

# Mequon Nature Preserve and Urban Restoration

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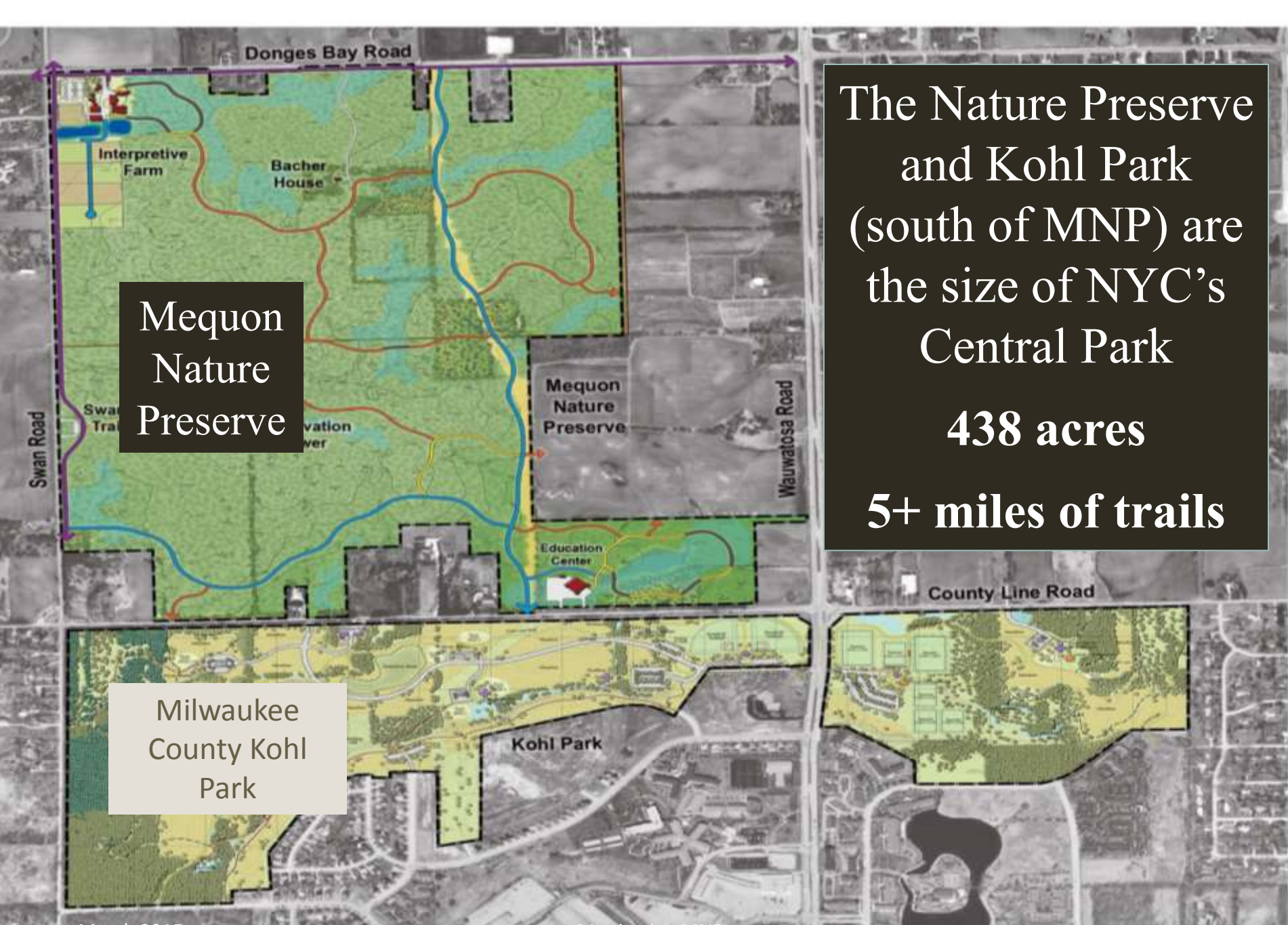
MEQUON *Nature Preserve*



# Mequon Nature Preserve

- **Land acquisition** began in 2000 with work by Greater Milwaukee Foundation, Ozaukee-Washington Land Trust and the City of Mequon. The property is now owned (since 7/2011) by the City of Mequon and operated by Mequon Nature Preserve Inc.
- **Land Preservation:** Land with its natural landscape will be saved forever. (Easements are held on different sections by Ozaukee-Washington Land Trust, Wisconsin DNR, Milwaukee Metropolitan Sewer District)
- **Mission:** To restore the land to the woods and wetlands of the early 1800's and provide environmental science education programs.



