

Tracking the Trajectories: An Overview of The Northwest Indiana Restoration Monitoring Inventory (NIRMI)

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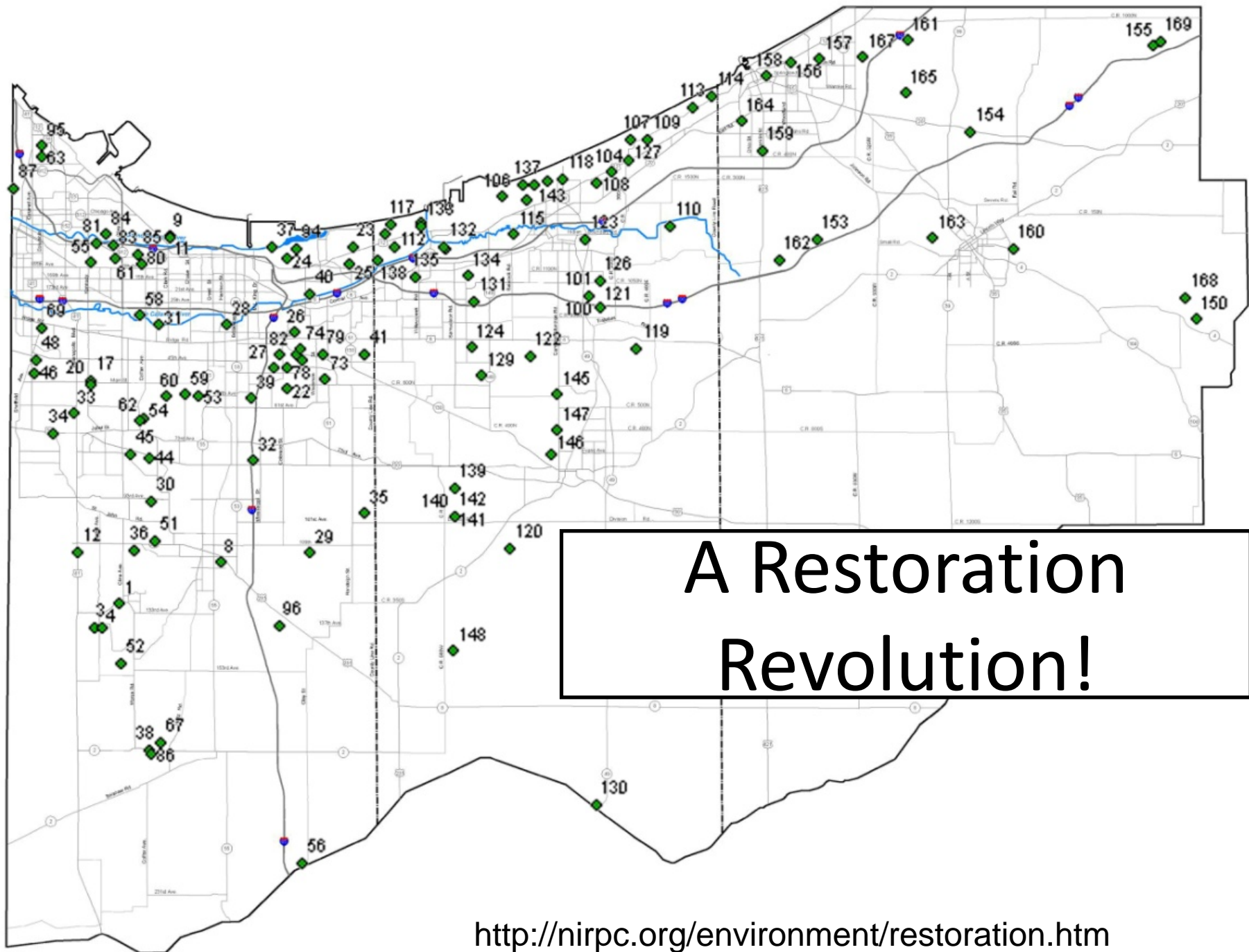
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Jason Palagi: NIRMI's keystone





