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Our Communities.
Our Future.

Chicago
Wilderness



Oak Ecosystem Recovery in the Fox River Watershed & Beyond

6th Annual Fox River Summit
March 23, 2018

A detailed photograph of a caterpillar, likely a species of Tortricid, resting on a green leaf. The caterpillar has a segmented body with a black and white striped pattern. It features a prominent yellow band with black markings along its side. The head and tail are bright orange. The caterpillar is positioned horizontally, facing left, with its legs visible on the leaf surface.

A close-up photograph of a single, large chanterelle mushroom. The mushroom has a thick, pale yellow stem and a bright yellow-orange, ruffled cap. It is growing from a forest floor covered in brown, fallen leaves and twigs. The background is a soft-focus green forest.

Nearly 100 bird species nest in oak ecosystems

A Red-headed Woodpecker is perched on a tree branch. It has a bright red head and neck, a white body, and a black back. The bird is facing right. In the bottom right corner, there is a small inset image showing a close-up of a blue bird's head.

In 2007, McHenry County Conservation District completed a county-wide inventory of remnant oak ecosystems

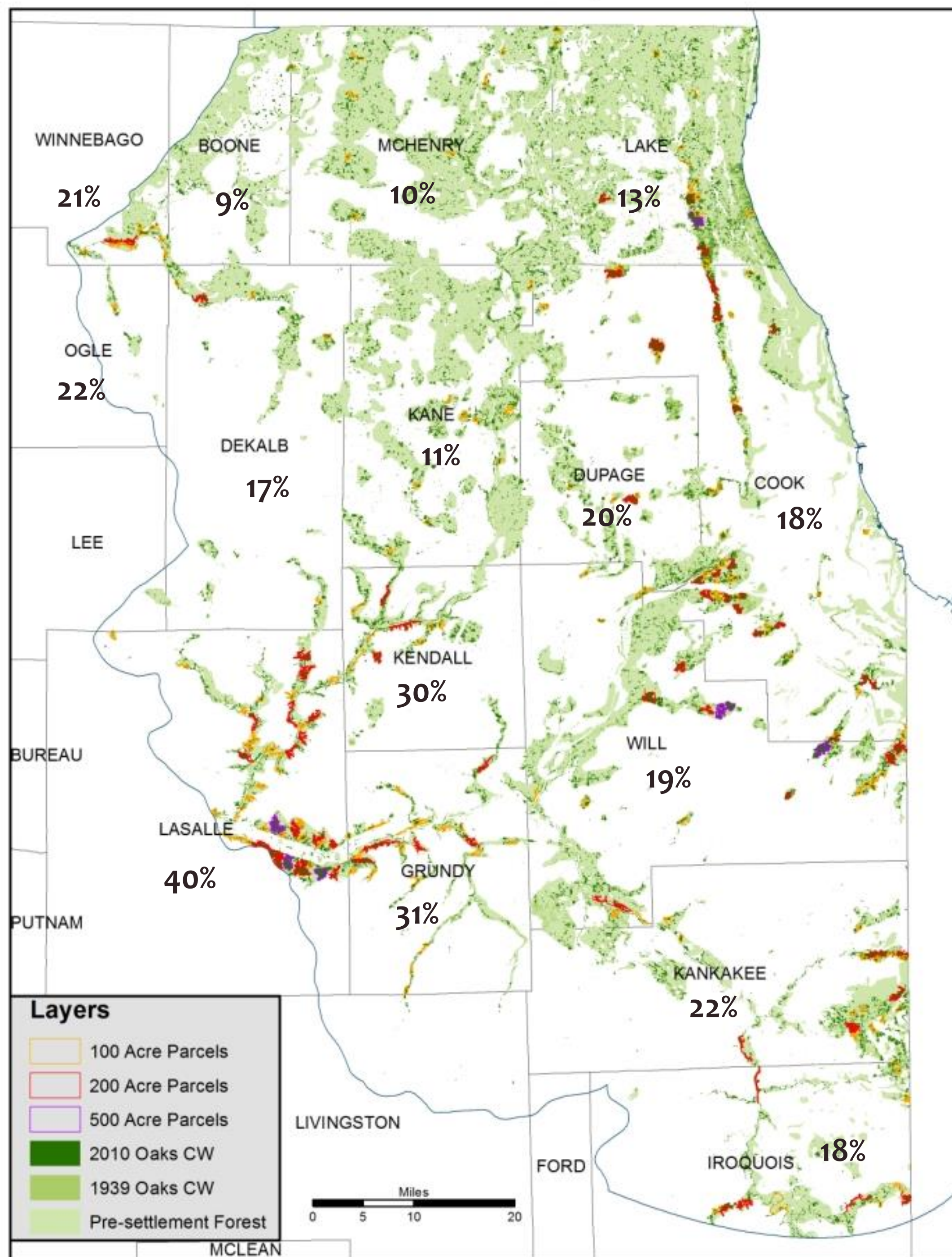


This eventually led to
an expanded analysis
for Northeastern
Illinois

In NE Illinois ~17% of
original oak ecosystem
area remains

Much was lost by 1939 -
only 27% remained at
that point

Highly variable across
the region

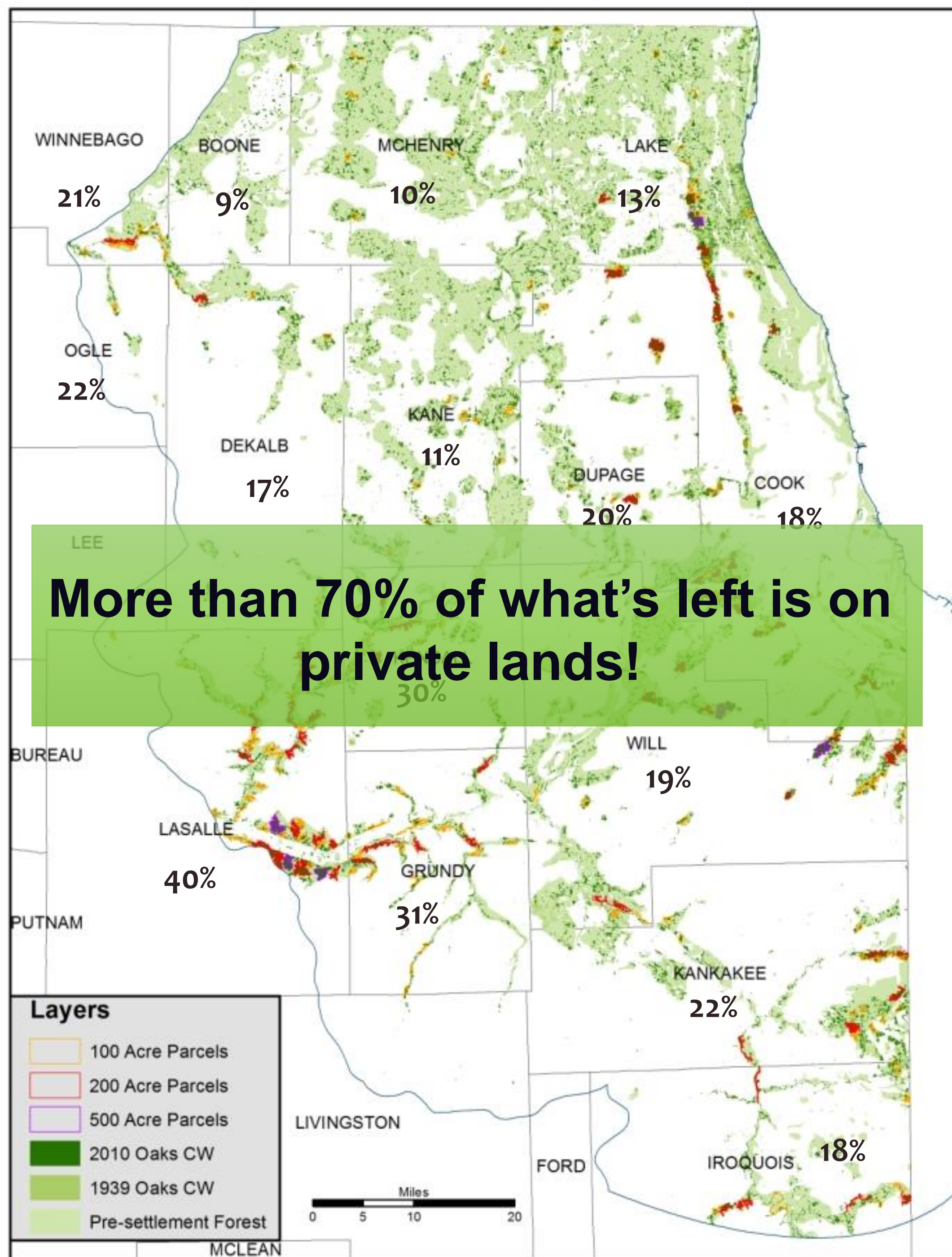


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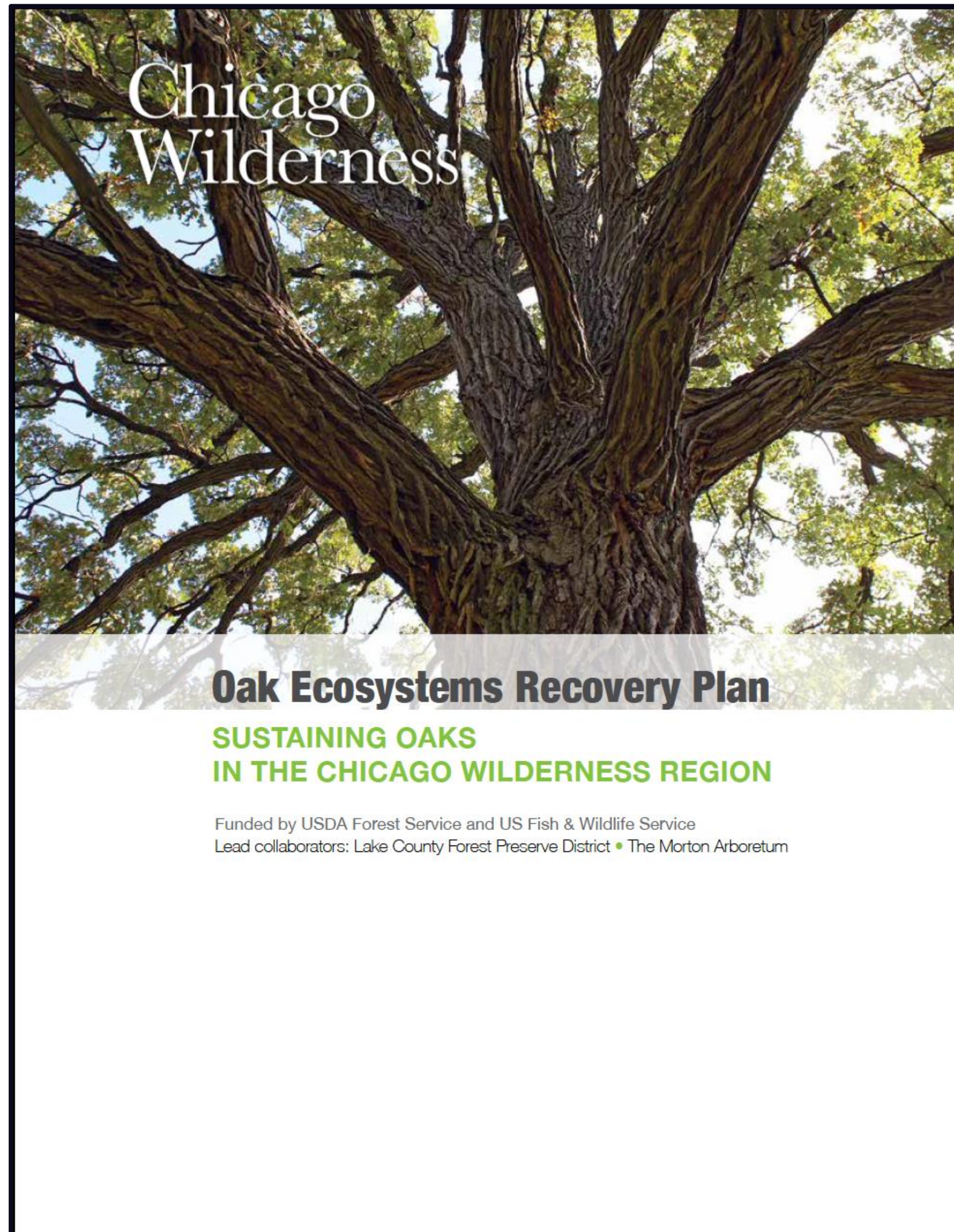
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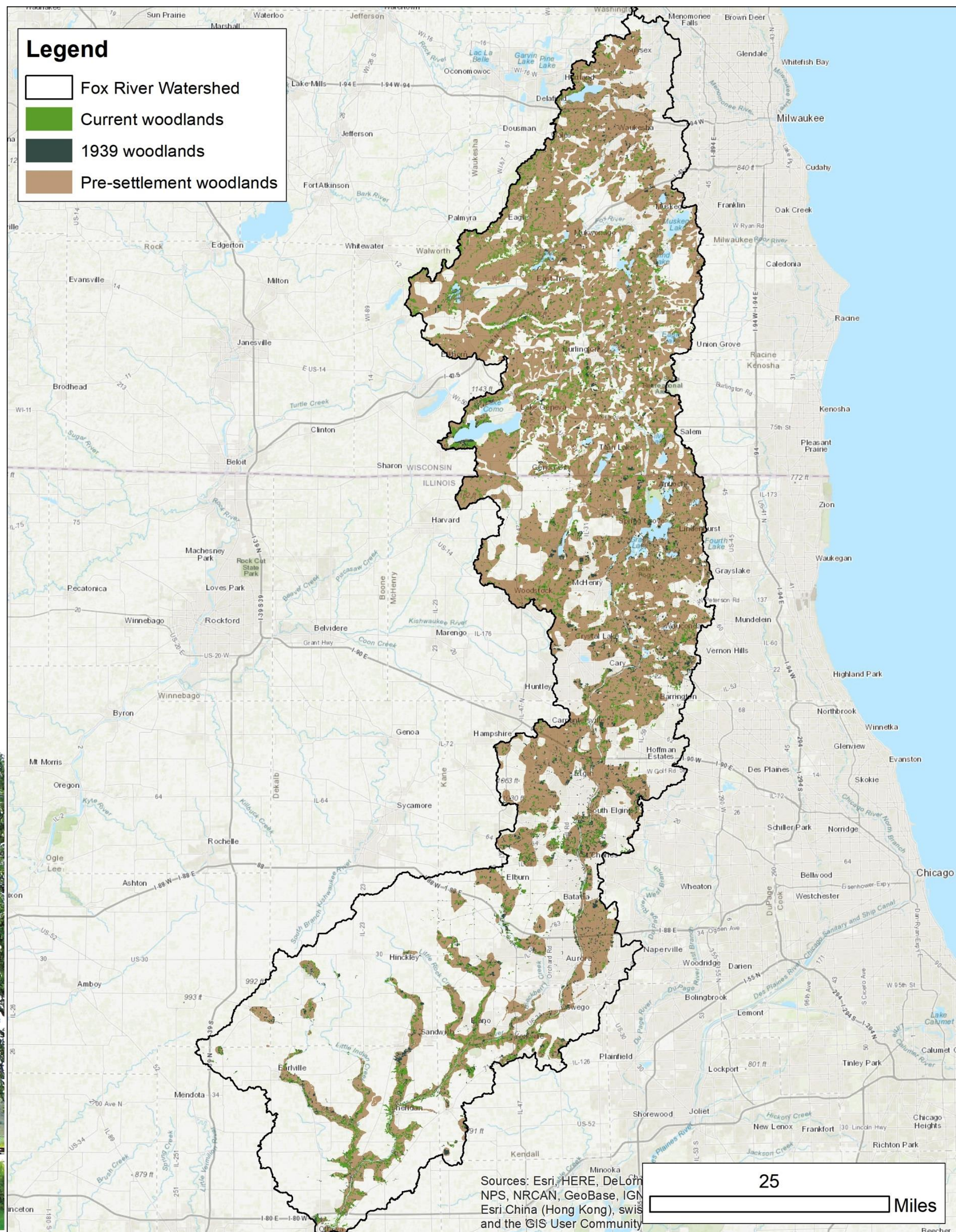
Highly variable across the region



