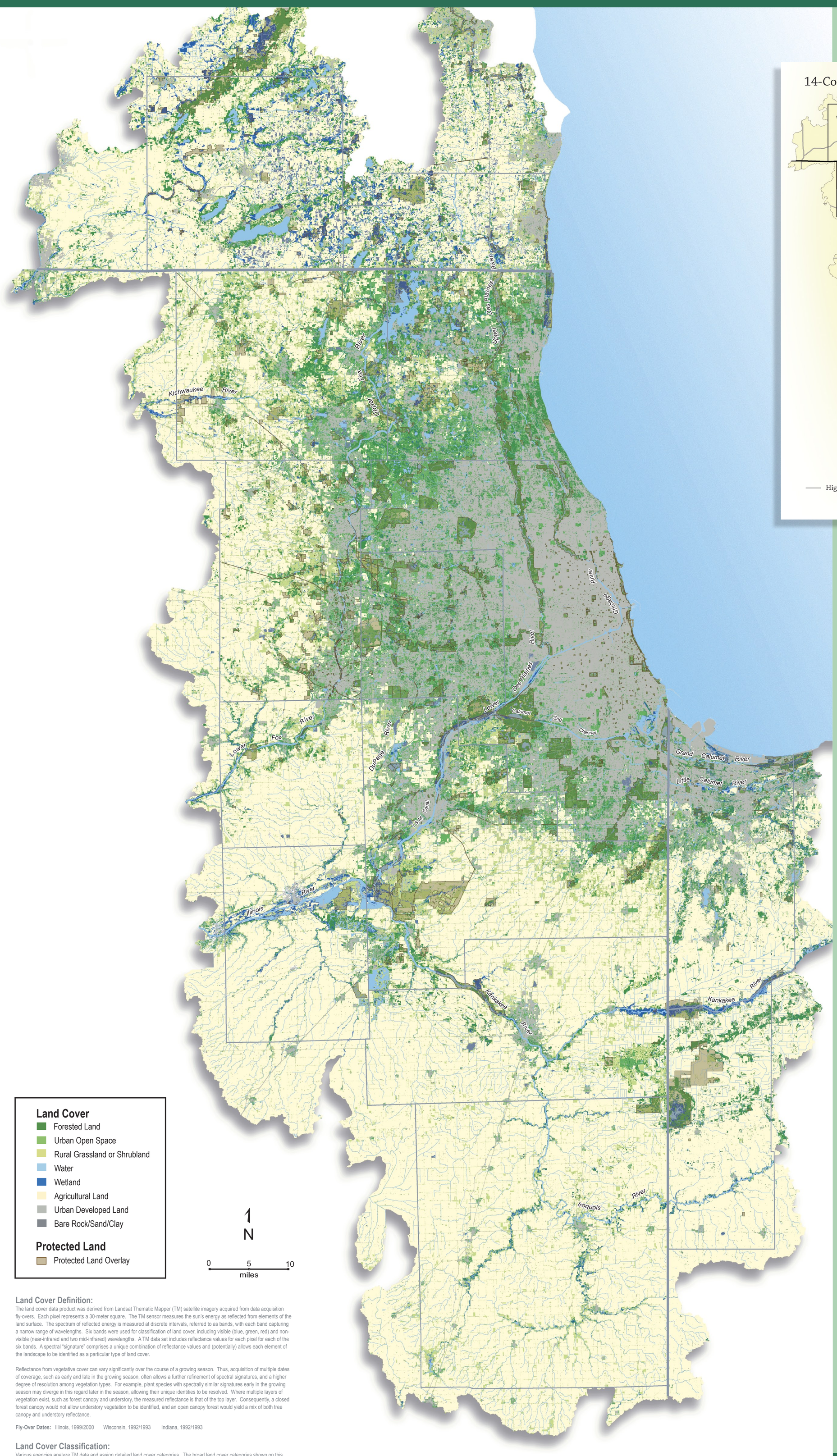
Natural Connections: Green Infrastructure in Wisconsin, Illinois, and Indiana



What Is Green Infrastructure?

Green infrastructure is the interconnected network of land and water that supports native species, maintains natural and ecological processes, sustains air and water resources, and contributes to the health and quality of life of people and communities.