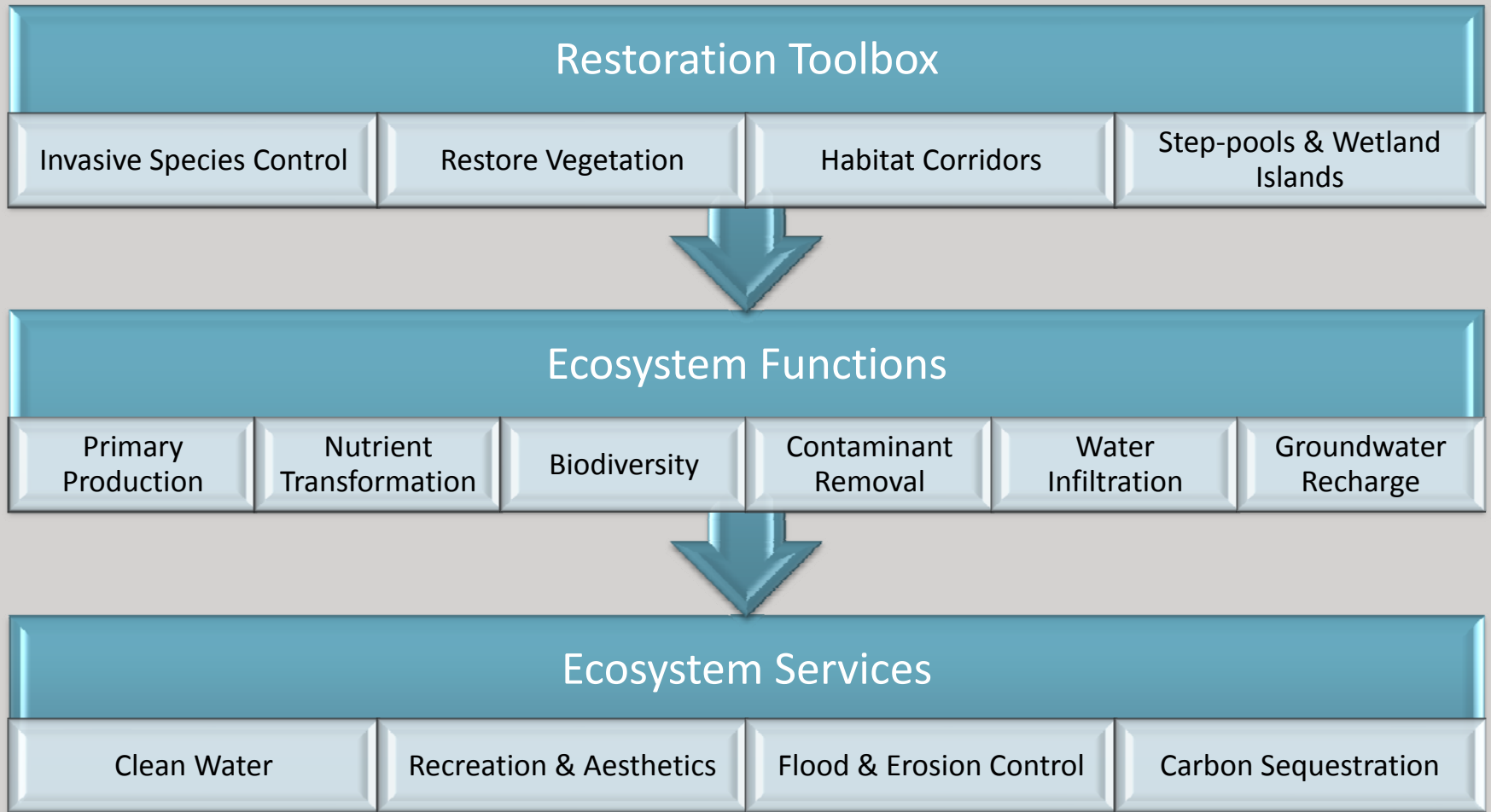
A Restoration Revolution!