...and the development of an *Oak Ecosystems Recovery Plan* for the Chicago Wilderness Region



Remnant Oak Ecosystems in the Fox River Watershed



Remnant Oak Ecosystem Mapping

Data layers

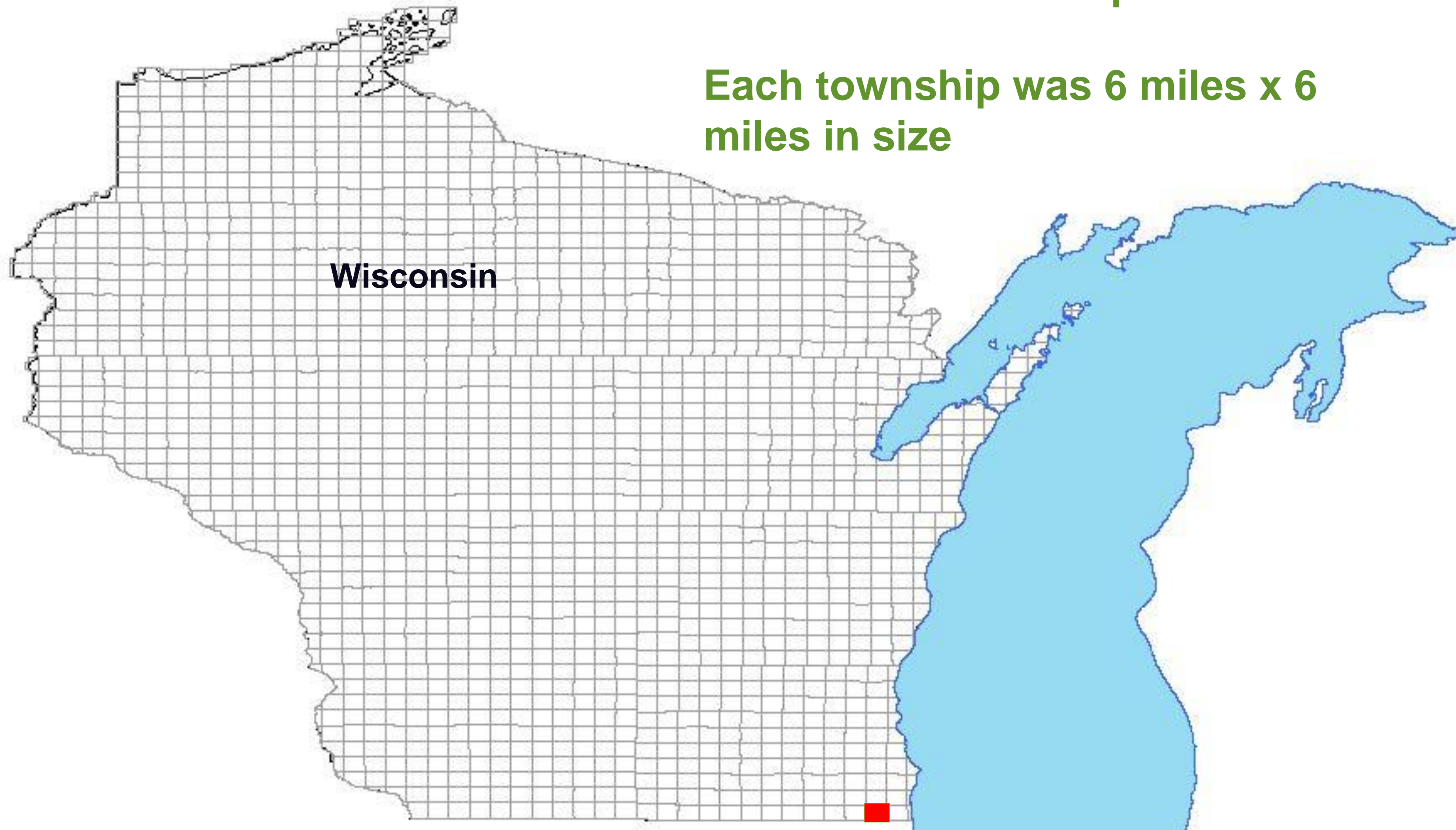
- Pre-settlement vegetation patterns derived from the Public Land Survey notes of the 1800s
- Historic aerial imagery from 1930s
- Present-day aerial imagery



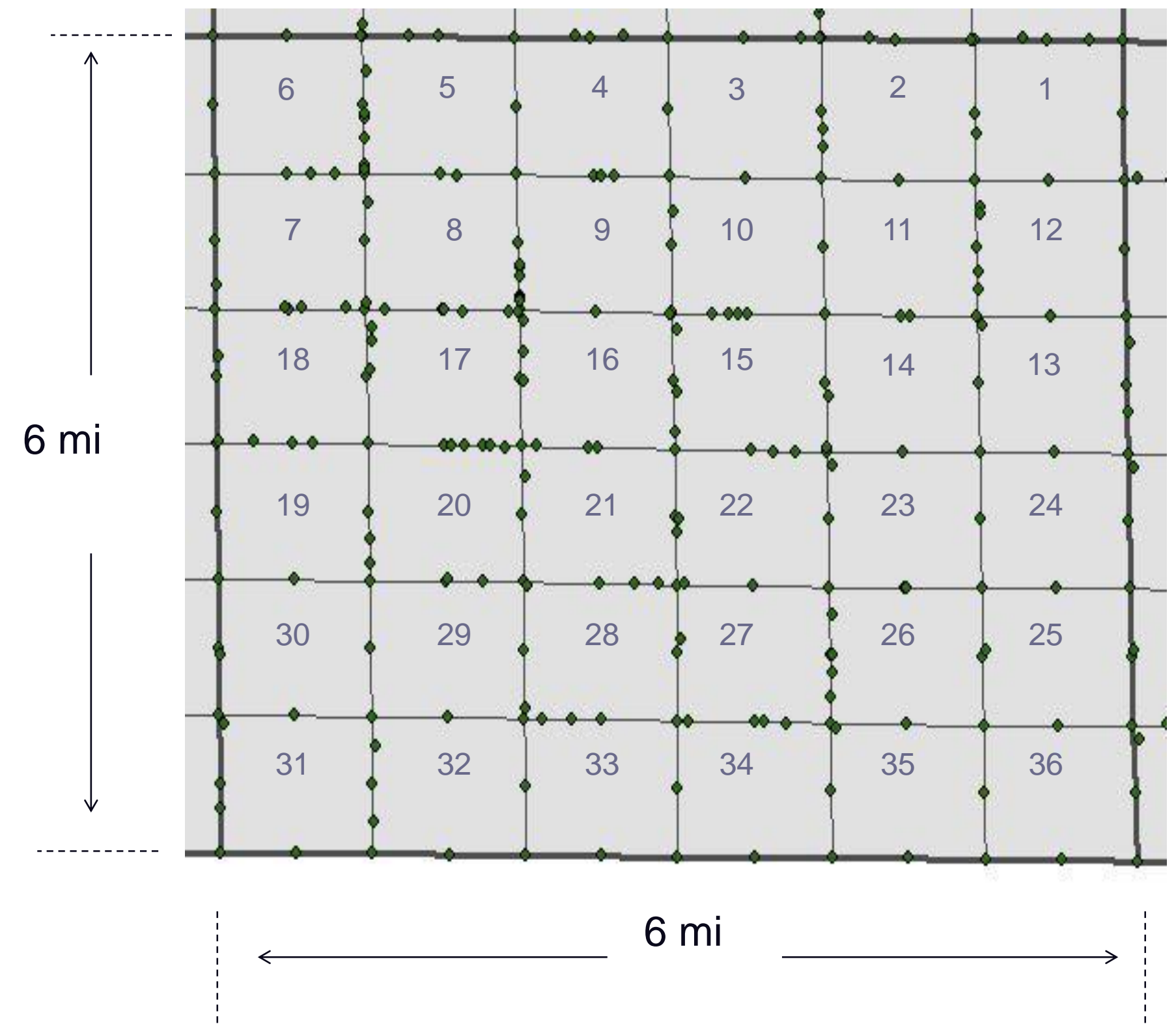
Understanding the public land survey system (PLSS) notes from the 1800's

**Each state was systematically
divided into townships**

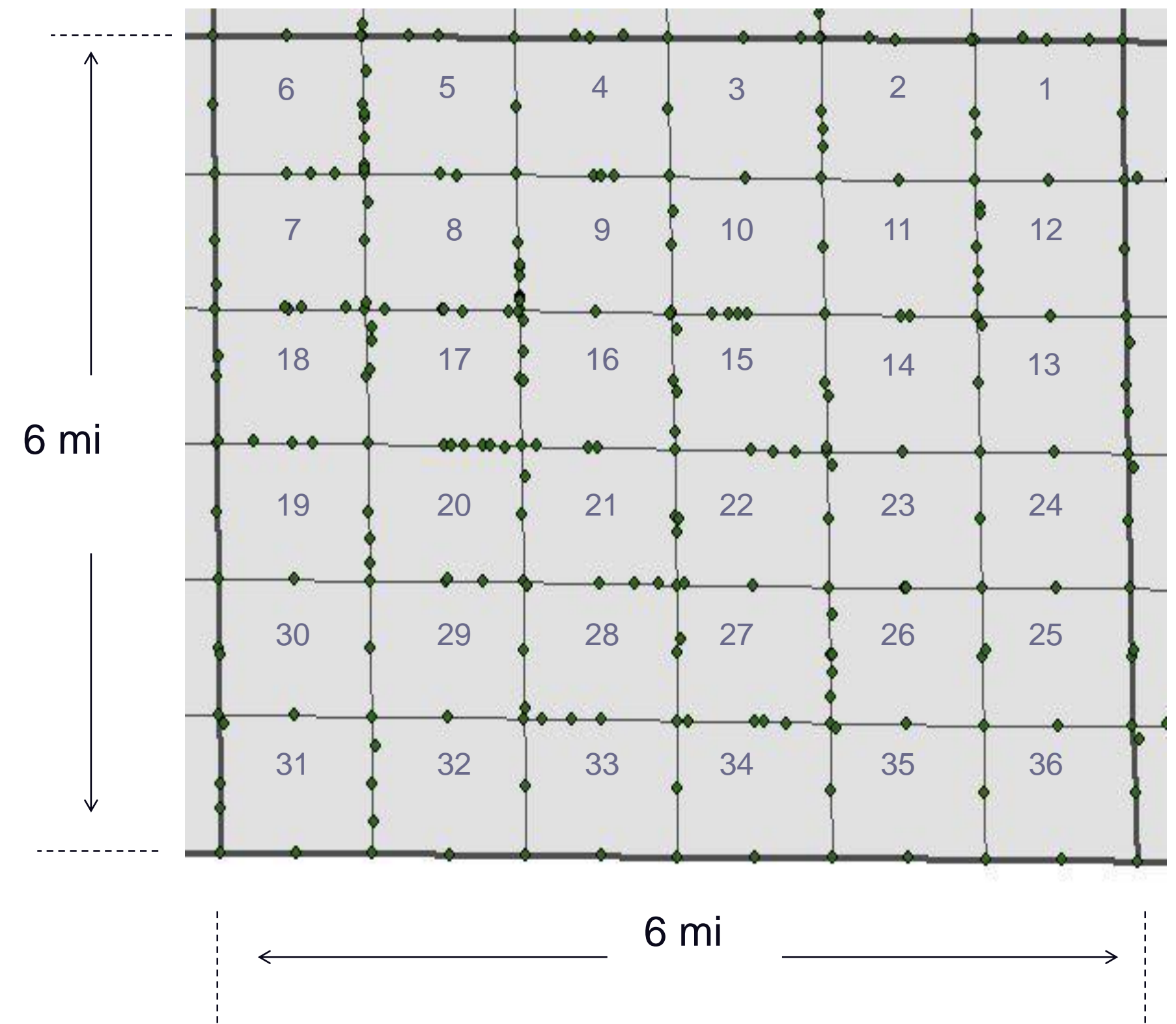
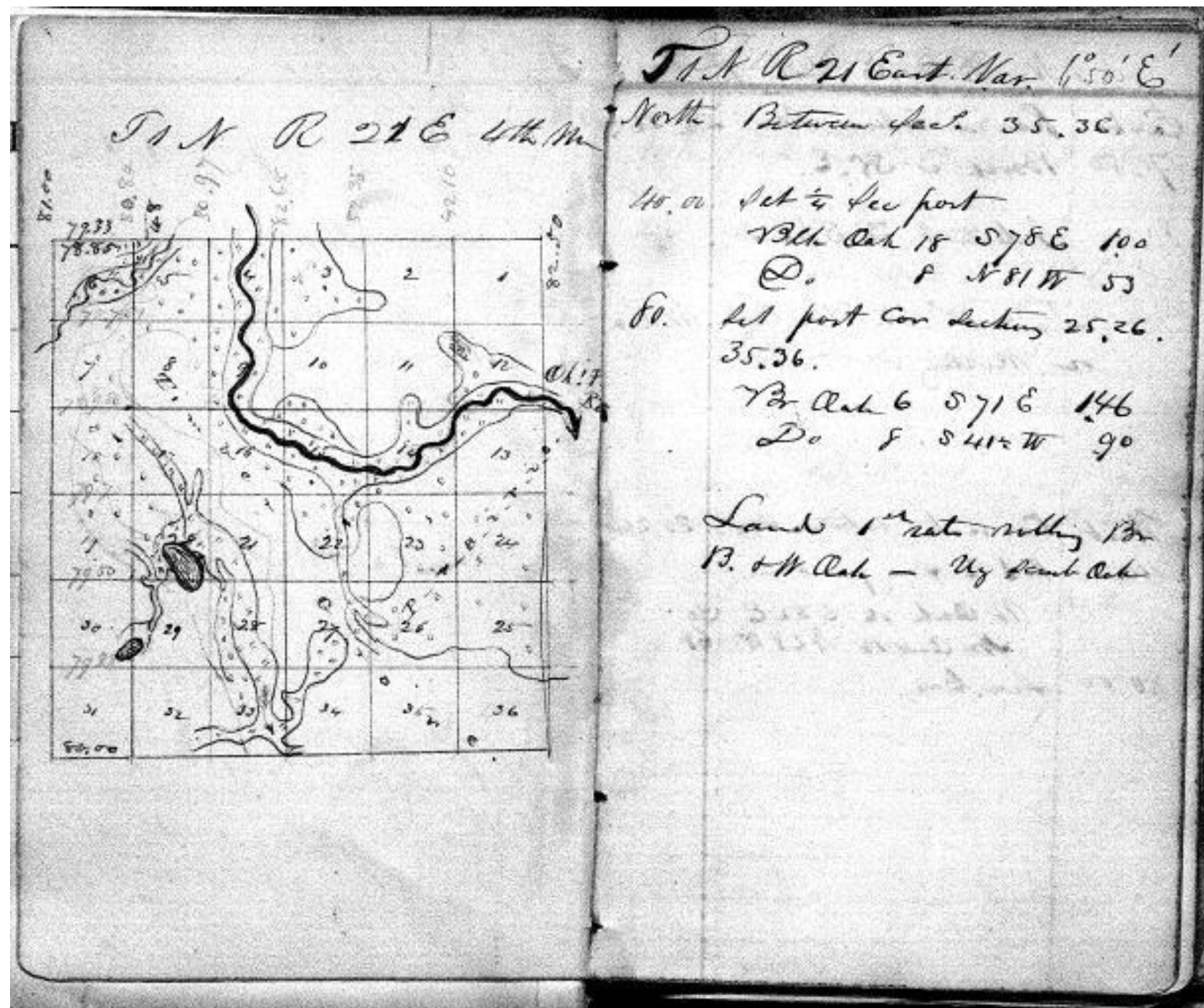
**Each township was 6 miles x 6
miles in size**