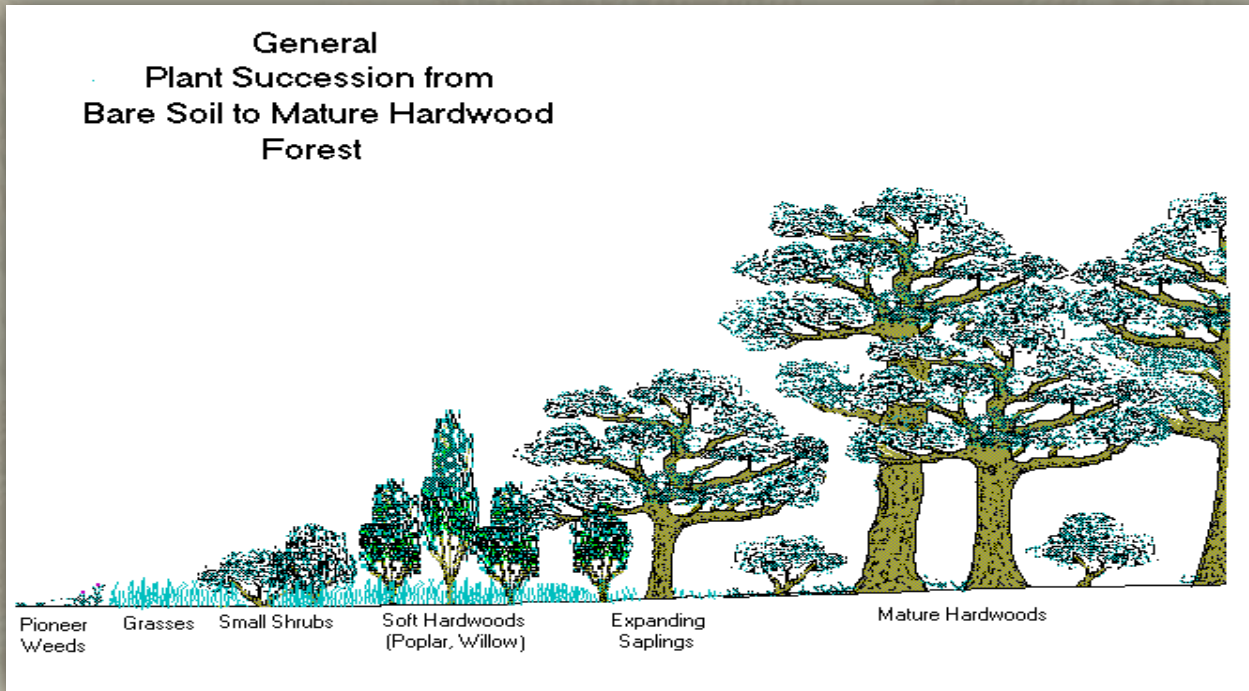


Mequon  
Nature  
Preserve

Milwaukee  
County Kohl  
Park

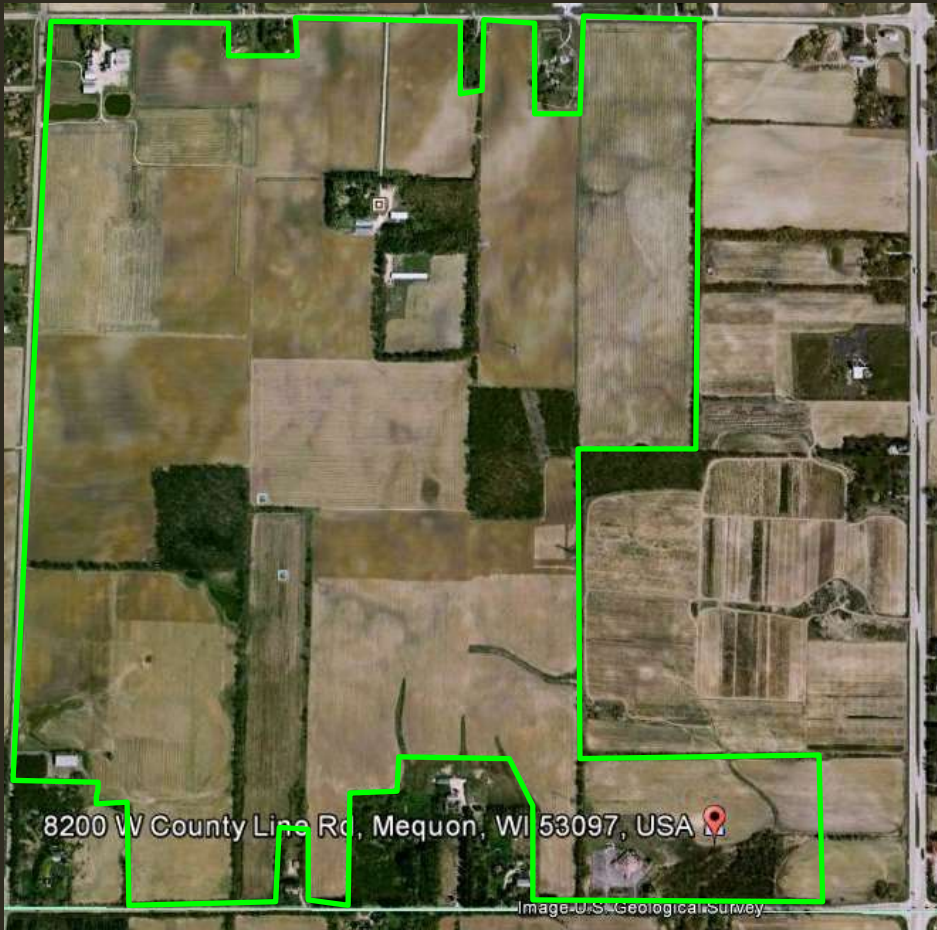
The Nature Preserve  
and Kohl Park  
(south of MNP) are  
the size of NYC's  
Central Park  
**438 acres**  
**5+ miles of trails**

