By developing a network of critical landscapes—a green infrastructure—everyone can work together to safeguard the resources and places that benefit wildlife, people, and the economy.

When people talk about infrastructure, they’re most often discussing highways, energy sources, and buildings. But there is more to it. Just as planners design networks of roads, organizations can design networks of open spaces and natural resources that connect communities and regions. The latter is what we call a “green infrastructure.”

Green infrastructure has emerged as a term referring to a strategically planned and managed network of natural lands, working landscapes, and other open spaces that conserves ecosystem functions and provides associated benefits to human populations.

Project Overview
In 2015, the Lake County Forest Preserve District selected The Conservation Fund to lead the development of a geographic information system (GIS) based Green Infrastructure Model and Strategy (GIMS) to guide regional and local green infrastructure planning by agencies, organizations, corporations, and citizens of Lake County, Illinois. We have developed a mapping tool to identify interconnected systems of landscapes to preserve natural habitats and protect biodiversity.

This strategy was reviewed by an advisory group and supports consistent planning and implementation efforts toward a common vision for conservation in and around Lake County.

The modeling framework will serve as a visual representation and guidance while working toward the District’s **100-Year Vision for Lake County**, including strategic directions and objectives to:

- Conserve nature at a landscape scale
- Prevent species loss
- Use data for precision conservation
- Eradicate buckthorn
- Improve water quality

Long-term Goals
The Lake County GIMS provides a framework for identifying land conservation and restoration opportunities for the county’s major landscape types: woodland/forest, prairie/grassland/savanna, wetlands, and freshwater aquatic systems.

This GIS-based model provides information to make data-driven decisions about five special projects, including an assessment of:

- Potential large-scale woodland, wetland, and prairie habitat opportunity areas
- 10,000-acre ecological complexes in and around Lake County
- Water resource capabilities and groundwater recharge areas
- Lake Michigan ravine and lake plain opportunities
- Ecosystem services valuation in Lake County
Connections are Key
The District and the advisory group selected three ways to illustrate the boundaries of resources within the study area, based on GIMS data, landscape processes, watersheds, and the desire to provide habitat for Lake County’s native species to ensure that no species are lost and that populations of plants and animals can expand and increase.

The map below serves as a visual representation of conservation areas that were identified by the District, the work group, and partners during development of the GIMS.
**Strategic Habitat Conservation Areas**

As defined by the United States Fish and Wildlife Service, Strategic Habitat Conservation Areas (SHCA) are large, landscape scale conservation areas to address challenges, such as habitat fragmentation, disease, and climate variability, which span jurisdictional boundaries.

Addressing these challenges requires planning at an ecologically appropriate scale, such as watersheds and ecological regions, rather than at small scales, such as single land management units.

The District, advisory committee, and other collaborators identified seven potential SHCA:

- Chain O’Lakes
- Fox River Hill and Fen
- Lake Michigan North
- Lake Michigan South
- Lake-McHenry Wetlands
- North Central
- Des Plaines River

**Ecological Complexes**

A working objective of the GIMS is to identify 10,000-acre ecological complexes within and around Lake County, Illinois. An ecological complex is a collection of core preserves (2,000–5,000 acres) within an SHCA that provides habitat and migration corridors for plant and animal species, so that they may survive and reproduce. These complexes have been identified as priority areas on which the District and other local agencies should be implementing conservation where it will have the most measurable effect.

Using data derived for the GIMS, four ecological complexes have been identified:

- Des Plaines River
- Lake-McHenry Wetland
- Lake Michigan Lake Plain
- North Central

**Enhancement Areas**

These are areas of the study that provide protection and habitat for species and communities, but current land uses limit further expansion or acquisition. These enhancement areas contain important ecological resources that should be protected and enhanced through community conservation.

Using data derived for the GIMS, four enhancement areas have been identified:

- Central
- Glacial Lakes
- South Central
- West Fork

**This GIMS helps identify important landscapes in the region that should be preserved to:**

- Foster environmental benefits, including clean air, freshwater, vibrant wildlife, and food sources.
- Conserve places that provide a high quality of life and preserve cultural values.
- Connect people with nature.
- Avoid hazard areas by using natural landscapes as buffers against storms, floods, or drought.
- Allow space for natural environments to adapt to climate variability.
Making the Values of Nature Visible

Ecosystem services are the collective benefits from an array of resources and processes that are supplied by nature. Forests, wetlands, prairies, water bodies, and other natural ecosystems support human existence. Only recently has it become possible to quantify and reliably estimate the contributions that green infrastructure makes available to human well-being, and to measure the benefits that nature provides us for free.

Balancing green and gray infrastructure develops sustainable communities. By creating a green infrastructure strategy, communities work together to preserve and connect open spaces, watersheds, wildlife habitat, forest preserves, and other critical landscapes.

FULL TECHNICAL REPORT AVAILABLE: HTTP://BIT.LY/GIMSREPORT