Understanding the public land survey system (PLSS) notes from the 1800's



Understanding the public land survey system (PLSS) notes from the 1800's

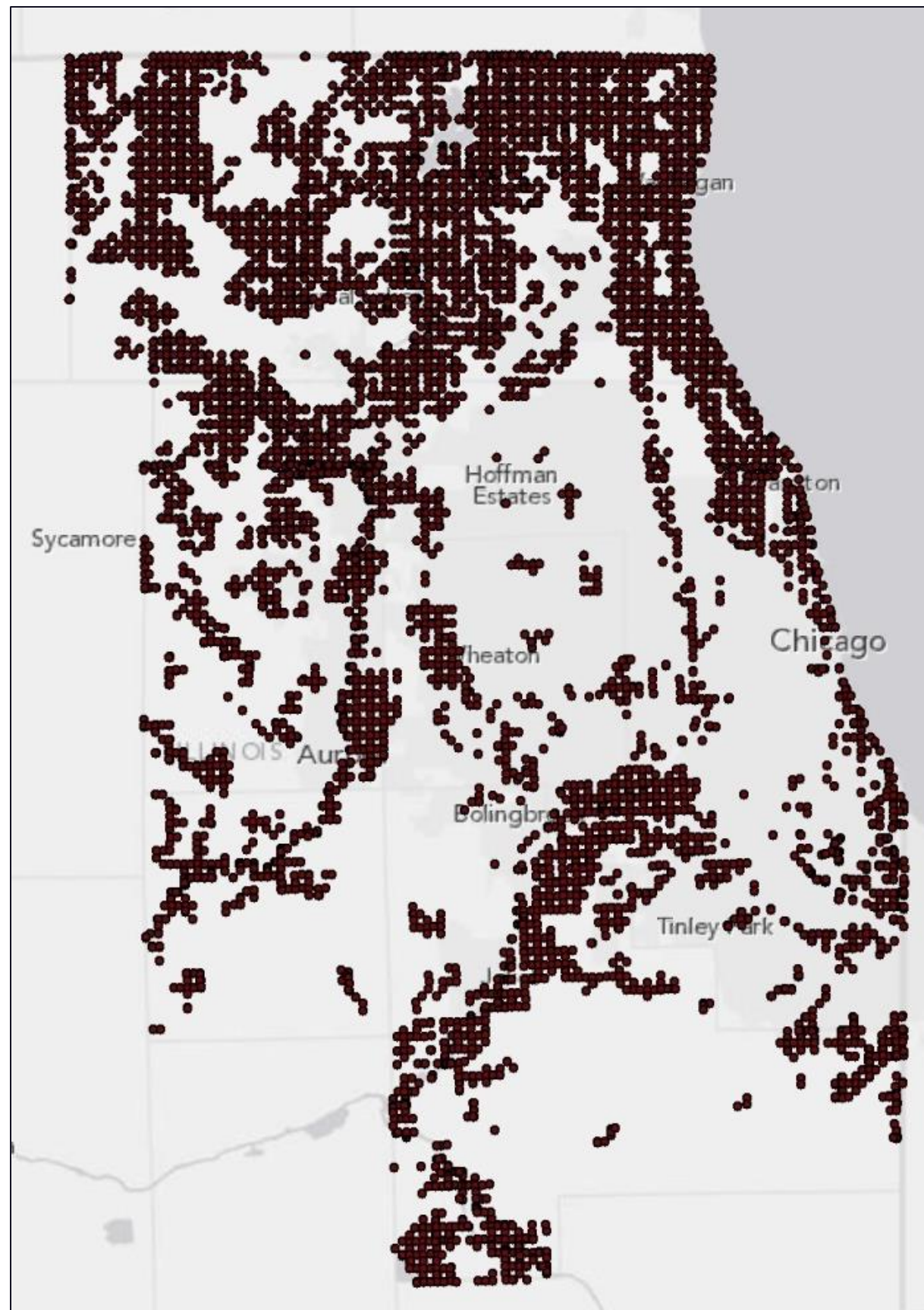


Surveyors walked section and township lines and noted 2-4 “bearing” or “witness” trees at each section corner and mid-point between corners

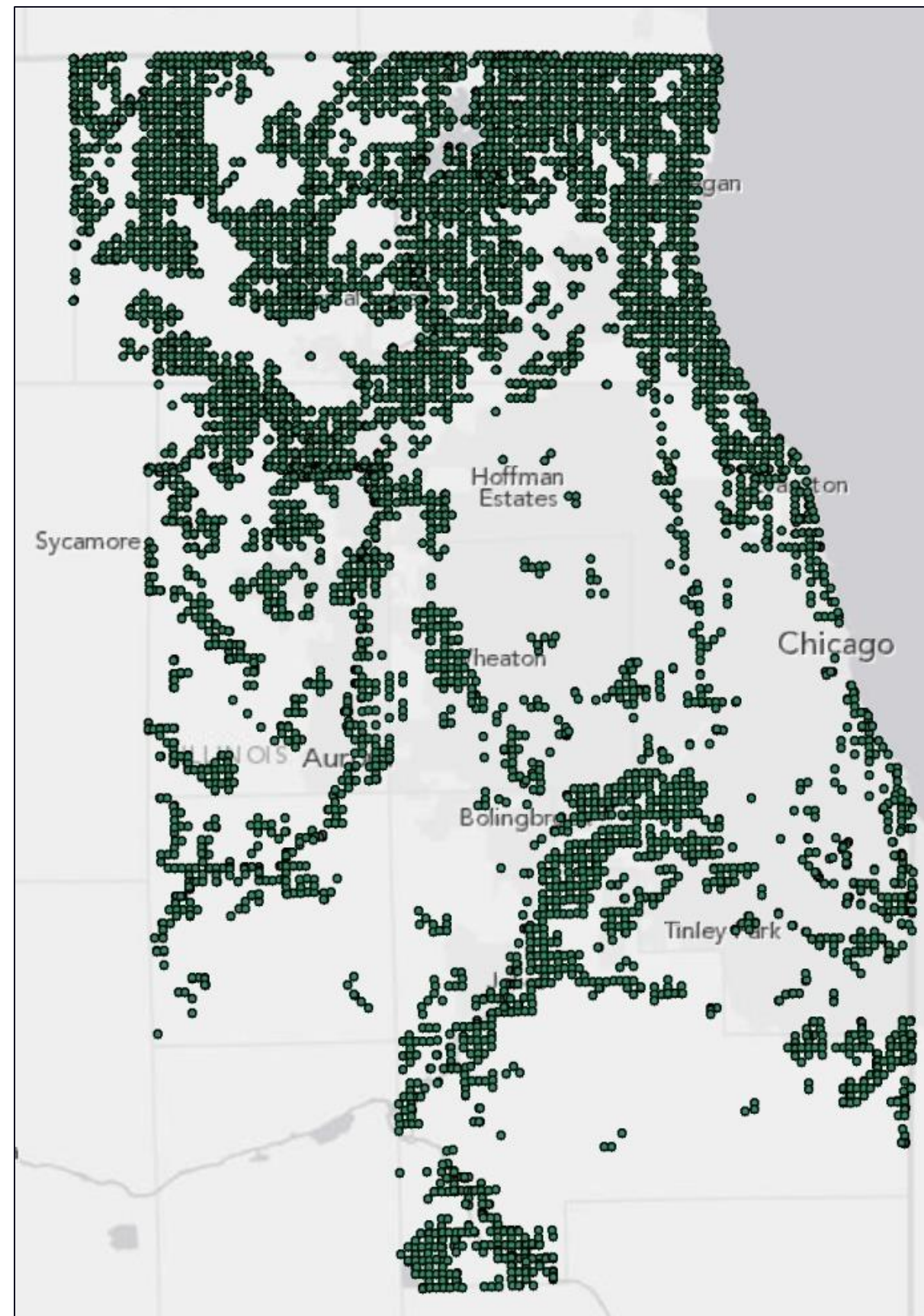
They also noted other trees and features encountered along section lines

Oaks dominated a large majority of wooded ecosystems in the original landscape – 1830's