# 150 year Master Plan

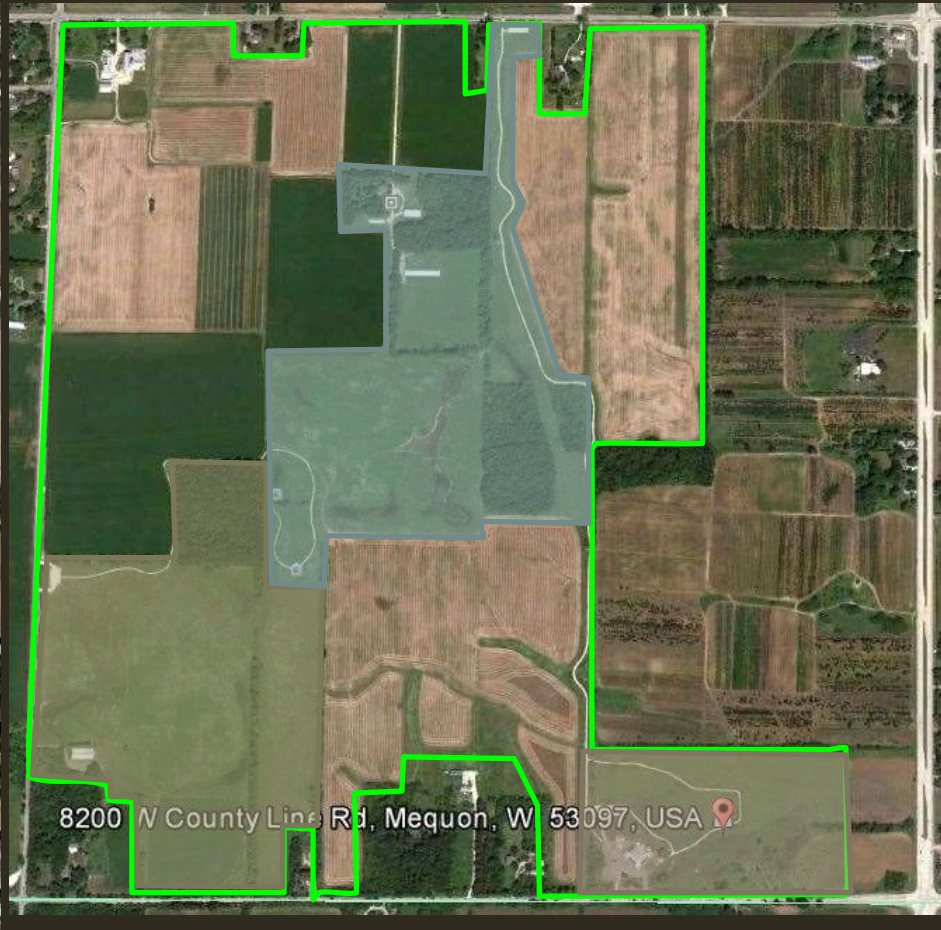


- Adaptive management plan created every five years.
- Practices include **hand-pulling invasive plants, selective mowing, hand and direct seeding, plug planting, seedling plantings, herbicide, controlled burns...**
- All work is timed to avoid prime bird and herp migration and reproduction times.