<http://nirpc.org/environment/restoration.htm>

The Restoration Revolution in Northwest Indiana (2006)

- Documented 166 ecological restorations in Lake, Porter, and LaPorte counties
- Restoration sponsors included public and private organizations including federal, state and municipal governments as well as not-for-profit and for-profit companies
- <http://nirpc.org/environment/restoration.htm>

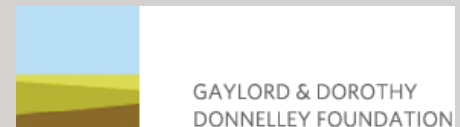
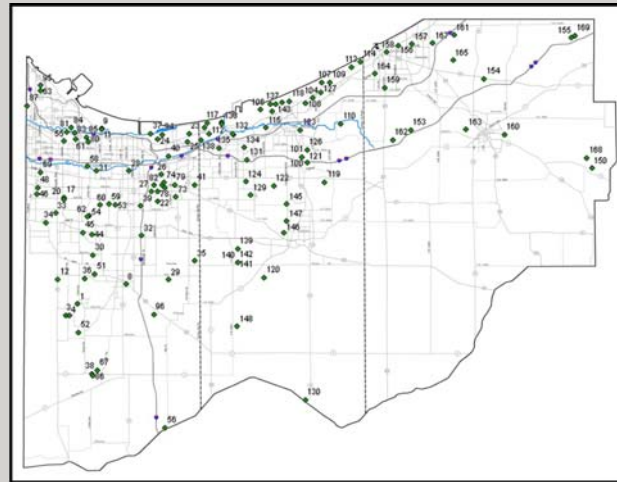
We know restorations provide...



We also know each restoration unique...



ArcelorMittal



We don't know the restoration trajectories

- **Restoration trajectories** = the accumulation of key ecological components and processes that gauge restoration progress and success at a regional spatial scale and over time

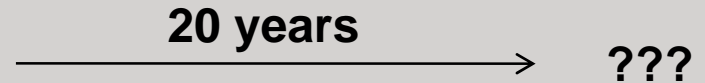


2 years
→



We don't know the restoration trajectories in time

- **Restoration trajectories** = the accumulation of key ecological components and processes that gauge restoration progress and success at a regional spatial scale and over time



We don't know the restoration trajectories in space

- **Restoration trajectories** = the accumulation of key ecological components and processes that gauge restoration progress and success at a regional spatial scale and over time

At 160+ sites in NW Indiana???



We need...

- **Systematic monitoring** across as many restorations as possible
 - Efficient ways **to compare** restorations across the region
 - **A synthesis and database** of the restoration trajectories
 - **Organized access to information** about how restoration occurs
-
- In essence...
 - To monitor the restorations like we track the weather

NIRMI fills the gap

The Northwest Indiana Restoration Monitoring Inventory (NIRMI)

A sustained system of evaluating
restoration trajectories

NIRMI fills the gap

- Who is NIRMI?
- Core team of restoration and field ecologists, undergraduate student interns, and restoration minded partner organizations
- Uses the networking mechanisms of Northern Indiana Consortium for the Environment (NICE) housed at IU Northwest