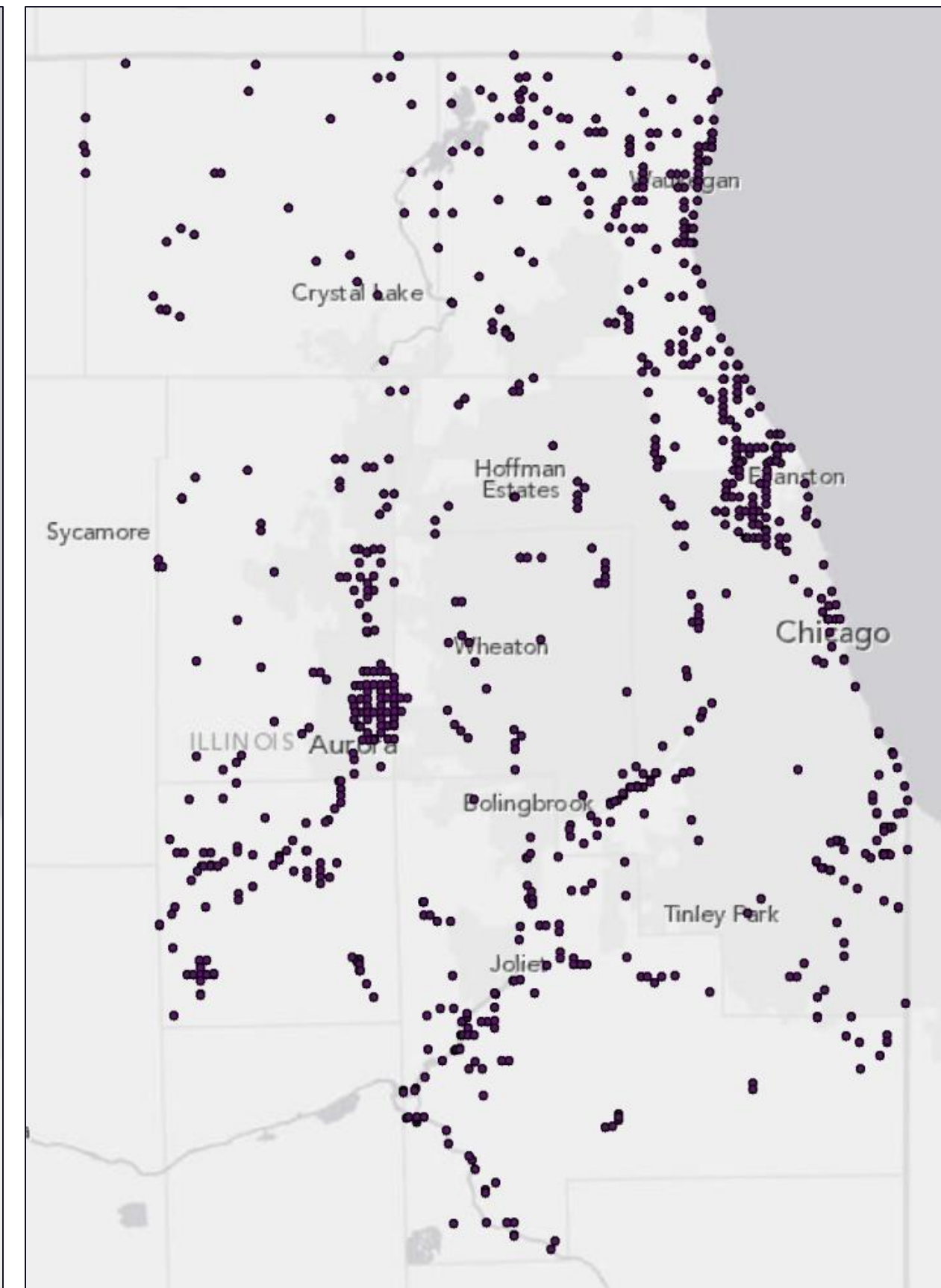
All Trees



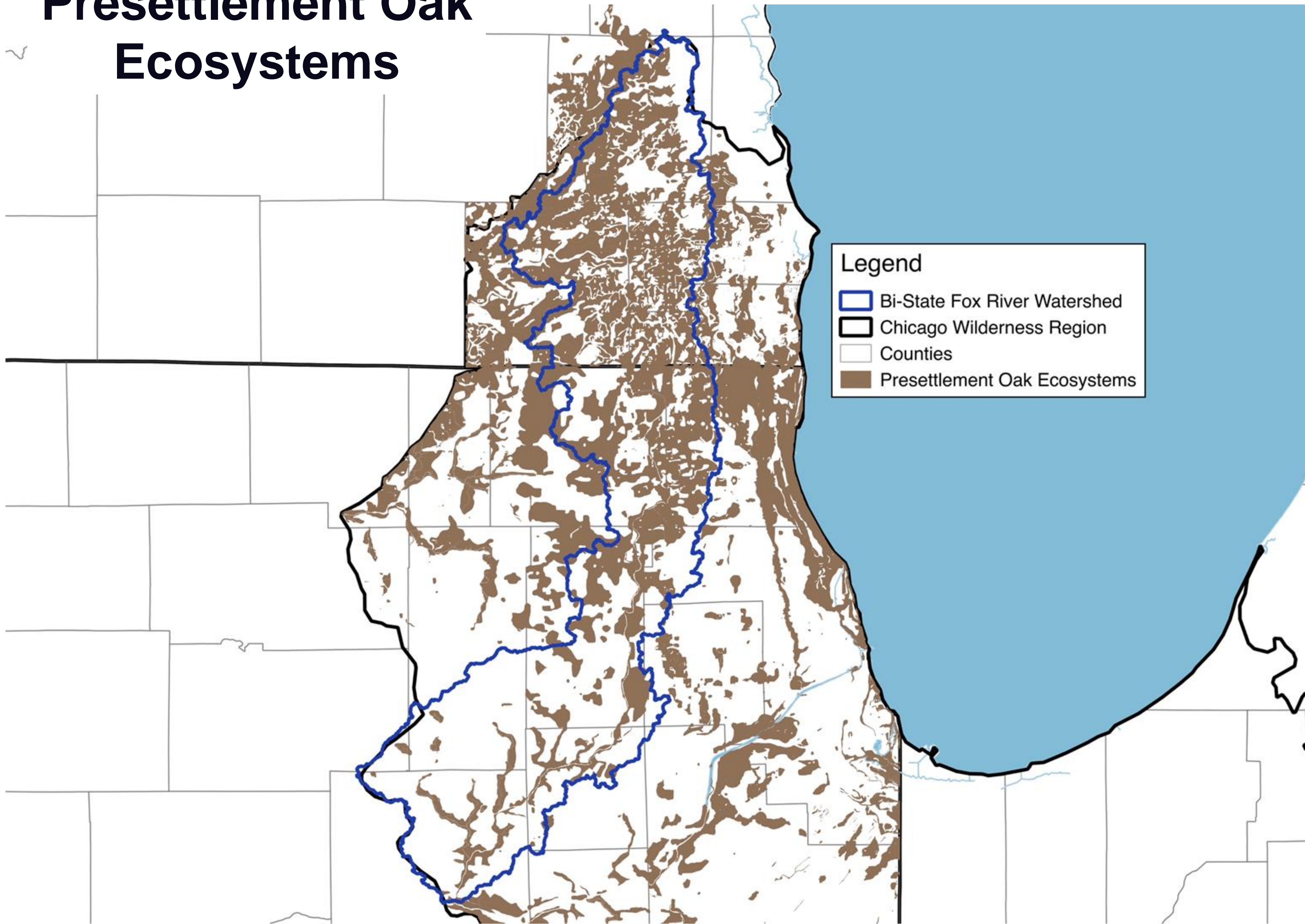
Oaks



Non-oaks



Presettlement Oak Ecosystems



Historic aerial imagery from 1930s



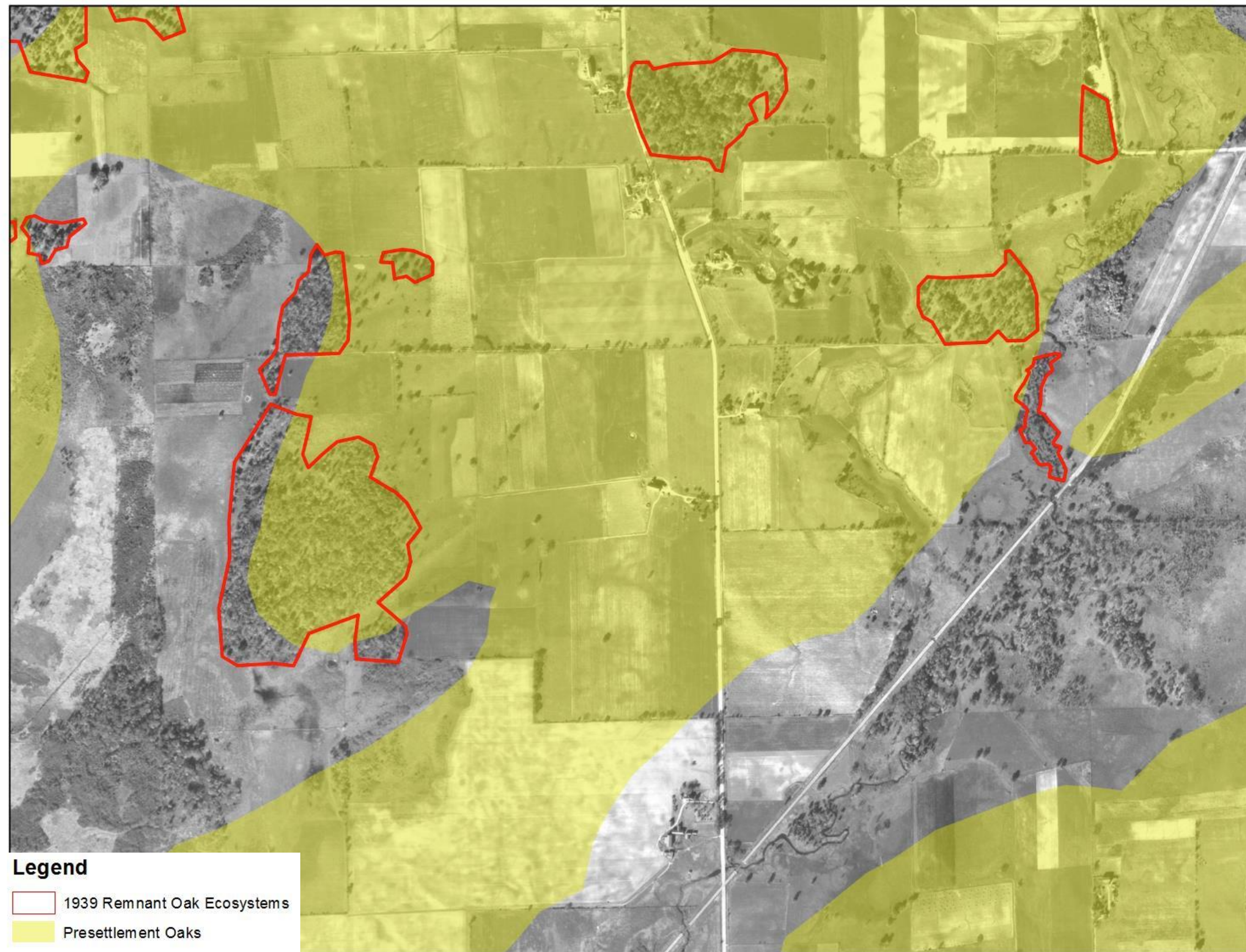
Mapping 1930's Oak Ecosystems



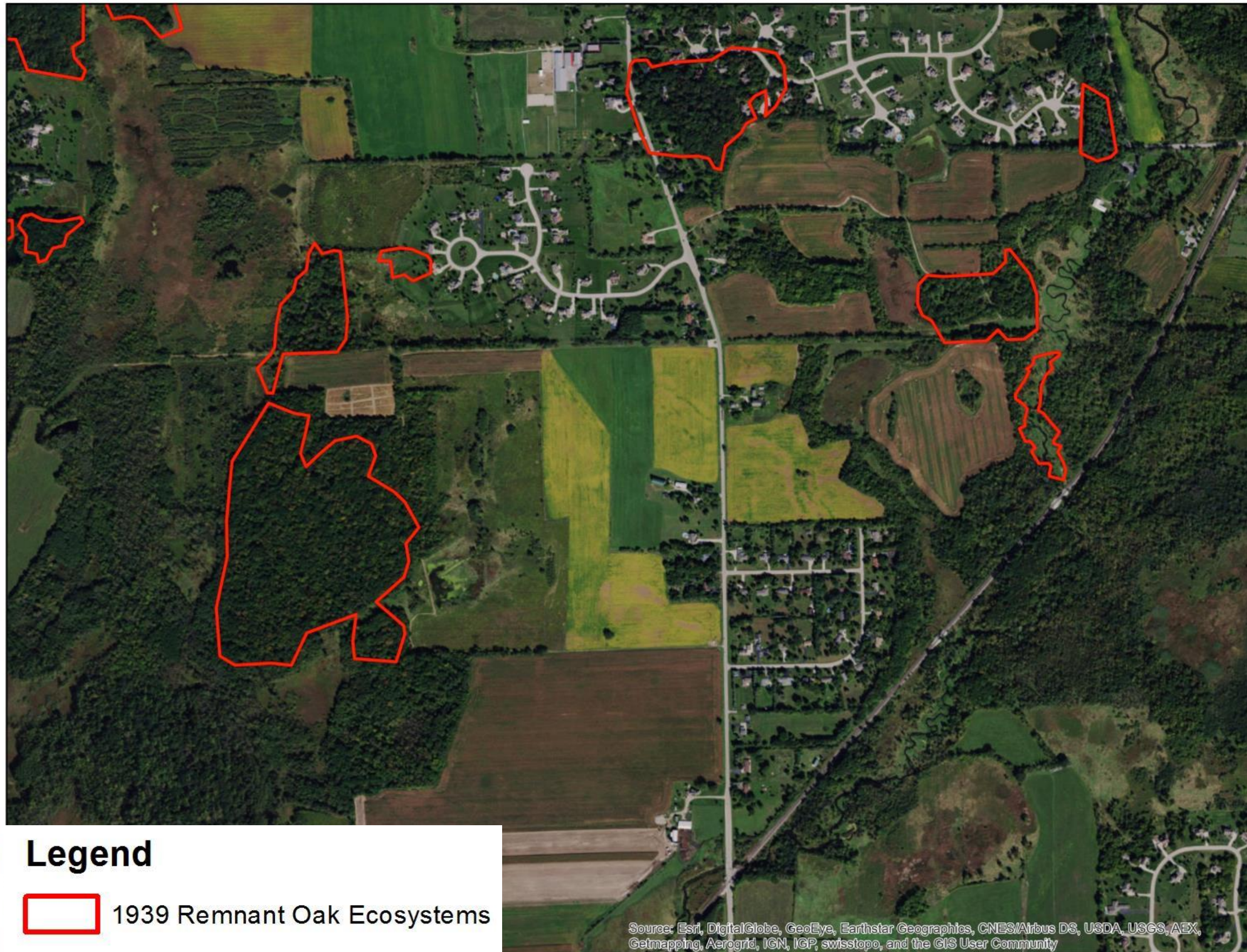
Mapping 1930's Oak Ecosystems



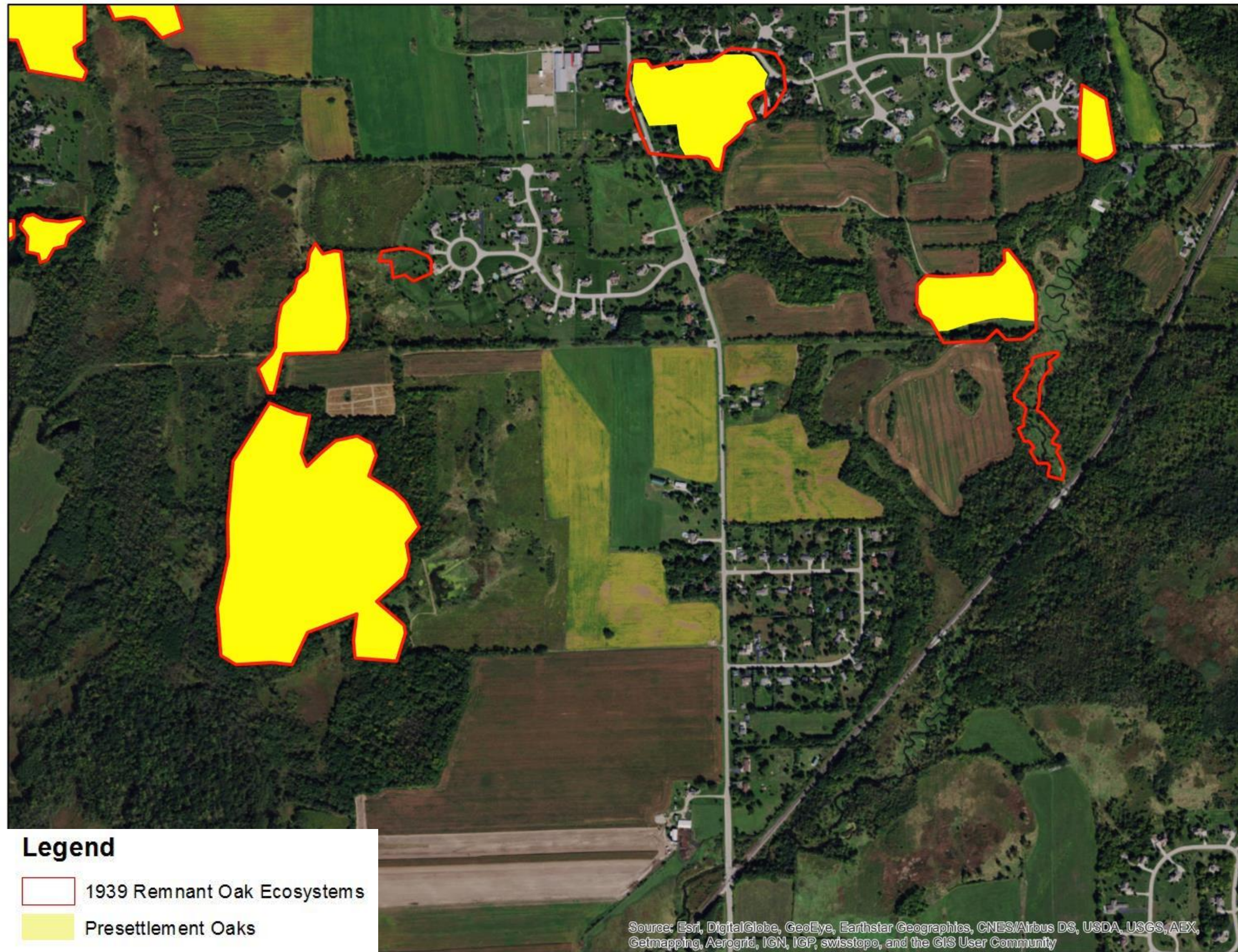
Mapping Present day remnant oak ecosystems