# MEQUON *Nature Preserve*



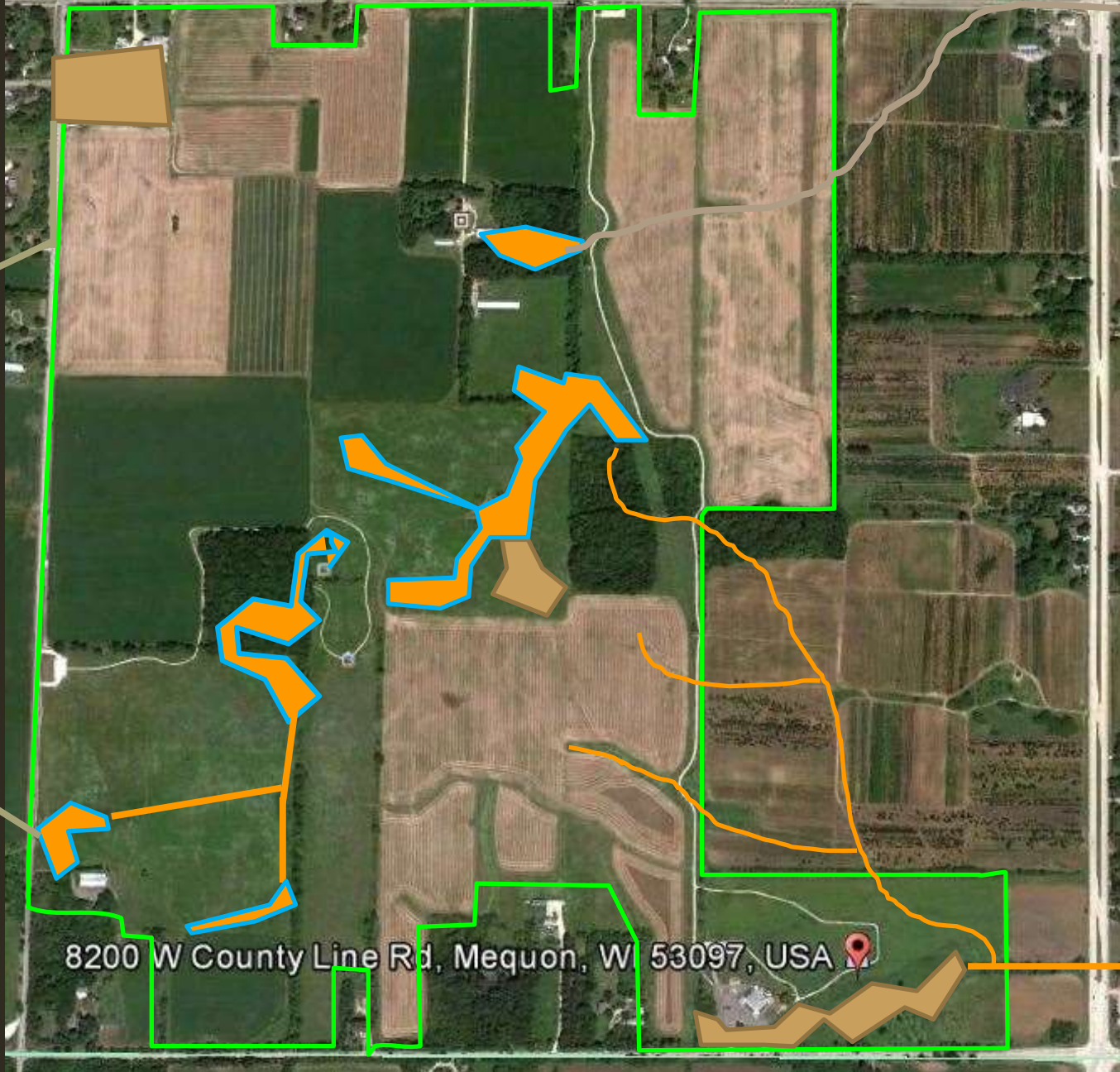
**Spring of 2005**



**Spring of 2011**

Removing impediments to dispersal and improving habitat

Little Menomonee River → Lake Michigan



Milwaukee River → Lake Michigan

# CURRENT WETLAND SYSTEMS

75% of wetlands in Wisconsin are privately owned



85% of restorable wetlands are privately owned



80% of species depend on wetlands at some point in their life

# Wisconsin Waterfowl Association

- Non profit dedicated to wetland restoration, education and Legislation
- Complete restorations throughout WI
- Provide technical assistance, cost share
- Mequon Nature Preserve is 1 of over 60 organizations throughout WI we have partnered with to successfully restore wetlands.