The need to protect the region's green infrastructure is greater than ever. Rapid changes in land use, increases in non-native species, and other threats imperil the region's natural heritage. Green infrastructure should serve as the strategic framework for conservation and development so that linkages and key natural areas can be preserved before development occurs.

Green infrastructure can range in size from the intimate to the vast, from a small neighborhood garden to Lake Michigan. Each piece has its place in the regional fabric. Understanding the relationship between the pieces is important because it will provide a framework for protecting and restoring natural landscapes.

This map uses sub-watershed boundaries for its borders to illustrate how the regional fabric of green infrastructure stretches across state and county lines, ignoring political boundaries.

The region's green infrastructure is characterized by rich natural resources, globally rare ecosystems, and tremendous biological diversity. It also has immense economic value - e.g., wetlands that reduce flooding, trees that cool neighborhoods in the summer, and open spaces that absorb rainwater and replenish the aquifer. All provide millions of dollars worth of benefits to the region each year.

How to Use This Map

This map can be used as a tool for creating linkages between existing protected lands and for identifying opportunities for natural resource protection and restoration. As the map shows, the region has vast green infrastructure resources, but only a limited amount is currently protected and many protected areas are isolated from each other. Strategically focused efforts to protect more green infrastructure and create new linkages are crucial.

The reverse side of this map focuses on state border areas as places ripe for greater cross-border cooperation and coordination with respect to protecting green infrastructure. The importance of identifying interstate opportunities was the impetus for choosing the 14-county region covered on the map. Of course, many highly important natural resources (e.g., the Indiana Dunes) extend beyond the 14-county area and would be excellent subjects of future mapping efforts.
If you wish to see more maps, download detailed GIS information from a vast database of the region's green infrastructure, or access other important resources, please go to our website at **www.greenmapping.org**.

Land Cover
- Forested Land
- Urban Open Space
- Rural Grassland or Shrubland
- Water
- Wetland
- Agricultural Land
- Urban Developed Land
- Bare Rock/Sand/Clay

Protected Land
- Protected Land Overlay

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0 5 10
miles

Land Cover Definition:

The land cover data product was derived from Landsat Thematic Mapper (TM) satellite imagery acquired from data acquisition fly-overs. Each pixel represents a 30-meter square. The TM sensor measures the sun's energy as reflected from elements of the land surface. The spectrum of reflected energy is measured at discrete intervals, referred to as bands, with each band capturing a narrow range of wavelengths. Six bands were used for classification of land cover, including visible (blue, green, red) and non-visible (near-infrared and two mid-infrared) wavelengths. A TM data set includes reflectance values for each pixel for each of the six bands. A spectral "signature" comprises a unique combination of reflectance values and (potentially) allows each element of the landscape to be identified as a particular type of land cover.

Reflectance from vegetative cover can vary significantly over the course of a growing season. Thus, acquisition of multiple dates of coverage, such as early and late in the growing season, often allows a further refinement of spectral signatures, and a higher degree of resolution among vegetation types. For example, plant species with spectrally similar signatures early in the growing season may diverge in this regard later in the season, allowing their unique identities to be resolved. Where multiple layers of vegetation exist, such as forest canopy and understory, the measured reflectance is that of the top layer. Consequently, a closed forest canopy would not allow understory vegetation to be identified, and an open canopy forest would yield a mix of both tree canopy and understory reflectance.

Fly-Over Dates: Illinois, 1999/2000 Wisconsin, 1992/1993 Indiana, 1992/1993

Land Cover Classification:

Various agencies analyze TM data and assign detailed land cover categories. The broad land cover categories shown on this map reflect a grouping of these detailed categories, as defined below:

- **Forested Land:** Primarily tree-covered areas
- **Urban Open Space:** Primarily city parks, but also ball fields, cemeteries, and golf courses
- **Rural Grassland or Shrubland:** Natural grasslands, including prairies and some pastures
- **Water:** Open water bodies, such as lakes, rivers, and ponds
- **Wetland:** Palustrine, lacustrine, and riverine wetlands
- **Agricultural Land:** Farmed land, including cropland and pastures
- **Urban Developed Land:** Areas dominated by features such as buildings and paved surfaces
- **Bare Rock/Sand/Clay:** Areas that are barren of vegetation, such as quarries, beaches, and construction zones

Protected Land:

These are areas protected from further development and are independent of the land cover data. Protected Land represents major land holdings and easements owned by the National Park Service and the USDA Forest Service, the three state Departments of Natural Resources, county park districts, conservation districts, forest preserve districts, certain park districts, and certain private land trusts and non-profit organizations. Mappable data was not available from many local park districts, open space districts, and private organizations.

