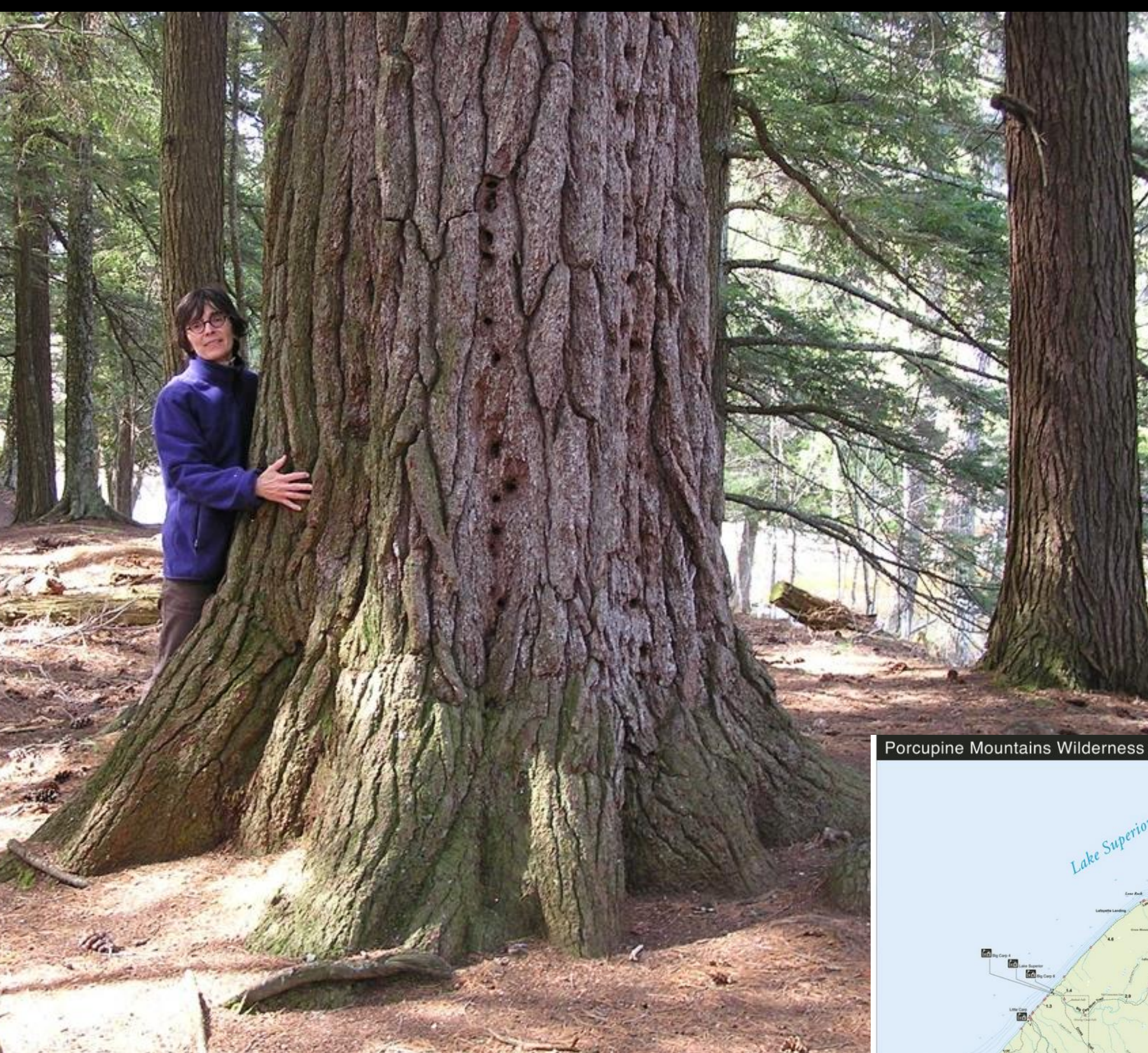
# Franklin Lake SNA











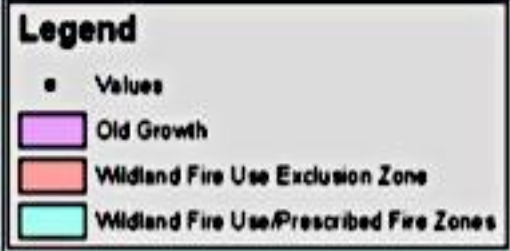