Mapping Present day remnant oak ecosystems



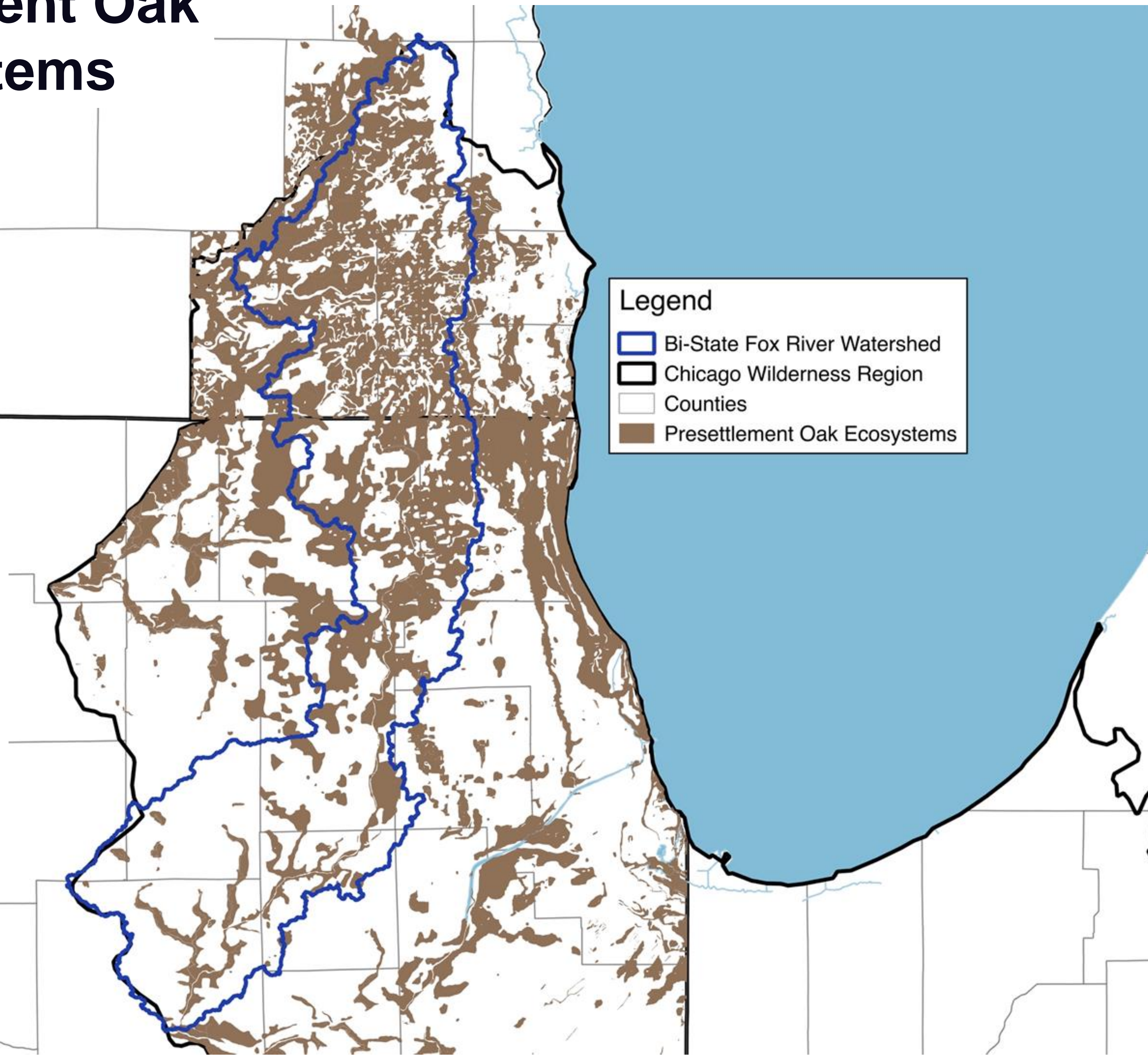
Mapping 1930's Oak Ecosystems



Presettlement Oak Ecosystems

Extent of Oak Ecosystems in the Fox River Watershed in 1800s

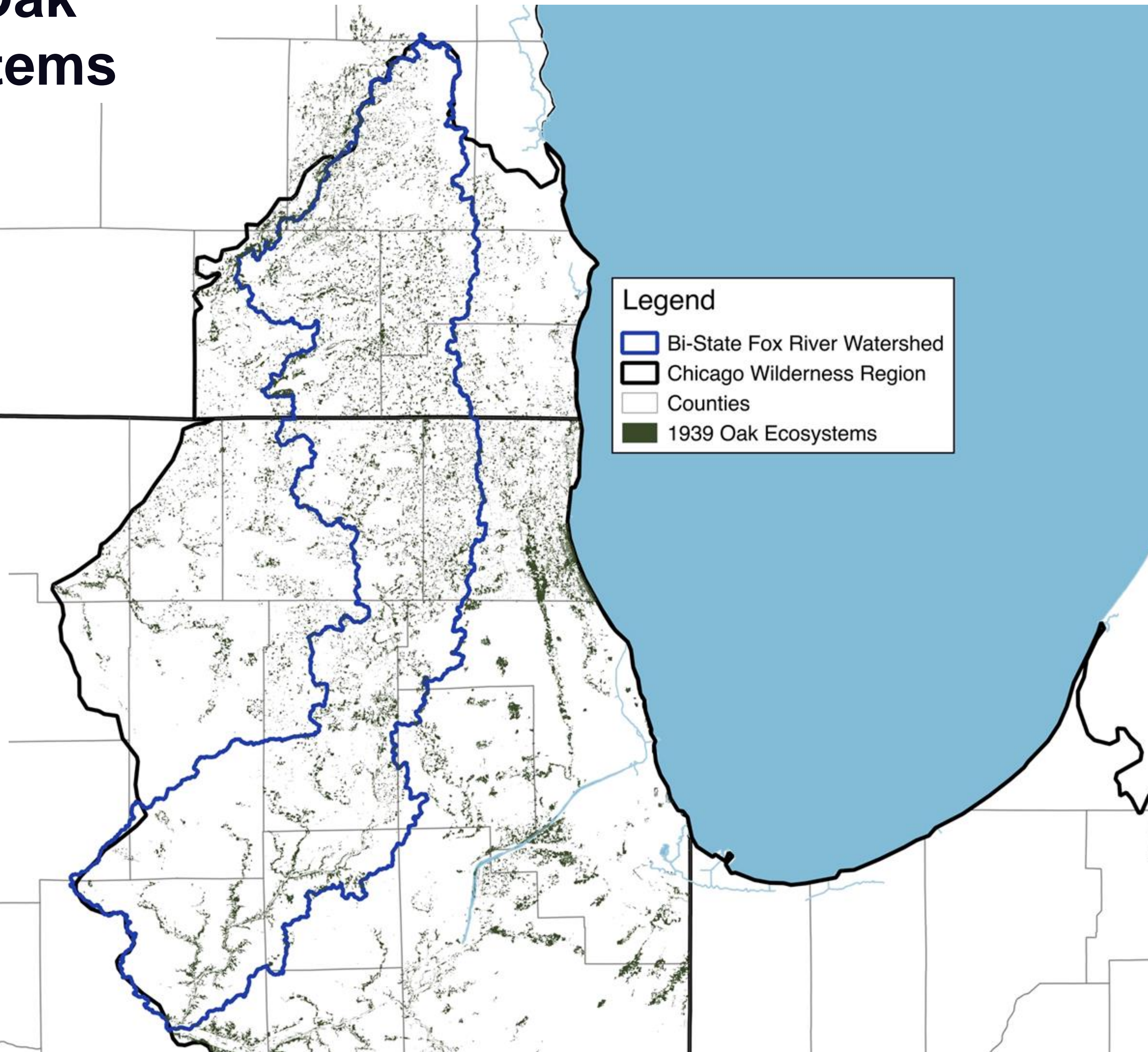
998,430 acres



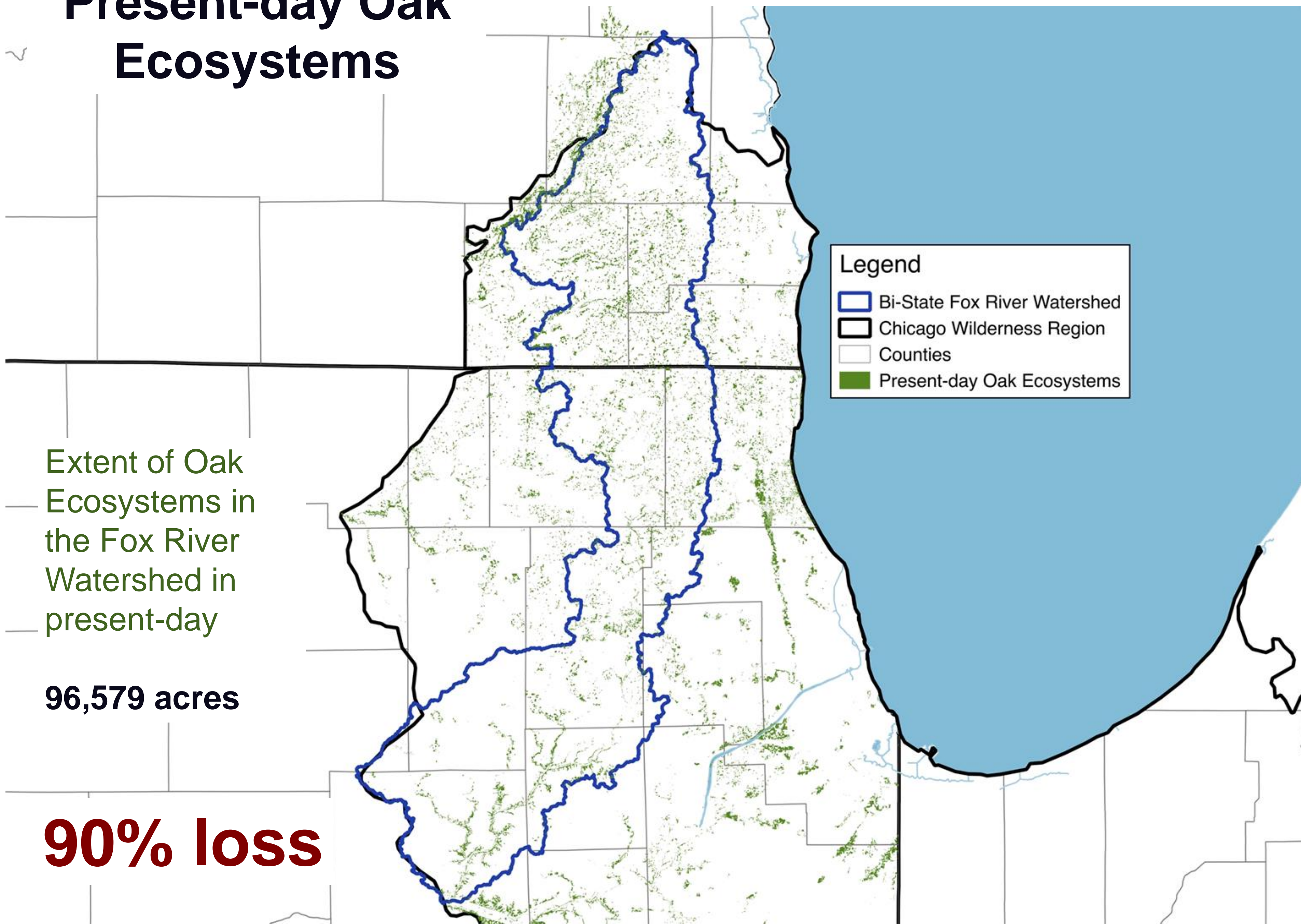
1939 Oak Ecosystems

Extent of Oak
Ecosystems in
the Fox River
Watershed in
1939

141,634 acres

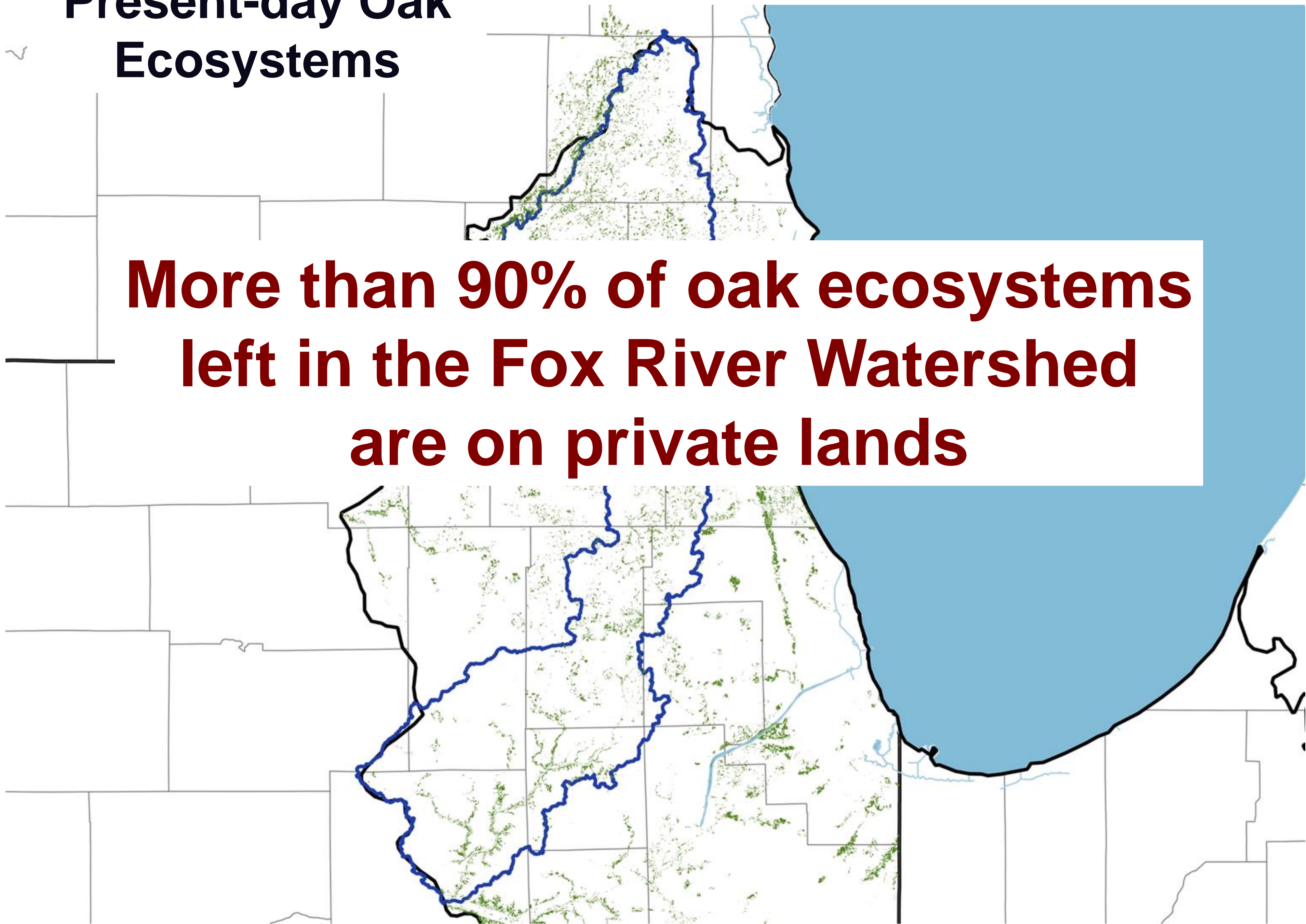



Present-day Oak Ecosystems



Present-day Oak Ecosystems

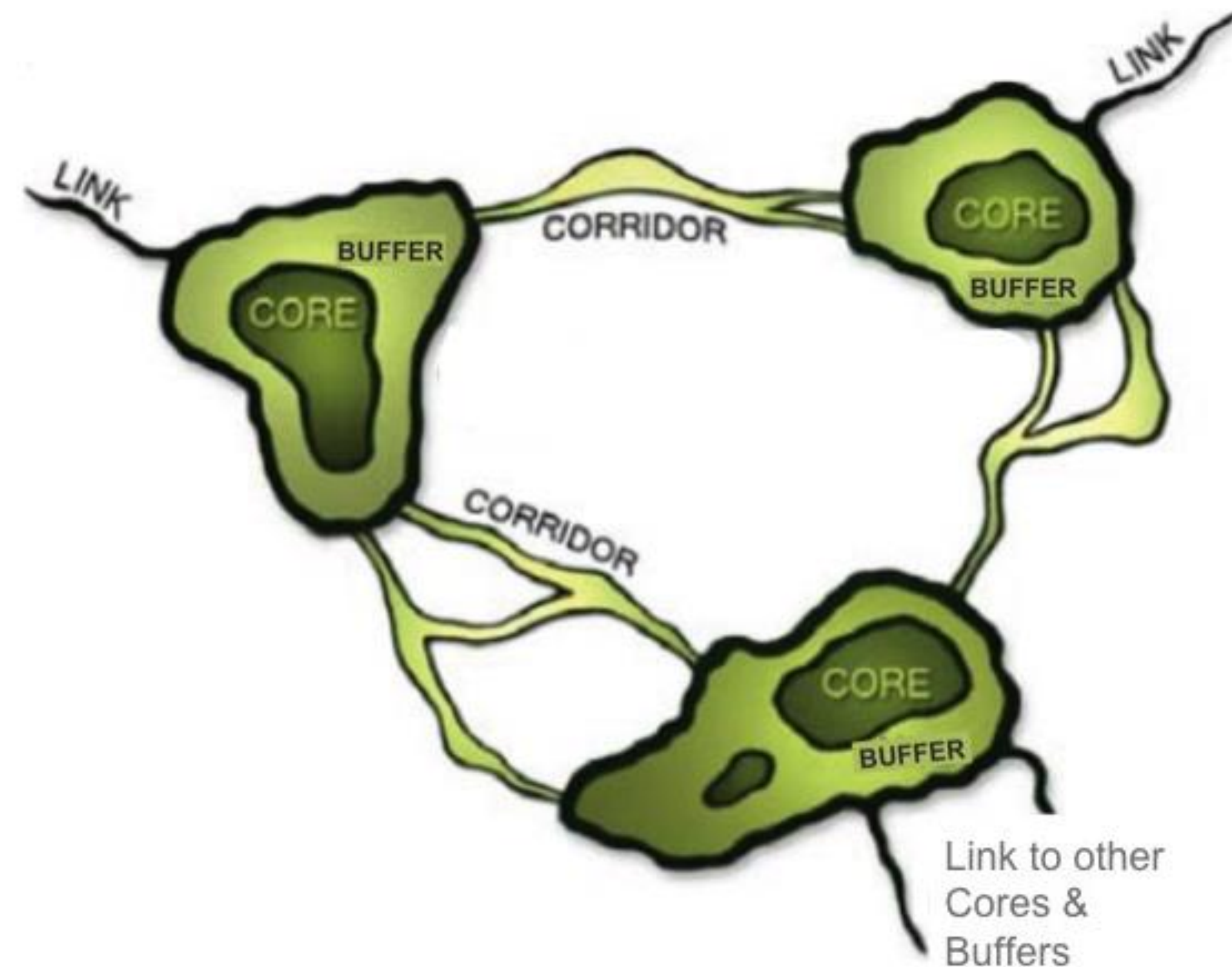
**More than 90% of oak ecosystems
left in the Fox River Watershed
are on private lands**





**Where are the best opportunities
to buffer, expand, and re-connect
our remaining remnants?**

We need to identify important opportunity areas for oak ecosystem recovery

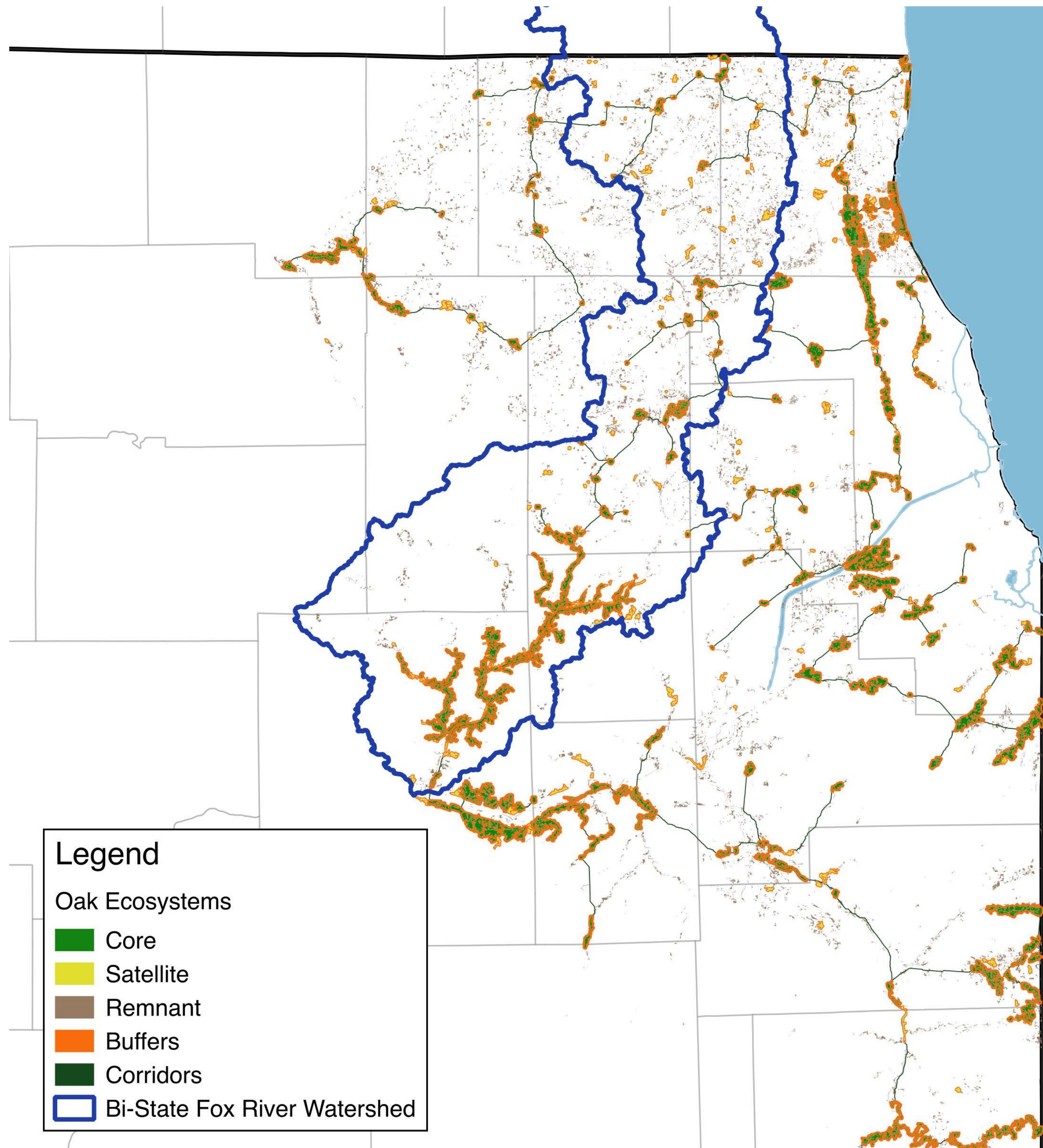


The *Oak Ecosystem Recovery Plan* calls for a system of woodland complexes comprised of:

Cores: Higher quality, remnant ecosystems

Buffers & Corridors: Lower quality natural areas, reclaimed ecosystems, and urban / residential plantings





Legend

Oak Ecosystems

- Core
- Satellite
- Remnant
- Buffers
- Corridors

Legend

Oak Ecosystems

- Core
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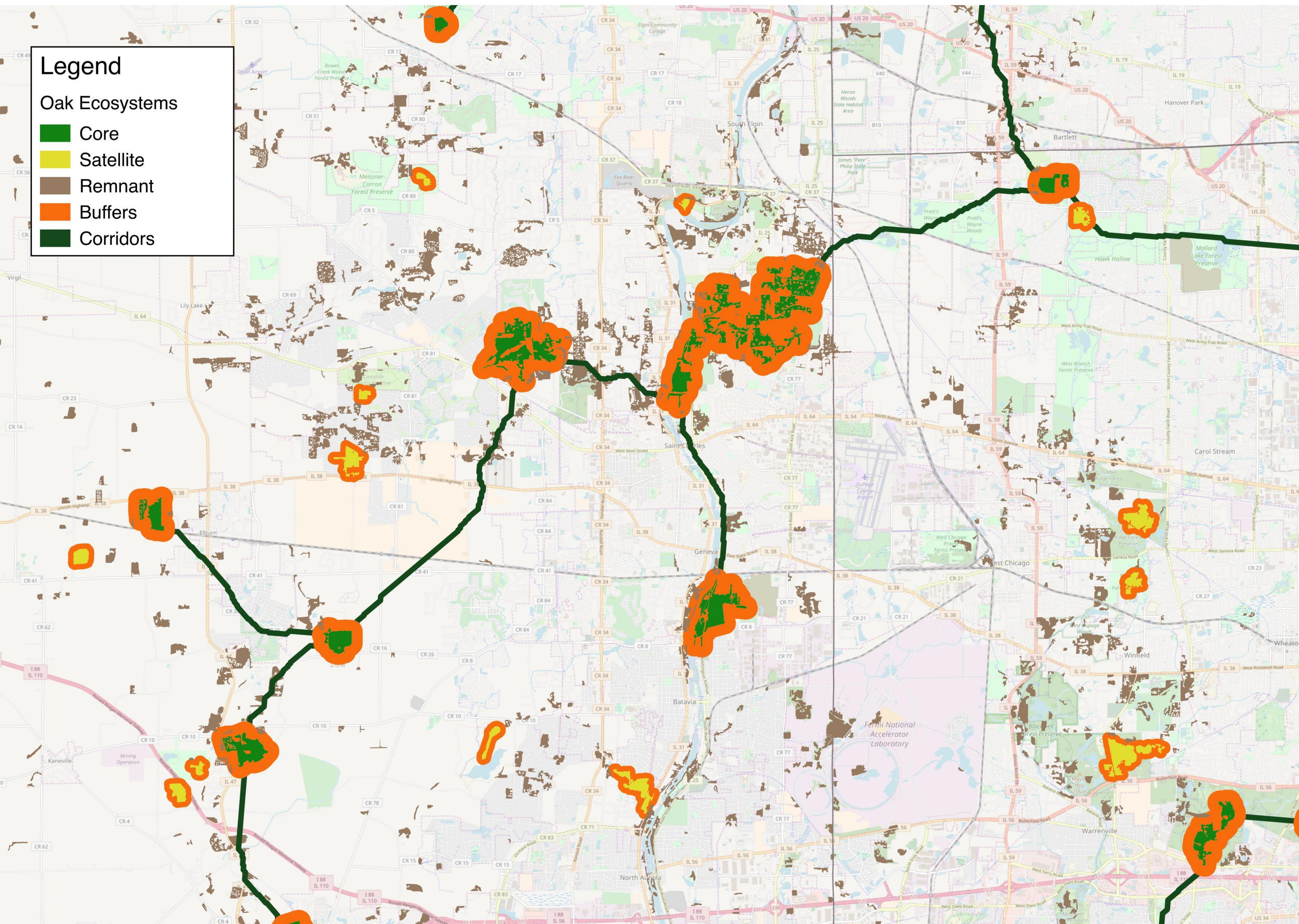
Oak Ecosystems

- Core
- Satellite
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- Corridors

Legend

Oak Ecosystems

- Core
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- Remnant
- Buffers
- Corridors



Private Landowner Education & Engagement



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BEST MANAGEMENT PRACTICES

OAK ECOSYSTEM RESTORATION,
REGENERATION, AND MAINTENANCE



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Invasive Woody Plant Replacement List



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Why replace buckthorn and honeysuckle in your yard?

Woody invasive plants, such as common and glossy buckthorn (*Rhamnus cathartica* and *Rhamnus frangula*) or Eurasian bush-honeysuckles (*Lonicera* spp.), form dense thickets and reproduce aggressively, shading out other plants and disrupting ecosystems in forest preserves and other natural areas. In woodlands, they can completely replace young trees and understory plants, including native wildflowers. Buckthorn also causes long-lasting damage to the soil and wildlife habitat where it grows.

Unfortunately, they are also commonly used in residential landscaping. This guide suggests shrubs that can be planted to replace invasive hedges or screens being removed. For advice on removal, check the Illinois Natural History Survey's guide (www.inhs.illinois.edu/research/vmg/buckthorn/) or hire a professional. To find a native plant nursery, check the Illinois Native Plant Society's list (ill-inps.org/native-plant-nurseries/).

Do I have invasives in my yard?

Common name: common buckthorn and glossy buckthorn
Latin name: *Rhamnus cathartica* and *Rhamnus frangula*
Height: 8-25ft
Description: A large shrub or small tree with glossy oval leaves that can easily be recognized in fall, when it remains green after most other leaves have fallen. Buckthorn has berries that are spread by birds. Under the Illinois Exotic Weed Act, buckthorn cannot be sold in Illinois.



From left to right: Manicured buckthorn hedge; close up of buckthorn leaves & fruit

Common name: Eurasian bush-honeysuckles
Latin name: *Lonicera* spp.
Height: 5-20ft
Description: The various species of bush honeysuckles may be difficult to tell apart in the field, but all are upright, shallow-rooted shrubs that leaf out early and remain green late, deplete soil moisture and nutrients, and inhibit the growth of other plants.



Photo credit: John Hagstrom

How to grow a screen or hedge

Freeform screening—Shrub species can be grown without “formal pruning” using their natural structure.

Formal hedges—Start with 18”-24” plants, cutting back to 6” to cause low branching. Cut off half the new growth over the next two years. Start shaping the hedge the third year, making the base broader than the top. Formal hedges must be sheared 2 or more times each year.

Naturalistic hedges—Informal hedges grow best when plants are kept at about 3/4 of their full size. Start with shrubs that will get a little bigger than the size of the hedge you want. Once a year, these hedges need a light overall pruning and a renewal pruning (cutting 1/3 of the older canes off at ground level).

OAKS NEED YOUR HELP!

HOW HOMEOWNERS, LANDOWNERS,
AND INDIVIDUALS CAN CREATE A
BETTER FUTURE FOR OAK TREES



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Private Landowner Education & Engagement



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The Morton
Arboretum

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USDA

BEST MANAGEMENT PRACTICES

OAK ECOSYSTEM RESTORATION,
REGENERATION, AND MAINTENANCE

OAKtober

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OWNERS, LANDOWNERS,
DUALS CAN CREATE A
TURE FOR OAK TREES



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Our Future.



From left to right: Manicured buckthorn hedge; close up of buckthorn leaves & fruit



Photo credit: John Hagstrom

How to grow a screen or hedge

Freeform screening— Shrub species can be grown without “formal pruning” using their natural structure.

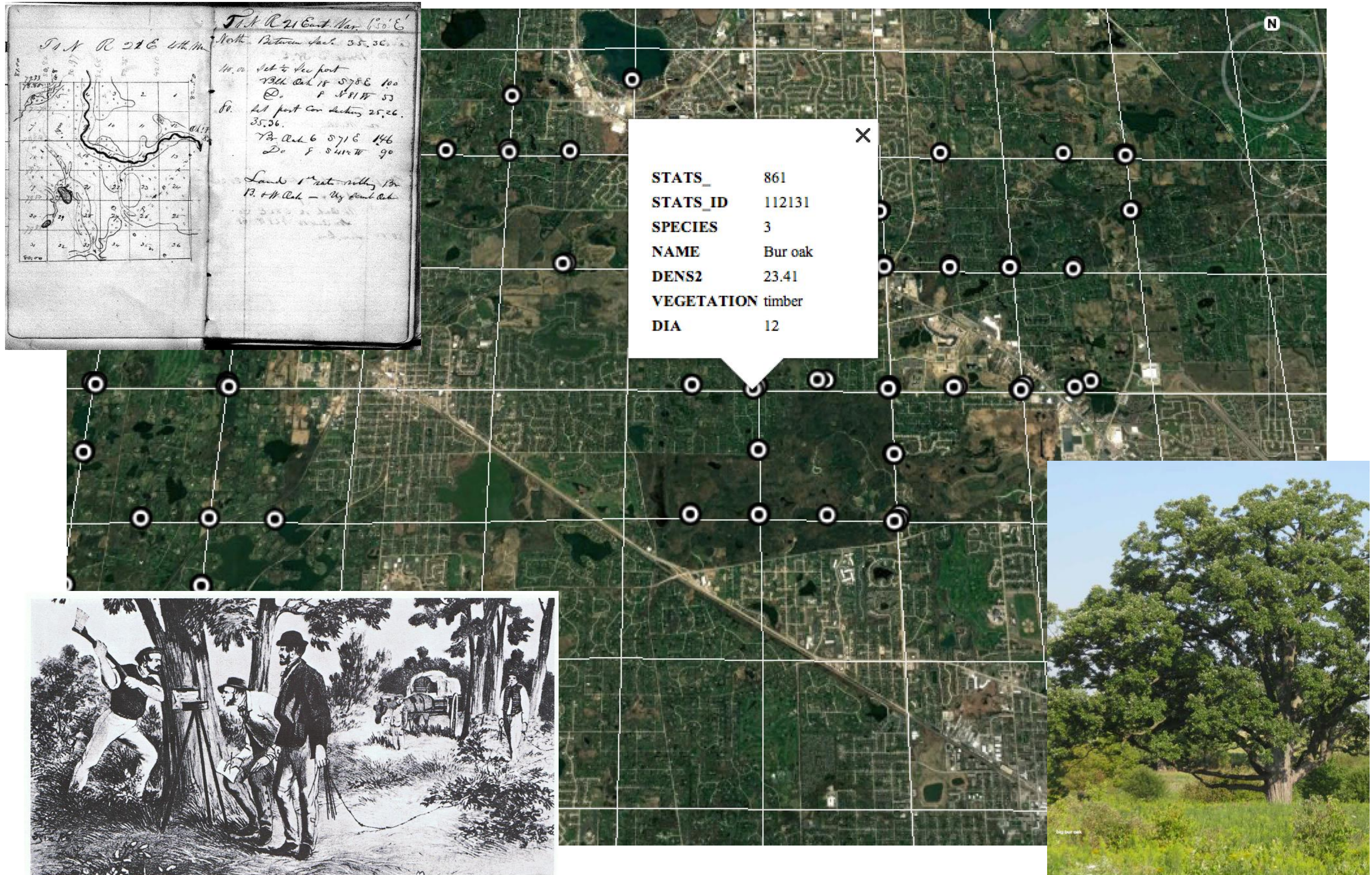
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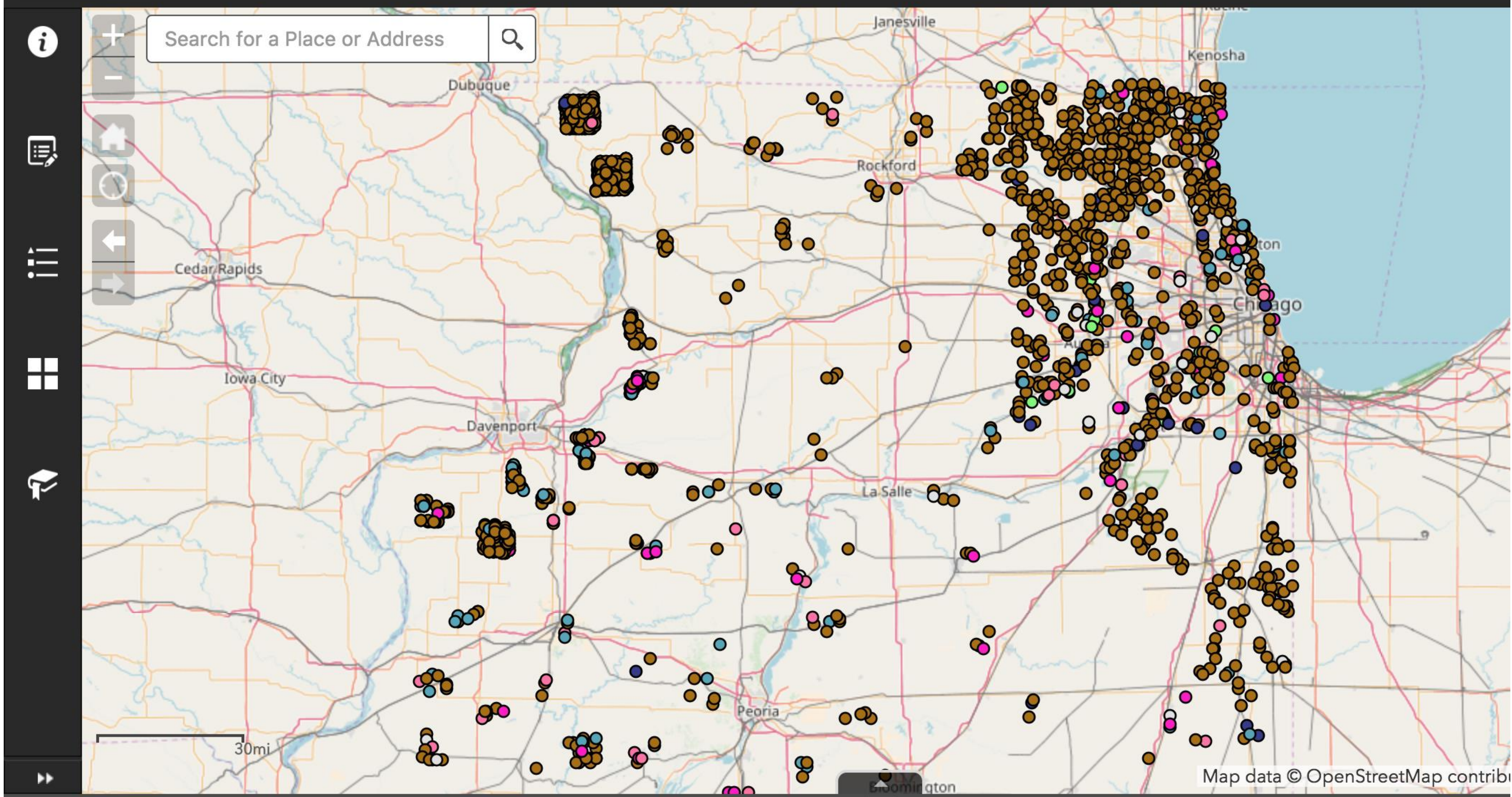
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Oaktober Citizen Science Effort

Recruiting residents to locate remaining witness trees from the 1800 Public land surveys