Data for this poster has been provided by the following sources:
Chicago Metropolis 2020; City of Chicago; Forest Preserve District of Cook County; Forest Preserve District of DuPage County; Forest Preserve District of Will County; Great Lakes Information Network; Illinois Department of Agriculture; Illinois Department of Natural Resources; Illinois Natural History Survey; Illinois Nature Preserves Commission; Illinois State Geological Survey; Indiana Department of Natural Resources; Indiana Dunes National Lakeshore; Kane County; Kendall County Soil & Water Conservation District; Kenosha County Department of Planning and Development; Lake County Department of Information and Technology, GIS/Mapping Division; Liberty Prairie Foundation; McHenry County Conservation District; Northeastern Illinois Planning Commission; Northwestern Indiana Regional Planning Commission; Purdue University – Center for Advanced Applications in Geographic Information Systems; Southeastern Wisconsin Regional Planning Commission; The Nature Conservancy; United States Census Bureau; USDA Forest Service; USDA National Agriculture Statistics Service, Illinois Department of Natural Resources, and Illinois Department of Agriculture. 2002. Land Cover of Illinois 1999-2000. Springfield, IL; United States Geological Survey; Will County Land Use Department; Wisconsin Department of Natural Resources.

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Openlands Project

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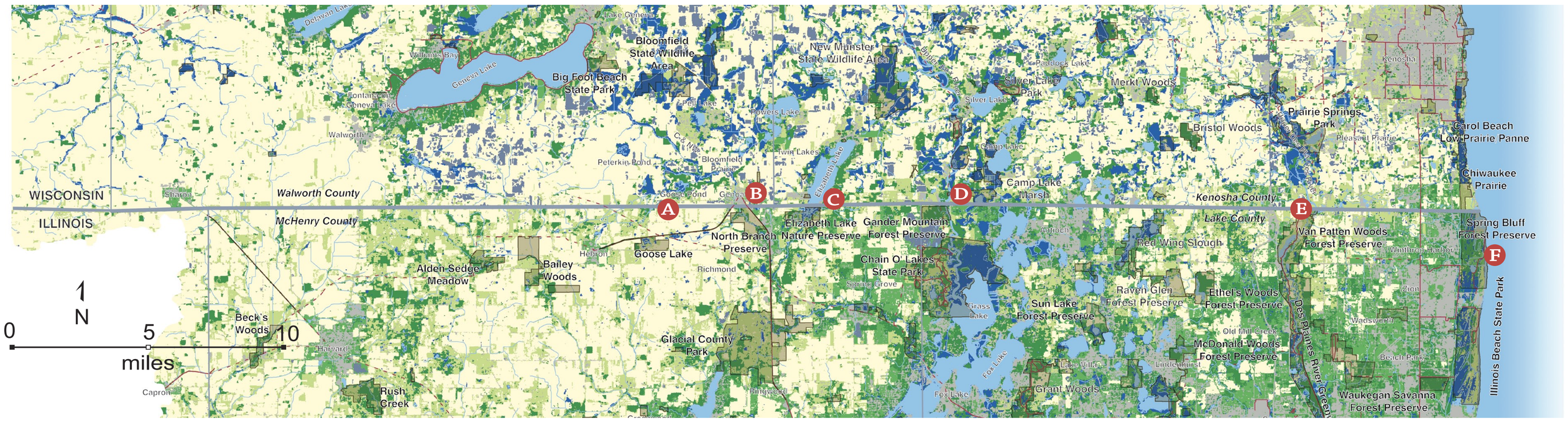
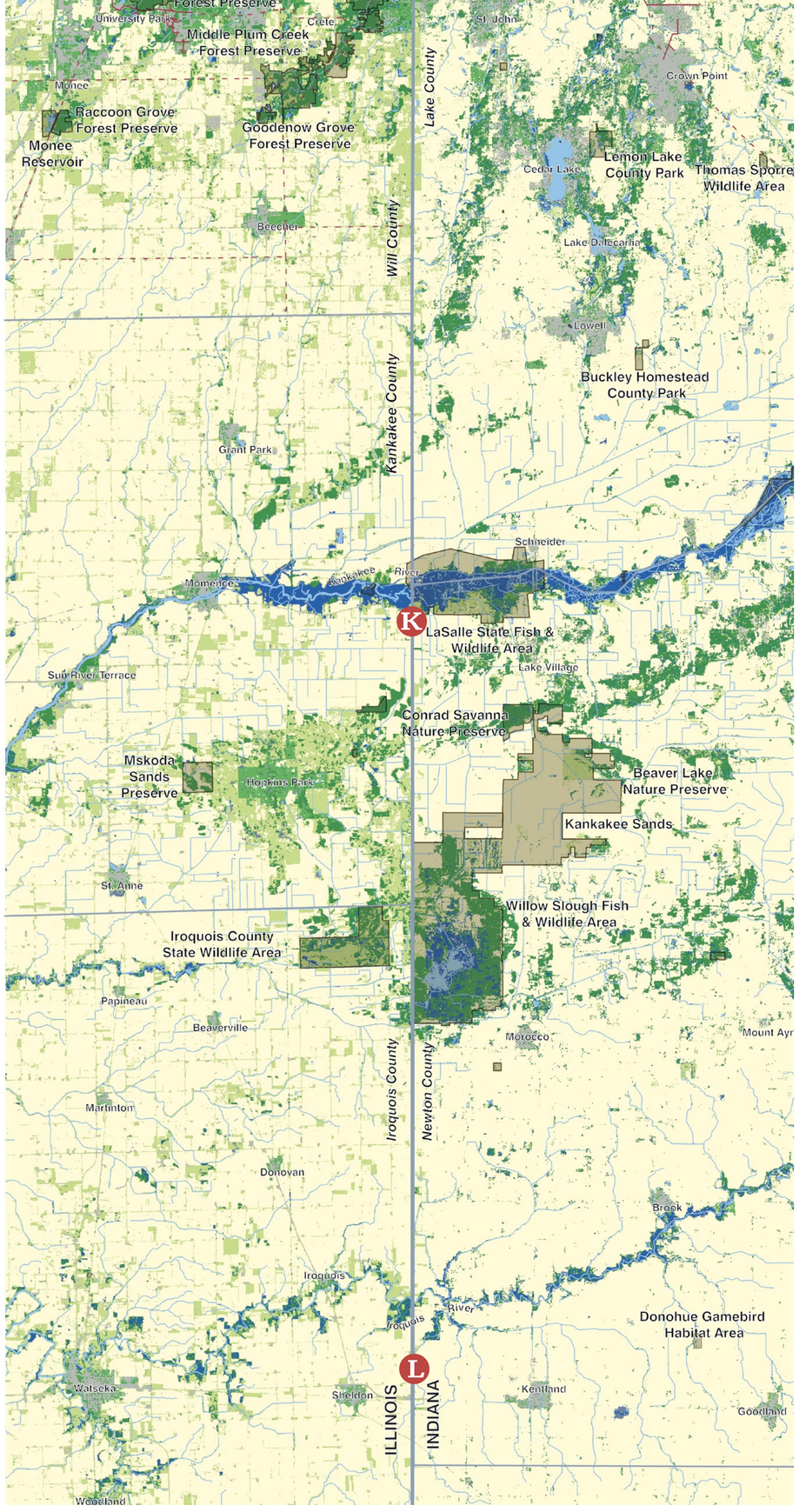
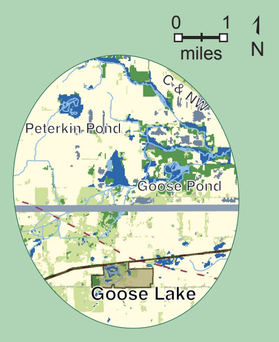




Wisconsin - Illinois

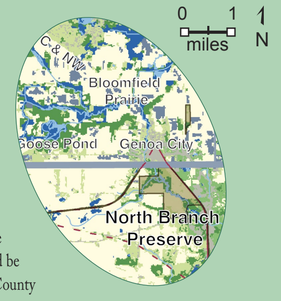
A Peterkin Pond – Goose Pond – Goose Lake Region

The region from Peterkin Pond through Goose Pond and Goose Lake is rich in habitat for a number of migratory birds. This area boasts several species that are uncommon to the region, such as the black tern, least bittern, common moorhen, sandhill crane, and yellow-headed blackbird. Cooperative efforts could lead to more land being protected as well as management efforts to combat threats such as invasive species, hydrological modification, and siltation.