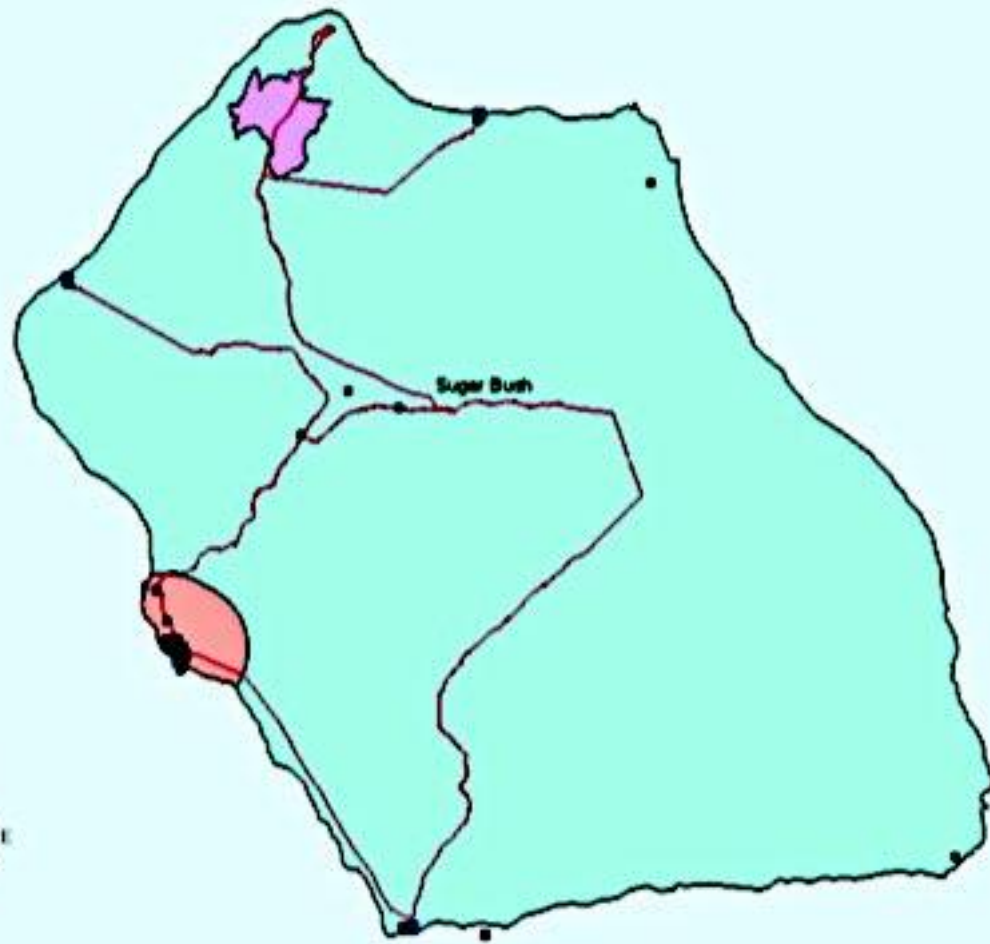
Best Sites  
In Michigan?  
Porcupine  
Mountains  
Wilderness  
State Park  
35,000 acres