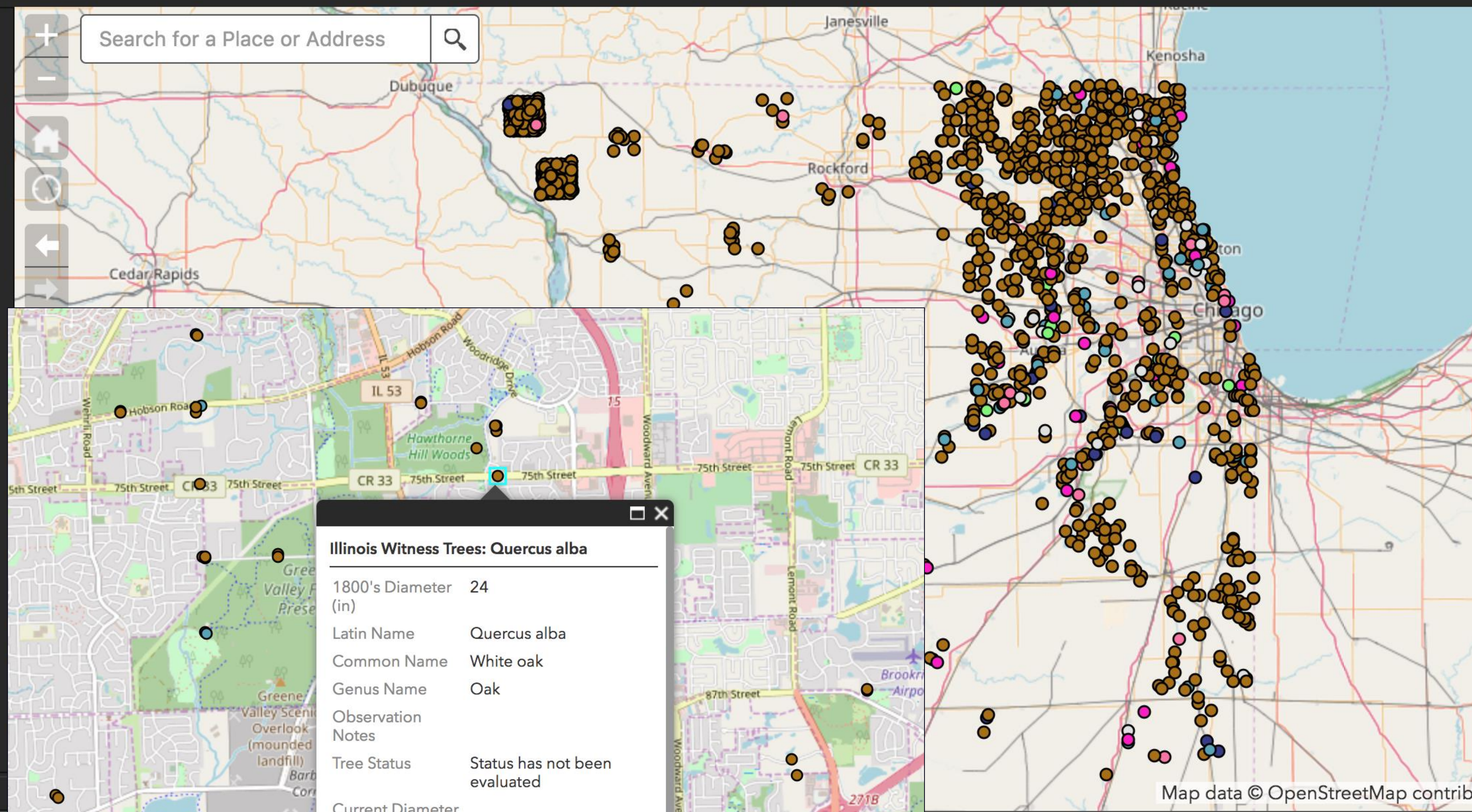
<http://chicagorti.org/WitnessTrees>







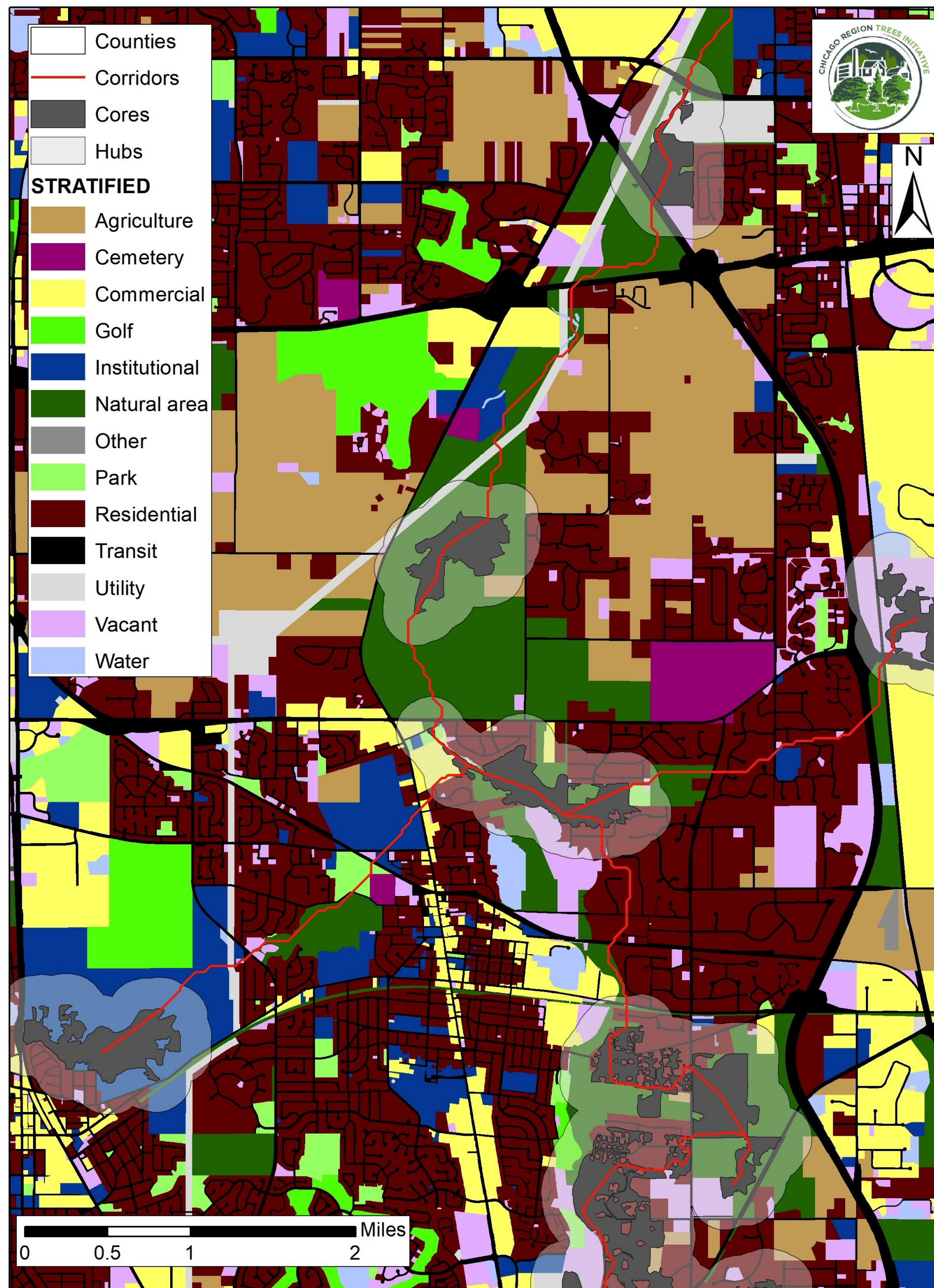
Search for a Place or Address



Illinois Witness Trees: *Quercus alba*

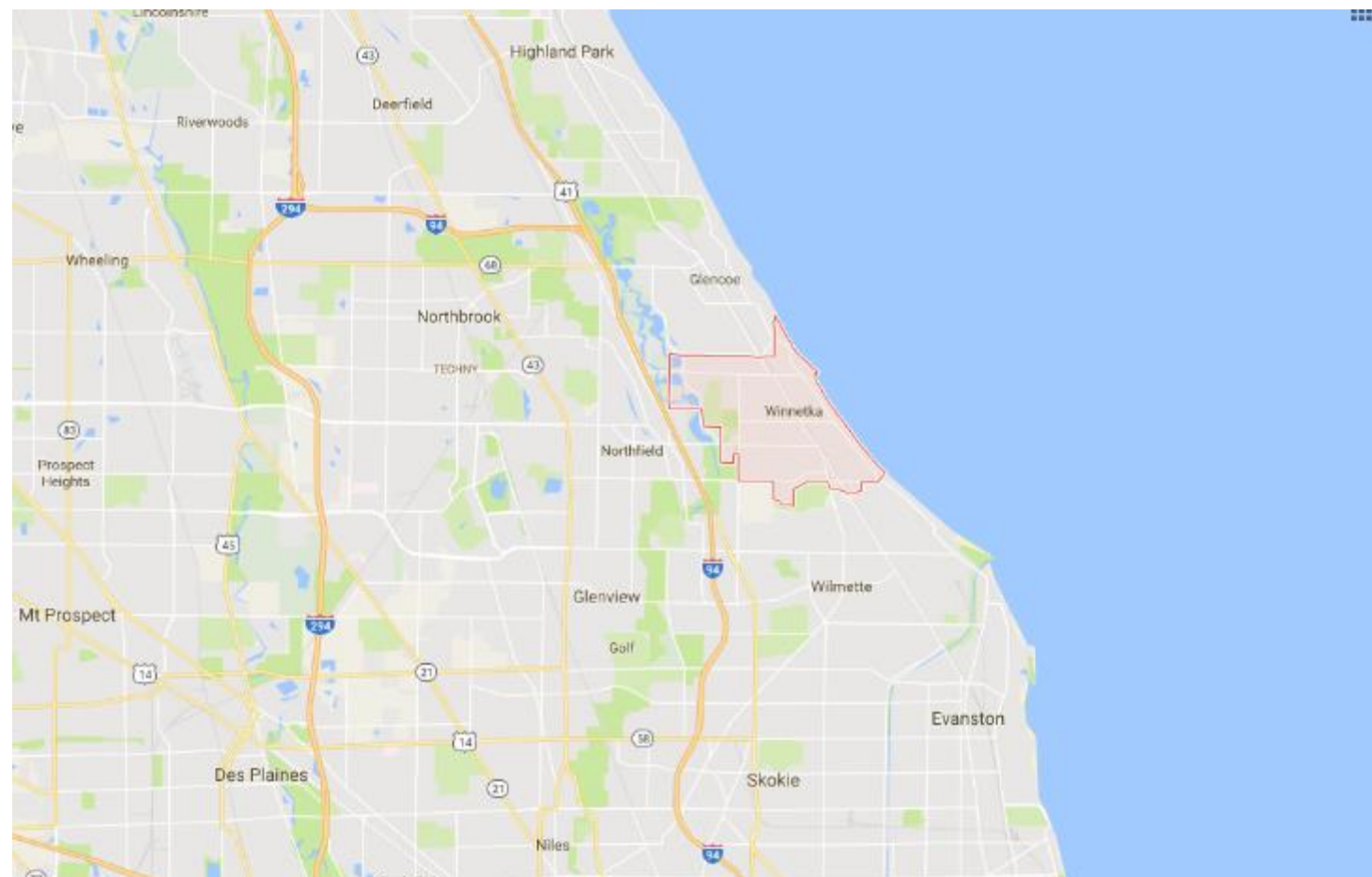
1800's Diameter (in)	24
Latin Name	<i>Quercus alba</i>
Common Name	White oak
Genus Name	Oak
Observation Notes	
Tree Status	Status has not been evaluated
Current Diameter (in)	
Land Use	
Species, if different	
Tree is located on	
Zoom to	





This data can inform other efforts across the region

E.g., Crow Island Woods



Save Crow Island Woods

Join us in protecting a threatened local treasure...

About Us Learn More What Can I Do? News Events

Crow Island Only Remnant of Pre-Settlement Winnetka

Prior to extensive European settlement, a large portion of Winnetka and the surrounding area near Lake Michigan were covered by extensive oak woodlands and savannas, but even by the 1930s, nearly all of the larger oak ecosystems in the north shore were already gone. As these maps from Chicago Wilderness show, Crow Island Woods is the only remnant oak forest from that time.

When our children forage in Crow Island Woods during pioneer days, they are literally walking in Winnetka's only remaining forest dating back to pre-settlement times!

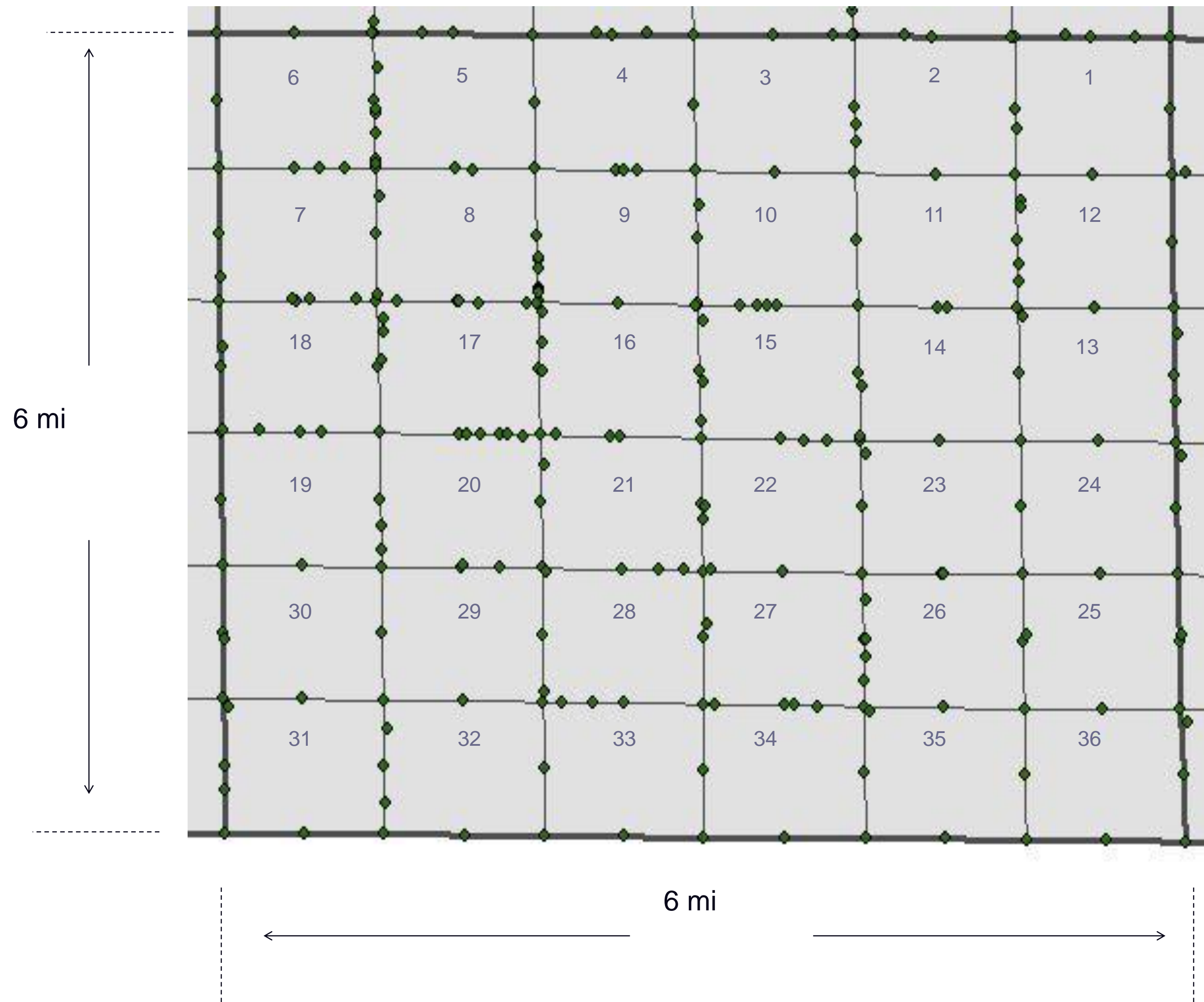
Legend

- Winnetka
- Remnant Oak Ecosystems

Crow Island is the only oak ecosystem remaining from pre-settlement days.