How did WWA get involved at MNP?







# Challenges in an urban landscape

Will we attract target species and get incidentals of significance

Utilities

Timing

Adjacent Land use- disturbance

Storm Water

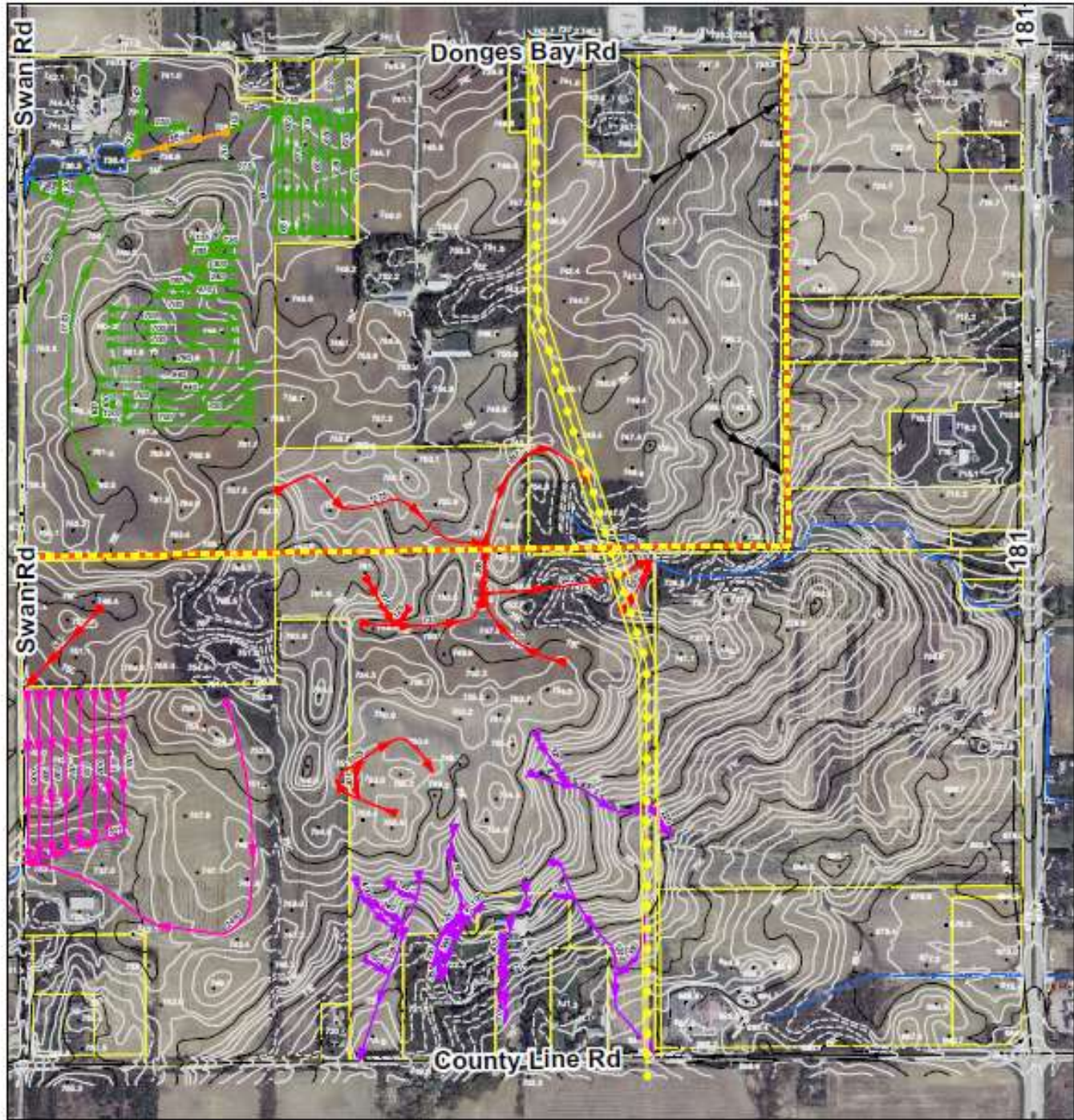
Impediments to wildlife immigration

Site Land use

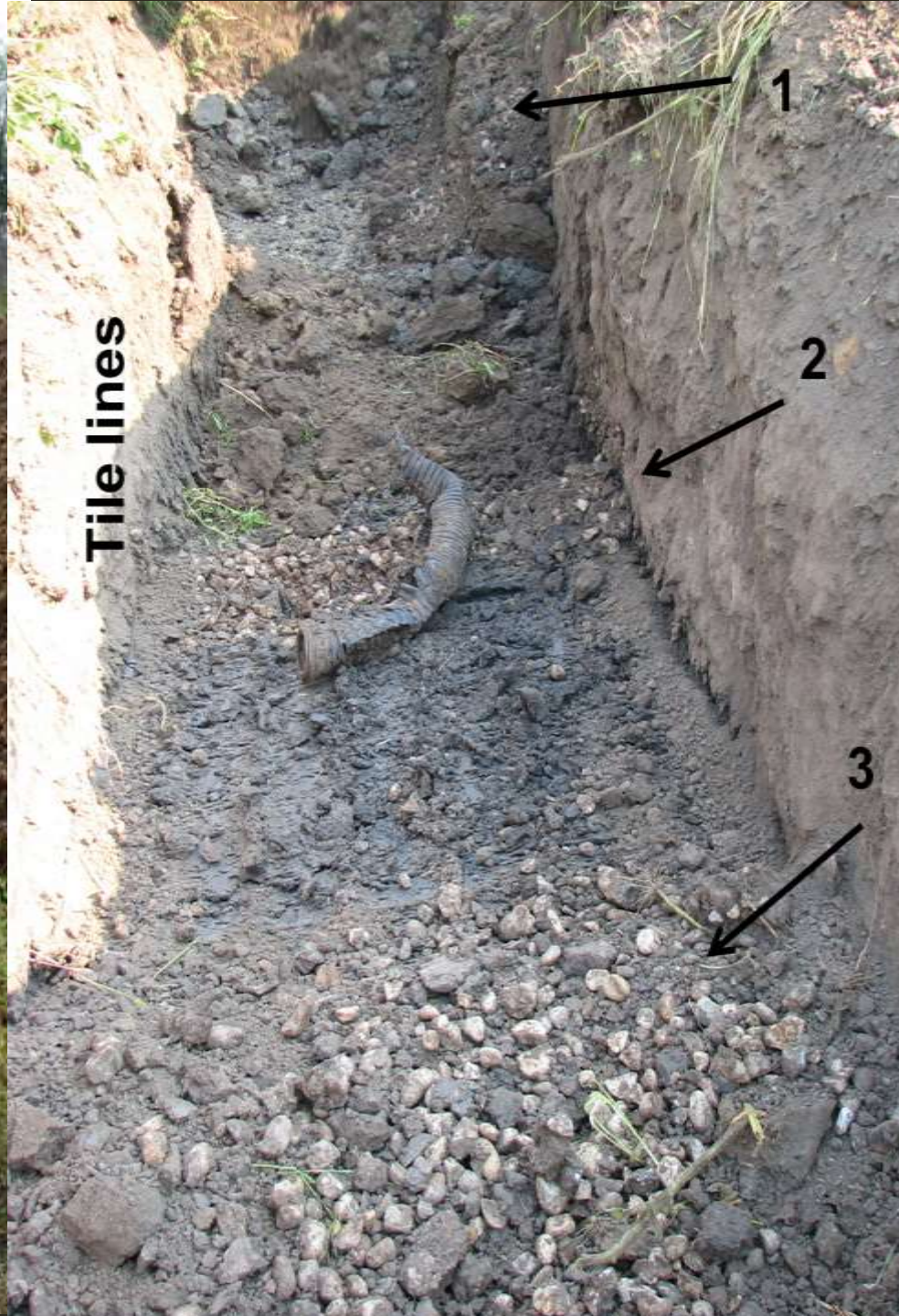


# How did we get here





# Tile Searches





# Sediment Removal



**Darker wetland soils exposed**









**Water quickly returns**



# Bird use returns





Vegetation responds

# Prescribed burns administered



2004

MNP Prior to Wetland Restoration

Go

2005





2006



4/29/2007

2007



N Swan Rd

181

N Wauwatosa Rd

Image U.S. Geological Survey

2000

Imagery Date: 3/31/2007 43°11'50.05" N 88°00'48.31" W elev 7

2009





Rob Nuernberg



Rob Nuernberg

**Sloppy beginning to Trinity Creek headwater wetlands  
2 artesian wells, French drains discovered**



# Challenges

Sediment loading

Storm water

Nutrients

Utilities



# Trinity Creek Restored







# Sunrise at MNP Trinity Creek headwaters





View east of parking lot today: Trinity Creek runs through ponds. Fish spawn here, and storm water is captured lessening flooding and pollution.