Porcupine Mountains Wilderness State Park

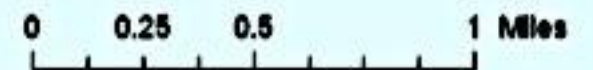
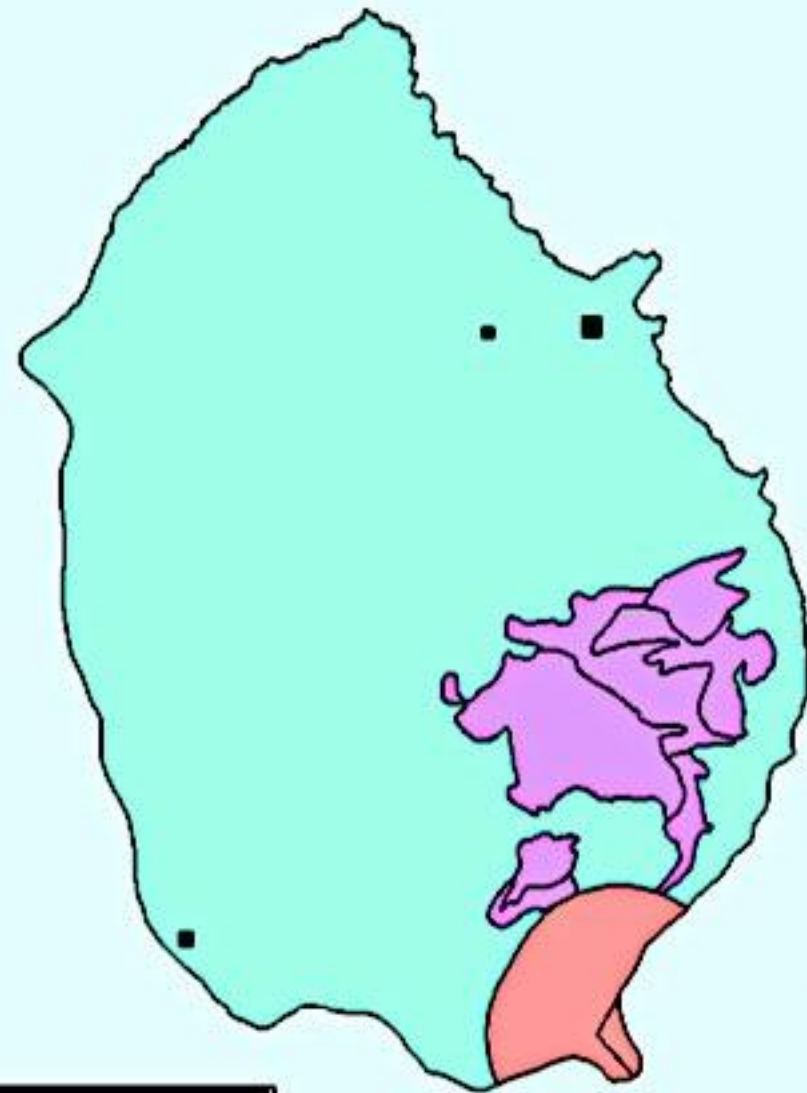




Apostle Islands National Lakeshore  
Oak Island  
Fire Management Zones and  
Values Requiring Protection from Fire



Apostle Islands National Lakeshore  
Bear Island  
Fire Management Zones and  
Values Requiring Protection from Fire





# Porcupine Mountains Wilderness State Park



As a self-supporting system, Michigan Department of Natural Resources and Environment (DNRE), Recreation Management relies primarily on user fees and donations from supporters to provide park's resources and to maintain recreation and learning opportunities.

Michigan Department of Natural Resources and Environment  
Recreation Division

- RANGER STATION
- MODERN CAMPGROUND
- RUSTIC CAMPGROUND
- RUSTIC CABIN
- SCENIC AREA
- TOILETS
- BOAT LAUNCH
- PUBLIC TELEPHONE

**ATTENTION ALL TRAIL USER**

**Wilderness**  
You are entering wilderness and are responsible for your own safety

**Bears**  
Black bear are unpredictable and can be dangerous







Age (years)

| Cover Type | Old Growth Begins | Cover Type Deteriorates | Individual Tree Longevity |
|------------|-------------------|-------------------------|---------------------------|
|------------|-------------------|-------------------------|---------------------------|

|       |    |    |     |
|-------|----|----|-----|
| Aspen | 60 | 80 | 150 |
|-------|----|----|-----|

|                  |     |     |     |
|------------------|-----|-----|-----|
| Northern red oak | 100 | 160 | 250 |
|------------------|-----|-----|-----|

|                |     |     |     |
|----------------|-----|-----|-----|
| White/red pine | 130 | 200 | 400 |
|----------------|-----|-----|-----|

|                   |     |   |     |
|-------------------|-----|---|-----|
| Northern hardwood | 150 | — | 350 |
|-------------------|-----|---|-----|

|                      |     |   |     |
|----------------------|-----|---|-----|
| Hemlock-yellow birch | 150 | — | 500 |
|----------------------|-----|---|-----|



# Lake States Inventory

(c)81 million acres of closed-canopy forest:  
58.6 million acres comprised of 3 forest types  
(rest primarily swamp and river bottom forests)

|                       |                           |
|-----------------------|---------------------------|
| Near Boreal:          | 11.1 million acres or 14% |
| N. Hemlock Hardwoods: | 37.7 million acres or 47% |
| White/Red Pine:       | 9.8 million acres or 12%  |





Can take  
200 years  
for a large  
hemlock to  
decompose.







Tip-up mound  
cradle/knoll topography  
a biological topography





# Charred Stump





# Nurse Logs





Disease

Heart-  
rot





Losers:

Blackburnian warbler -  
hemlocks



Pine warbler -  
pines





Great-crested  
flycatcher



Eastern kingbird





Brown creeper nests  
behind loose bark







Saw-whet owl



Barred owl











Hemlock



Fairyland SNA  
Lake Namekagon





Use smaller dead birch





Den in  
yellow  
birch



# American marten





# Porcupines





Dead and dying trees provide nest and perch sites