Each township was divided into 36 sections

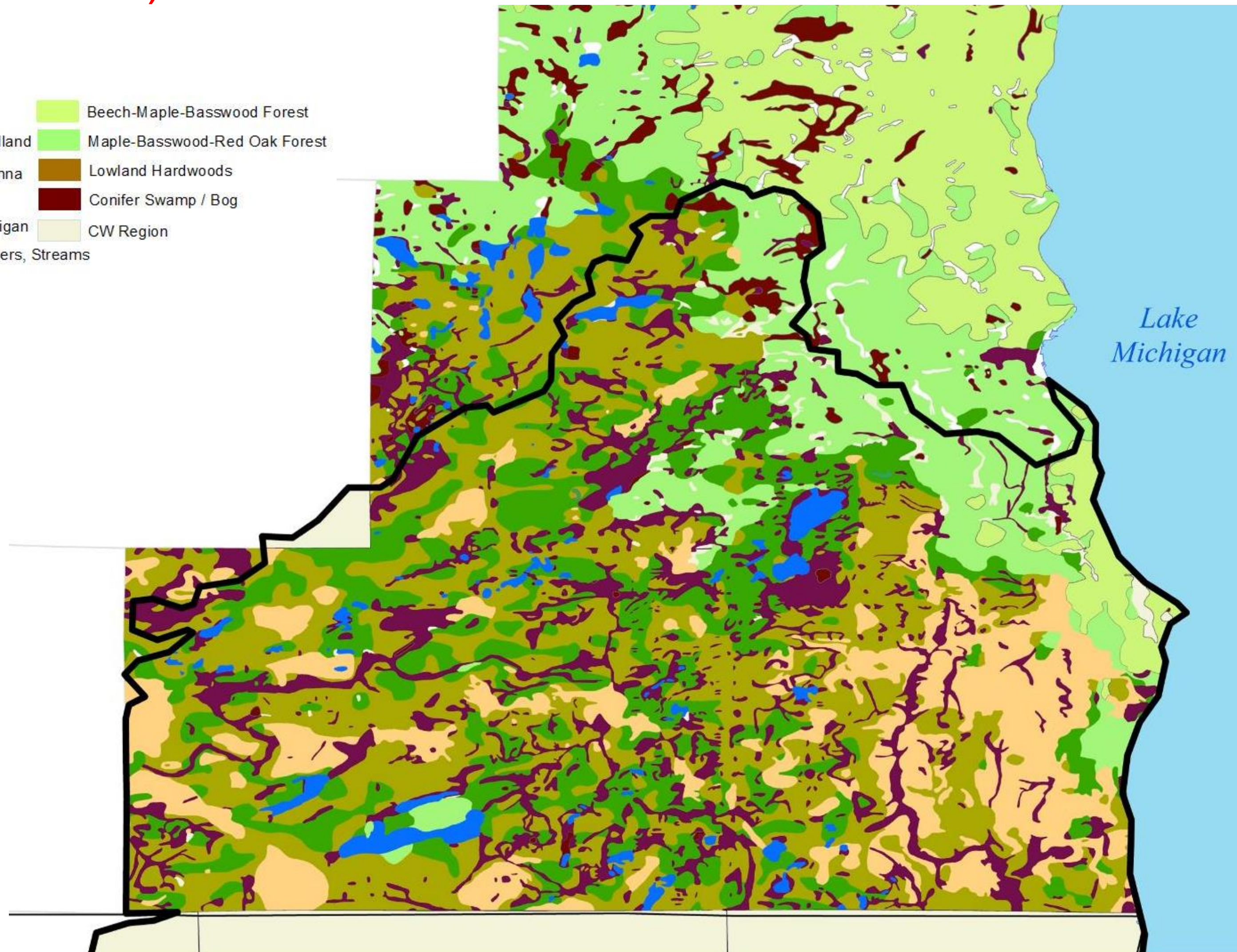


SE Wisconsin Pre-settlement vegetation

Data from Southeast Wisconsin Regional Planning Commission (SEWRPC)

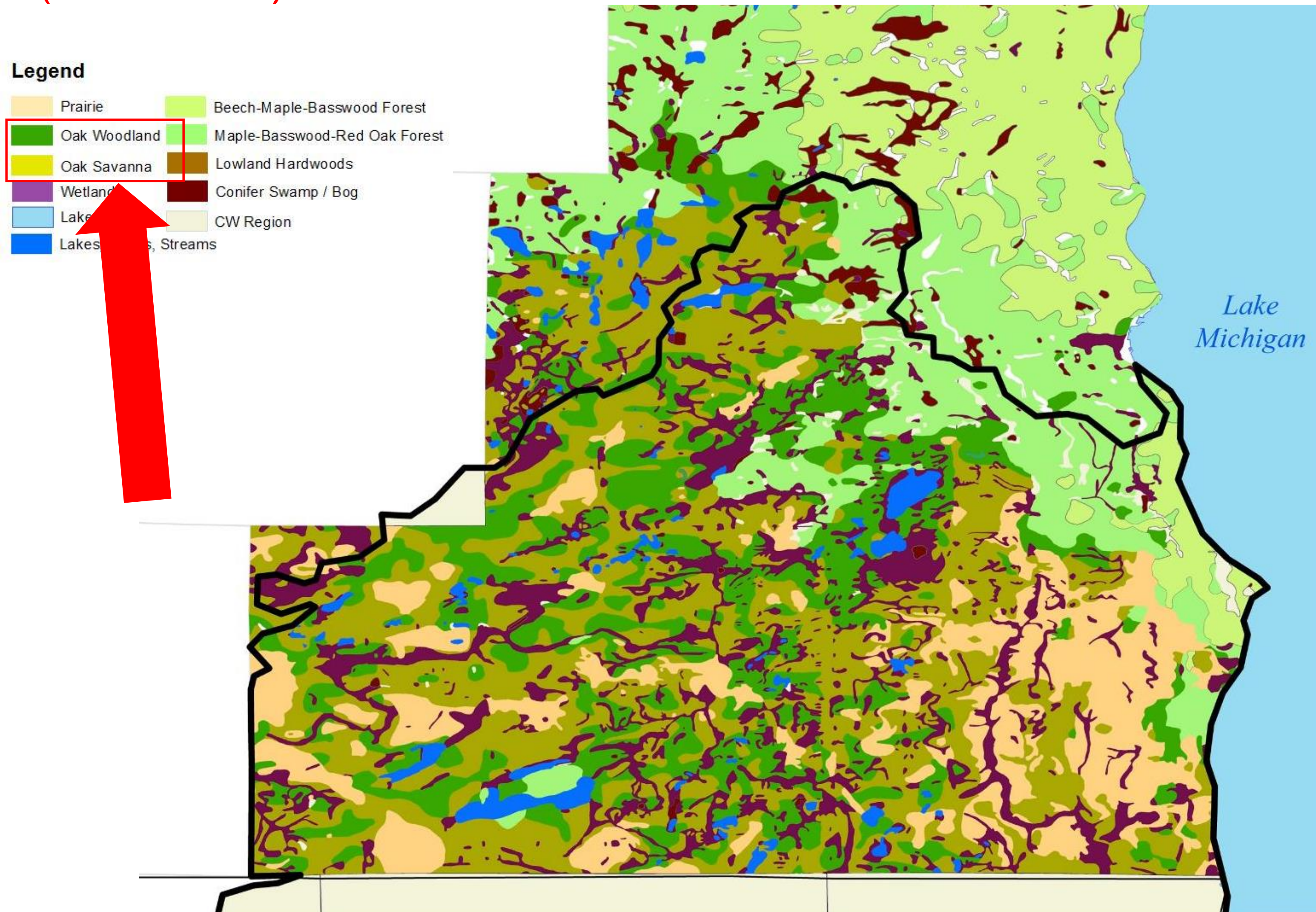
Legend

 Prairie	 Beech-Maple-Basswood Forest
 Oak Woodland	 Maple-Basswood-Red Oak Forest
 Oak Savanna	 Lowland Hardwoods
 Wetland	 Conifer Swamp / Bog
 Lake Michigan	 CW Region
 Lakes, Rivers, Streams	



SE Wisconsin Pre-settlement vegetation

Data from Southeast Wisconsin Regional Planning Commission
(SEWRPC)

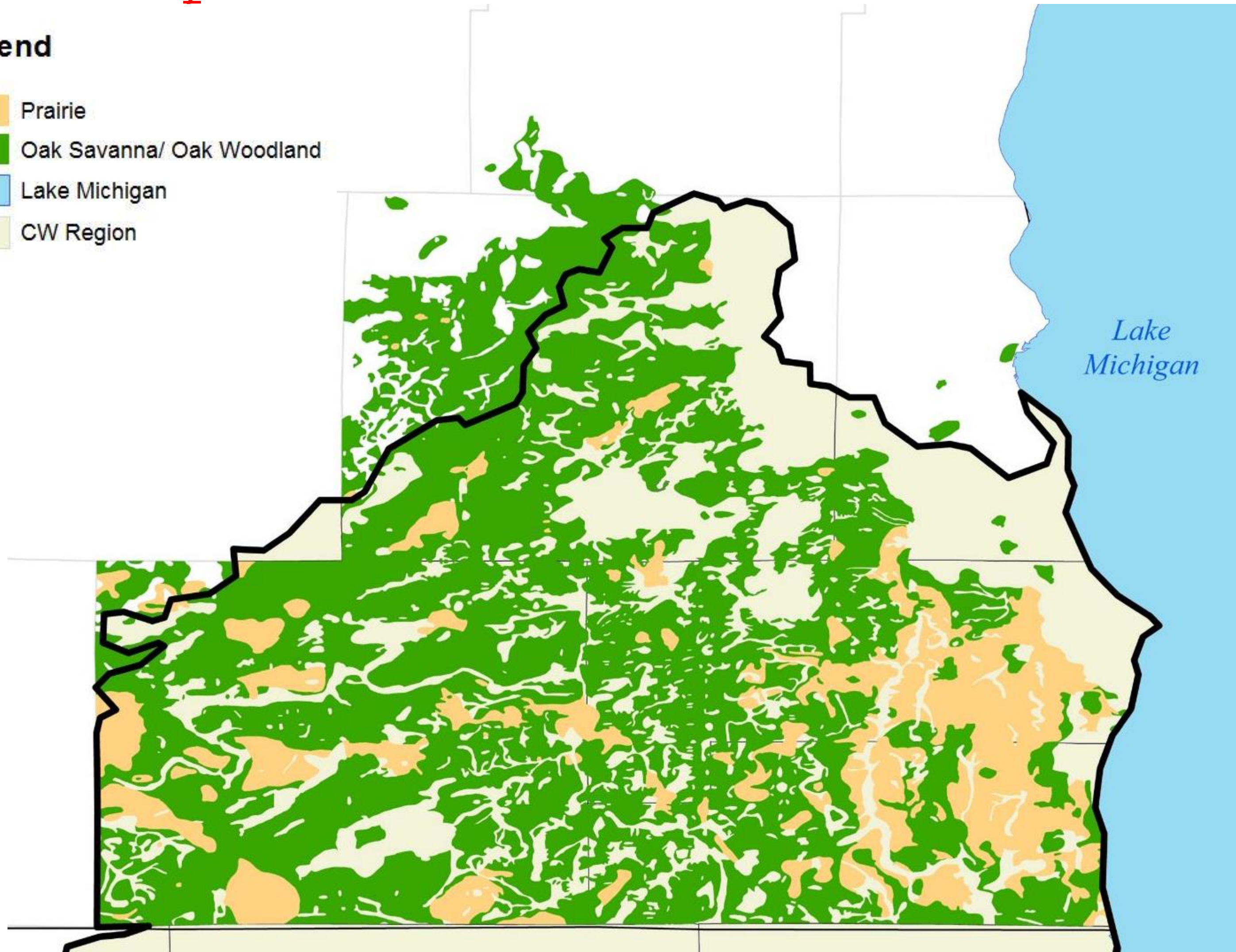


SE Wisconsin Pre-settlement Wooded vegetation

Data from Southeast Wisconsin Regional Planning Commission (SEWRPC)

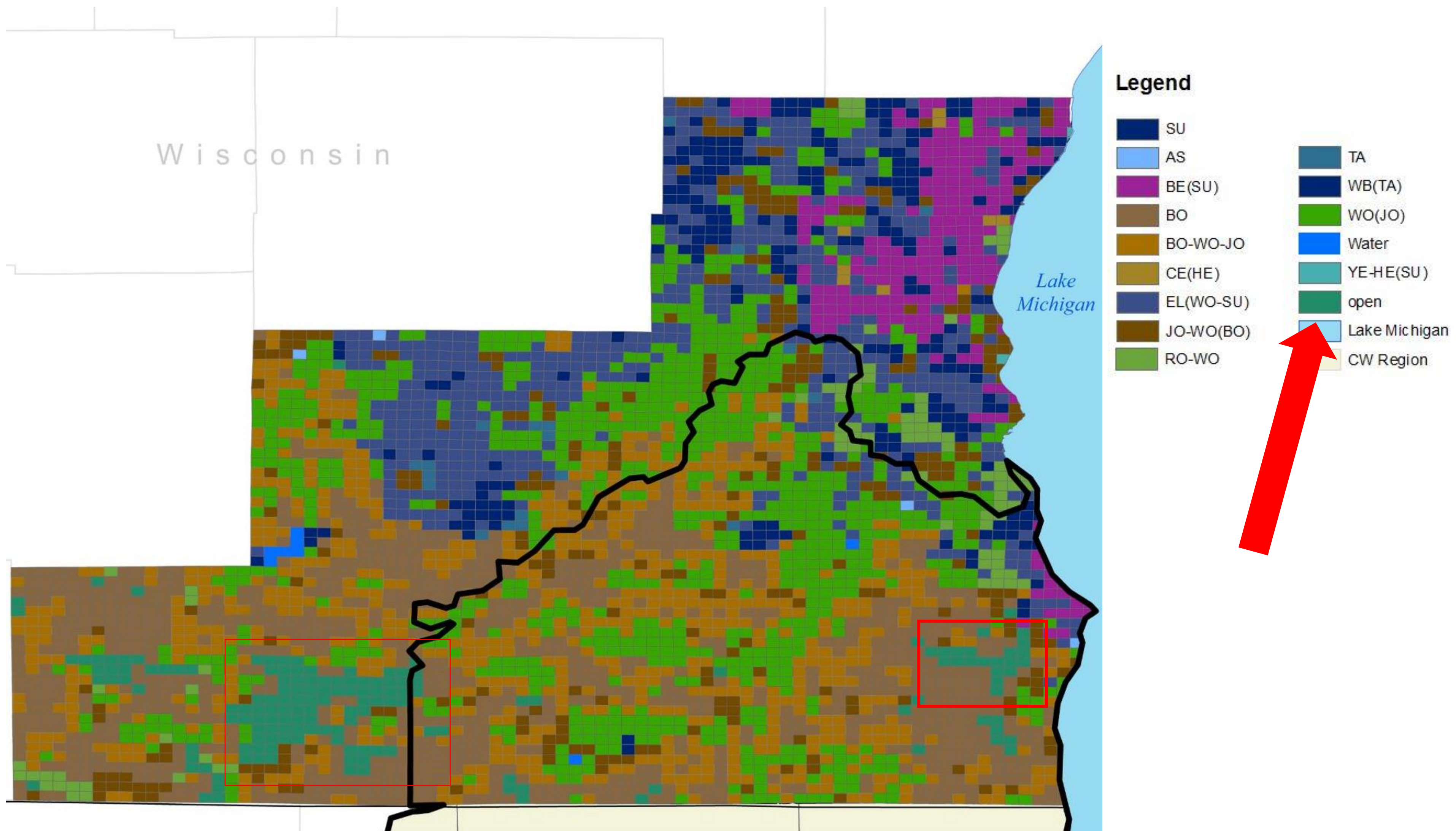
Legend

- Prairie
- Oak Savanna/ Oak Woodland
- Lake Michigan
- CW Region



SE Wisconsin Pre-settlement Tree Species Dominance by Section

Data from David [Mladenoff](#), University of Wisconsin - Madison



SE Wisconsin Pre-settlement Tree Density by Section

Data from David Mladenoff, University of Wisconsin - Madison