Where do we go from here





March 2015

Monitoring MNP

# Urban Environmental Education

In 2007, educational programming began with only a handful of students engaged.

By the end of 2014, MNP had reached over 12,000 educational contacts!

From that number 3,560 were on the ground field trips. 58% of those from the City of Milwaukee!

**EVERYONE** heard the strong message of  
**RESTORATION!**











# Monitoring Objectives

Guide habitat restoration activities through adaptive management

- Hard data on what is working

Ensure restorations include wildlife

- Integral to functional value
- Often compromised by spatial issues
- Collect baseline data for property
  - Build species checklists
- Monitor focal species
  - Discover if new species arrive
  - Discover if species are lost
  - Know if species are declining or increasing

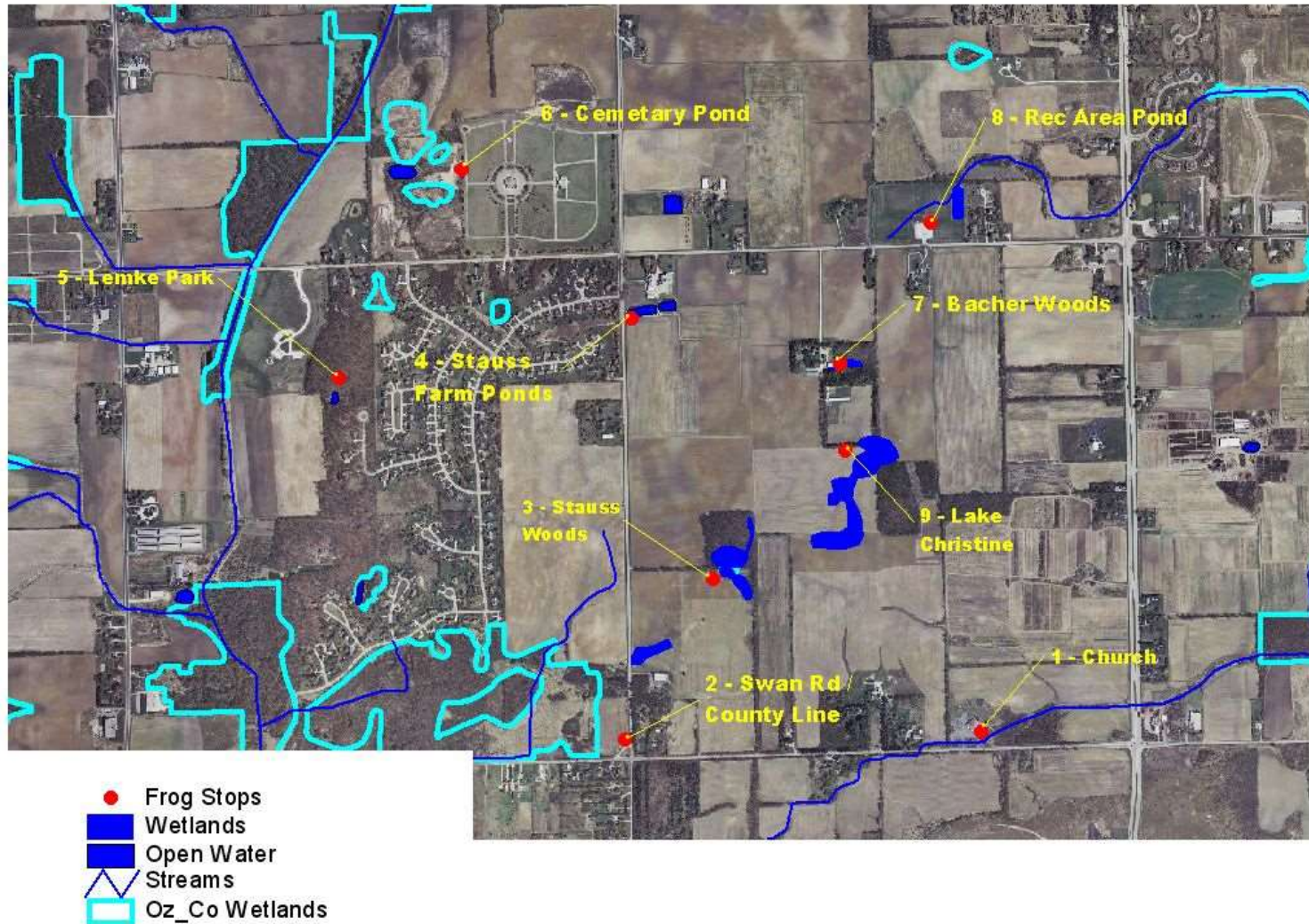


# Frog Calling Surveys:

- Standard call survey protocol:
  - Surveys are run just after dark
  - 5 minute listening period at each stop
  - Weather and call index values recorded