NIRMI to operate year round and long-term

Spring Semester:
Mid-winter to mid-spring

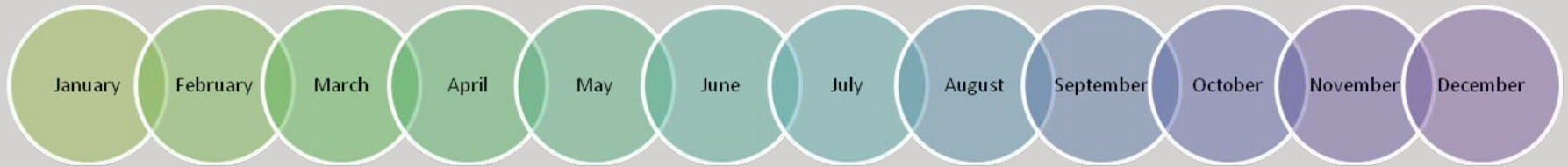
Confer, Design, Identify

Summer:
Mid-spring to mid-fall

Sampling and Database
Entry

Fall Semester:
Mid-fall to mid-winter

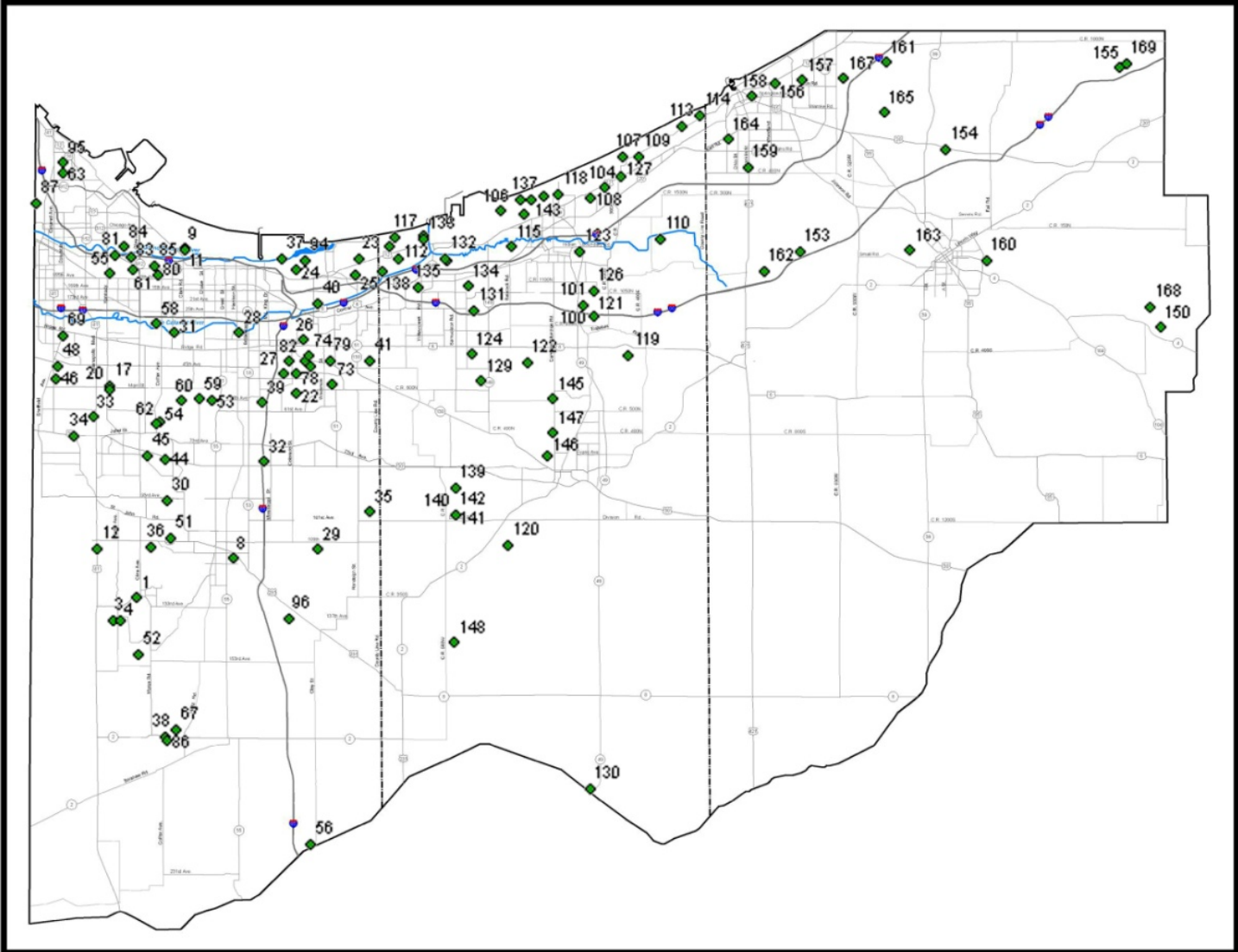
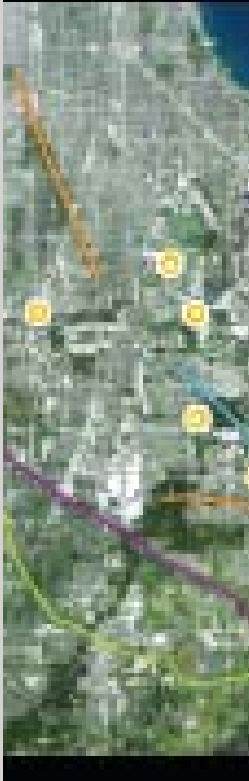
Data consolidation,
evaluation and reporting