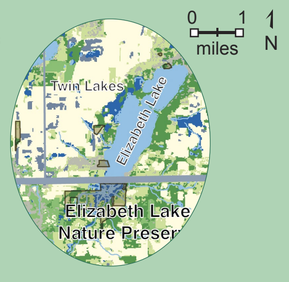
B Bloomfield Prairie – North Branch Preserve Region

The Chicago and Northwestern (C&NW) railroad right-of-way from Lake Geneva to Richmond and beyond provides an important opportunity for bi-state cooperation. Bloomfield Prairie, located along the right-of-way near Genoa City, could be linked by a greenway to the North Branch Preserve, adjacent to the right-of-way on the Illinois side. As for recreational opportunities, the north branch of the Prairie Trail running along the right-of-way could be extended from Genoa City along the railroad right-of-way, or along County Road H, up to Lake Geneva.



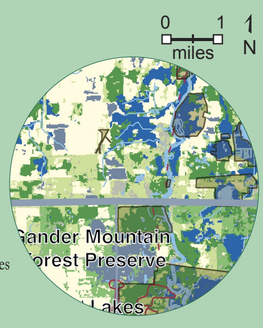
C Elizabeth Lake Region

Elizabeth Lake represents one of the most important opportunities for bi-state protection efforts. The Elizabeth Lake Nature Preserve houses a rare graminoid bog, calcareous floating mat, sedge meadow, and other outstanding natural resources. The area's natural resources are currently under threat from invasive species, strong development pressures, and certain recreational uses (such as power boats). Coordinating acquisition and land management efforts to protect these resources would yield great benefits.



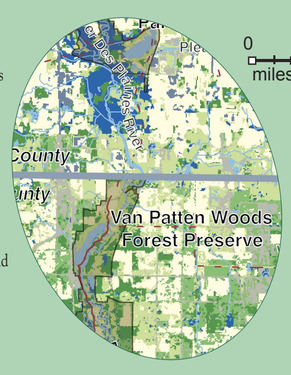
D Stopa Fen – Gander Mountain Region

The Stopa Fen in Wisconsin, which is adjacent to the Gander Mountain Forest Preserve in Illinois, is a high-quality fen with both seeping and bubbling springs that harbor a large number of unusual species. Like the Gander Mountain Forest Preserve, it lies along the Fox River. This region is very popular with mountain bikers and skiers, and cooperative bi-state efforts to protect against erosion and inadvertent destruction of these valuable resources is critical. Managing these resources in coordination with efforts to improve aquatic habitat in the Fox River would also be desirable.



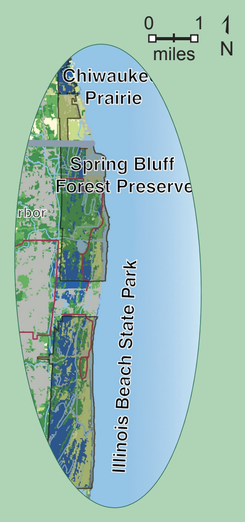
E Des Plaines River

The Wisconsin Department of Natural Resources has recently completed its Des Plaines River Watershed Study, which could provide useful guidance for efforts in the River corridor. Coordinating restoration activities in the Pleasant Prairie wetland complex with activities at Van Patten Woods, and cooperative management of sedge meadow and prairie areas along the River's floodplain would be desirable. Stakeholders could also explore possible trail connections between planned trails through Pleasant Prairie Township and the existing Des Plaines River Trail.



F Lake Michigan Shoreline

The stretch of land from Chiwaukee Prairie in Wisconsin down to Illinois Beach State Park represents more than seven miles of extraordinary lands with rich natural resources. These areas collectively provide habitat for more than 650 plant species, as well as numerous bird and animal species, many of which are threatened or endangered. Public and private stakeholders on both sides of the state line could consider the feasibility of coordinated management of these properties, as well as possible acquisition opportunities.