# Frog Calling Surveys:



# Salamander Surveys:

- Funnel / Minnow traps
- Checked daily
- Monitor salamanders, tadpoles, crayfish, frogs, and aquatic inverts
- 2 sessions of 5-6 days each (4-5 trap nights) in late March, early April
- Timing with rain during the trapping session



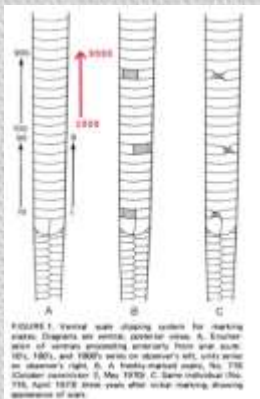


# Herpin' at MNP!



# Snake Surveys:

- Cover object surveys
- Surveys run in the evening
- Monitor snakes, small mammals, some amphibians
- 8-10 surveys May through July
- Individually mark snakes for estimating population size



# Turtle Surveys:

- Baited hoop net traps
- Checked daily for 2 sessions of 5 days each mid-May through mid-July
- Also visually scan for turtles



# Visual Surveys:

- Walk-through surveys along shorelines.
- Targets basking turtles, frogs, salamander eggs, and birds.





# Visual Bird Surveys

- 10 minute point counts, early morning
- 6-8 replicates of each point each June
- **In 2007, 74 species had been recorded – by 2014, 152 species (+8 taxa) have been reported by others at MNP (ebird.org)**



© Marie Read



© Kevin T. Karlson



# Breeding Bird Surveys

- Wood duck and kestrel nesting boxes
  - Done by Wisconsin Waterfowl Assoc. and UW-Milw.
  - All report successful nesting
- Bluebird monitoring program
  - Performed by groups of volunteers
  - Tracks bluebird, tree swallow and house wren breeding success
  - Since 2007:
    - Bluebird and tree swallow young fledged has doubled
    - House wren success has decreased slightly



# Baseline Results

- Amphibian Baseline: 6 amphibian species were present in low numbers
- American Toad, Western Chorus Frog, Gray Treefrog, Northern Leopard Frog, Green Frog, American Bullfrog
- No salamanders!



# Baseline Results

- Reptile Baseline: 3 reptile species were present in low numbers
  - Painted Turtle and Snapping Turtle in farm ponds in NW corner of property
  - Common Gartersnake found sporadically



# Baseline Results

- Crayfish Baseline: 2 crayfish species were present in moderate numbers
  - Prairie Crayfish, Devil Crayfish
  - Primary burrowers!



**Prairie**

**Female**



**Male**



**Devil**

# Change over 8 years

## Rapid increase and spread of:

- American Toad, Northern Leopard Frog, Gray Treefrog numbers
- Crayfish numbers (especially prairie crayfish)
- Gartersnake numbers (lagged)

## Dispersal of painted turtles to 4 of 5 wetland systems

## New species arrived:

- Wood Frog
- White River Crayfish



# No Change – Helping Hand

- No salamanders after 6 years... too many barriers to dispersal!!!
- **Adaptive management response**
  - 124 Blue-spotted and 483 Tiger salamander eggs from local sources moved to suitable vernal pond in April 2013
  - Eggs survived and hatched (None left in enclosure by mid-May)
  - Currently larvae are near transformation



# Moving Forward

- Other restoration possibilities that will be supported by the habitat goals:
  - Spotted Salamander
  - Central Newt
  - Blanding's Turtle
  - Western Foxsnake
  - Eastern Milksnake
  - Butler's Gartersnake
  - Dekay's Brownsnake
  - Northern Red-bellied Snake





# Acknowledgements

We thank the founding partners of Mequon Nature Preserve: **Ozaukee Washington Land Trust, Greater Milwaukee Foundation, and the City of Mequon** for establishment of the preserve.

This work was funded by **WI DNR, Milwaukee Metro Sewage District, National Fish and Wildlife Foundation, North American Wetland Conservation Agreement, Fund for Lake Michigan, Wisconsin Waterfowl Assoc.** and many private donors.

Visit:

[mequonnaturepreserve.org](http://mequonnaturepreserve.org)

for more info!