Where NIRMI operates



Where NIRMI operates



NIRMI will systematically monitor

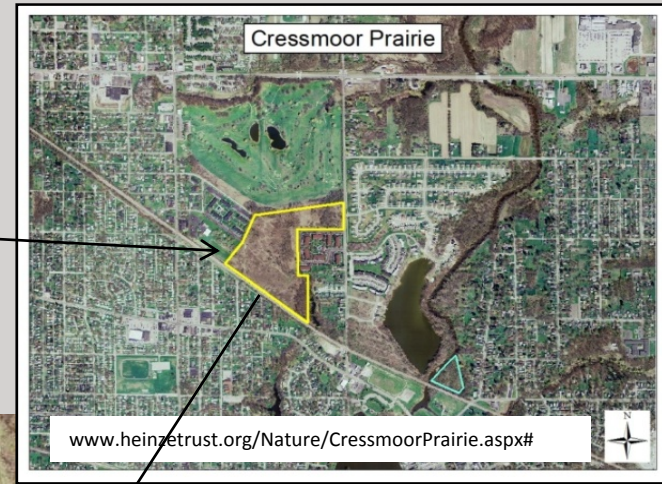
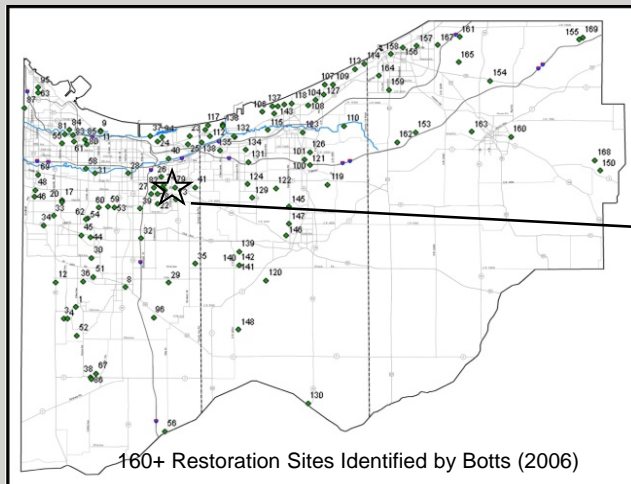
Field Data Collected

- Plant Species
- Canopy Cover
- Soil pH
- Soil Moisture
- Soil cores for nutrient analysis
- Ambient Weather Conditions
- Photographic Documentation