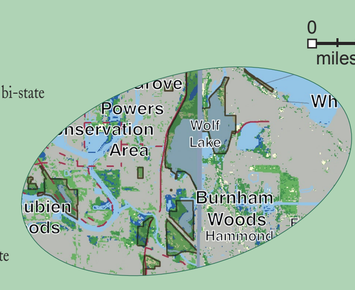
Illinois - Indiana

G Lake Michigan Shoreline

Several parks along the shoreline, currently disconnected, could be linked to form a greenbelt around the southwestern edge of Lake Michigan. Rainbow Park could be linked (through redevelopment of the USX property) with Calumet Park, which in turn could be connected to the Hammond Lakefront Park and Sanctuary (commonly called the "Migrant Trap"). Additional links could join Whihala Beach Park, Whiting Park, and further natural areas to the east. Local efforts, such as the proposed Marquette Greenway Plan, are already laying the groundwork for these types of linkages.

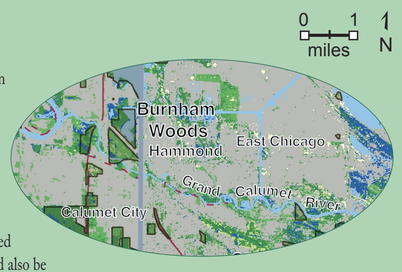
H Wolf Lake

The Wolf Lake Visioning process and bi-state gatherings have helped create a community vision for the Lake. This vision includes the linkage of trails to the Burnham Greenway and the Northwest Indiana Regional Bike Network, coordinated management and restoration of valuable natural areas rich with threatened and endangered species, and bi-state efforts to improve water quality and increase recreational opportunities.



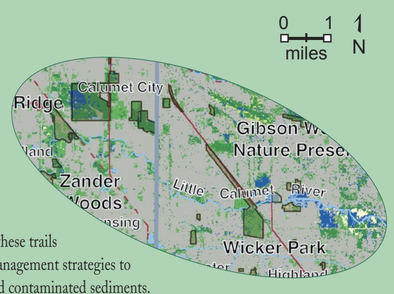
I Grand Calumet River

Although the Grand Calumet River has been severely impacted by urban and industrial pollution, major cleanup efforts have made considerable progress, and pockets of high-value natural resources remain along the Grand Calumet corridor. Coordinated efforts on both sides of the border to identify and protect these remnants of globally rare ecosystems and habitats for threatened and endangered species would be beneficial. It would also be beneficial to manage these lands cooperatively and link them, perhaps by a trail system.



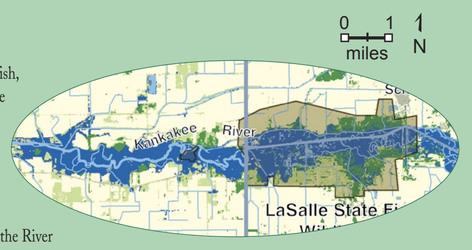
J Little Calumet River

The Little Calumet River is currently undergoing a $200 million flood control project in Indiana. This initiative will lead to the creation of more than 16 miles of hiking and biking trails along the River corridor. In Illinois, the Little Calumet has been identified as a regional water trail, with possible hiking and biking trails as well. Stakeholders in both states could explore whether these trails could be linked, and consider coordinated water management strategies to address not only flooding, but also urban runoff and contaminated sediments.



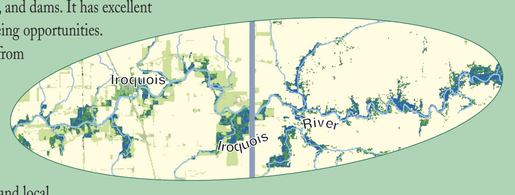
K Kankakee River

Highly diverse populations of birds, fish, and mussels can be found along the Kankakee River, which has long stretches identified as biologically significant. However, much of the River remains unprotected, and even the protected segments are generally disconnected and not always managed in a coordinated fashion. In addition, portions of the River suffer from sedimentation, hydrological modification, and erosion and gully formation. Cooperative bi-state efforts could lead to greater restoration, management, and protection of the River.



L Iroquois River

The Iroquois River has avoided extensive and severe modifications more than other nearby rivers, and is comparatively free of channelization, dredging, and dams. It has excellent fisheries and also provides canoeing opportunities. However, the River still suffers from sedimentation, obstruction, and unstable banks. The Army Corps of Engineers has studied these problems as well as flooding concerns, and could, in cooperation with state agencies and local communities, help set the stage for greater cooperation across state lines on river management and protection.



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