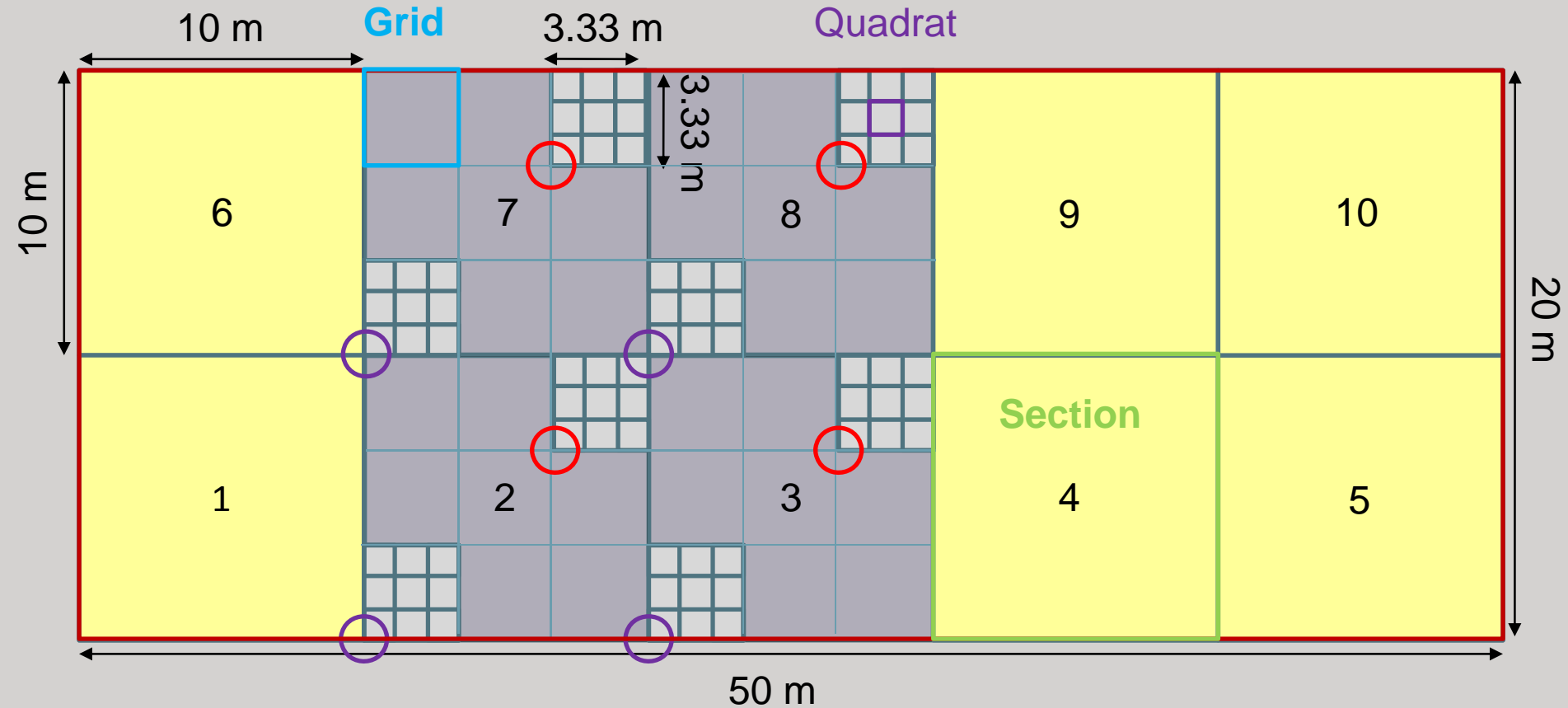
Soil Nutrient Analysis

- Nitrogen
- Potassium
- Phosphorous
- Magnesium
- Carbon
- %Sand, Silt, Clay

How NIRMI does it: A simulated example

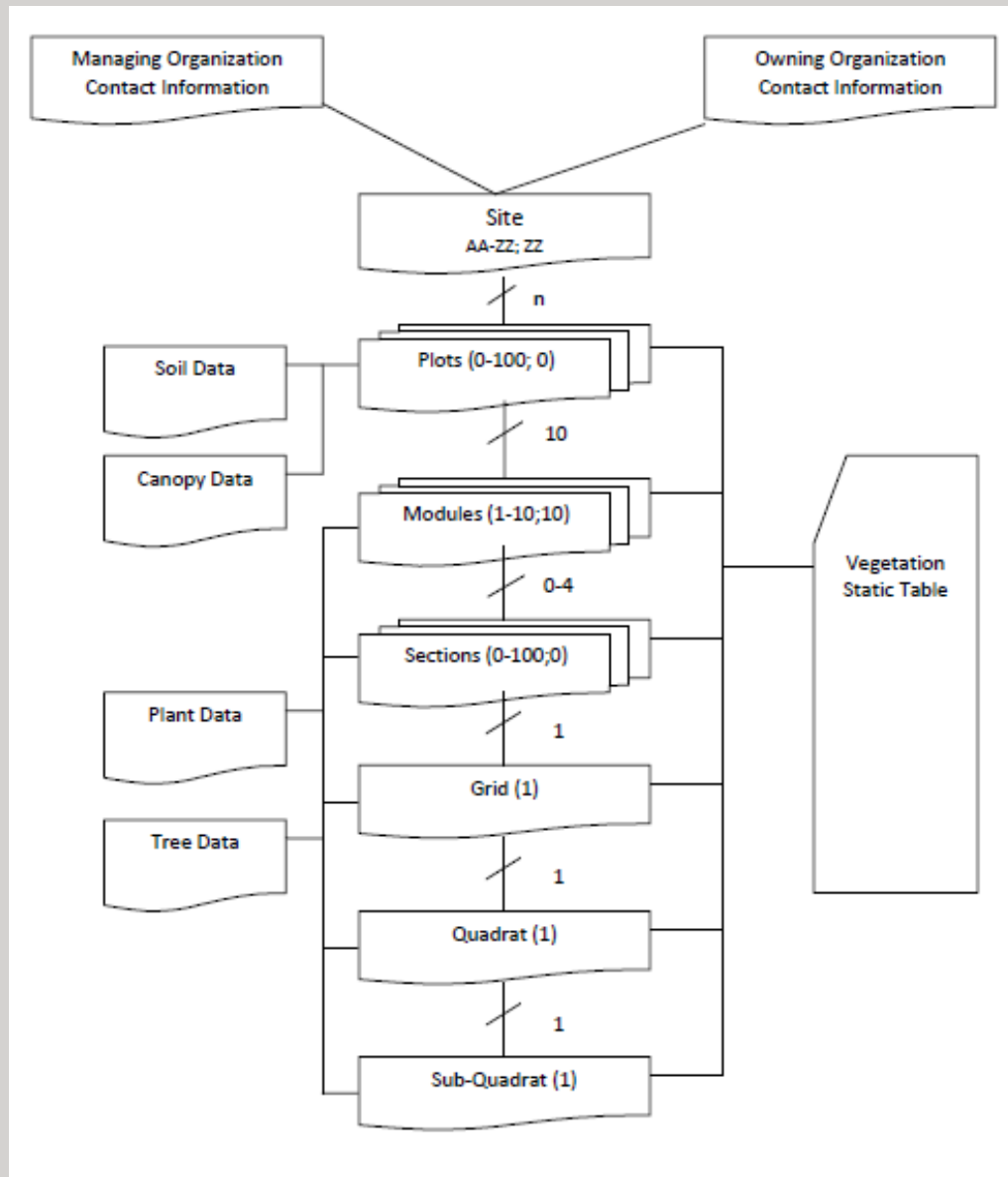


Monitoring Plot



Purple and red circles denote soil core sampling sites in alternate visits

Current database model



Systematic Evaluation

Description of plot and sampling

Standard metrics (diversity indices)

Direct comparison across scales

Biotic/abiotic trends over time

18 Month Program Goals

Sample ~38 sites (75 plots) in 18 months

Interactive, robust database

Site reports

User-friendly website

Where NIRMI is now

- Have pledges for two-thirds of our direct cost budget goal for 1st 18 months (AUG 2010-DEC 2011)
- Will have 2 interns through GLISTEN for monitoring of 8 sites during summer 2010
- Working on developing 1st generation infrastructure for data storage and access
- Developing long term plans (5 and 10 years)

Who can use NIRMI?

- **Any restoration minded organization** -- How to restore better? What works where in NW Indiana?
- **Academic researchers** – What are the impacts of fire across multiple restoration sites?
- **Educators** – How can restoration focused modules be included in courses?
- **Public and Policy** -- How can I understand the impact of restorations?

A NIRMI Call to Connect:

We Seek More Partners

- If you have monitoring needs at a restoration...
- If you are interested in research about what happens in restoration...
- If you want to incorporate restoration into your educational courses...
- If you want to know how restorations benefit society, your community...
- **...NIRMI wants you to become a partner**