CHICAGO NATURE & WILDLIFE PLAN UPDATE: A STRATEGY TO ENHANCE URBAN ECOSYSTEMS 2011 - 2016

ure ar

nd Wi

ldlife

Chicago Nature & Wildlife Plan Update

A STRATEGY TO ENHANCE URBAN ECOSYSTEMS 2011 - 2016

Plan

03 **INTRODUCTION**

06 **OBJECTIVES**

08 **PROTECT**

14 **MANAGE**

20 **FOSTER**

24 **MONITOR**

28 **ACCOMPLISHMENTS**

33 **APPENDICES**

Cover Photo - Montrose Dunes (courtesy of Chicago Park District)
Inside Cover Spread - Northerly Island (courtesy of Chicago Park District)
Opposite - Recovering owl at the Flint Creek Wildlife Rehabilitation facility

About the Plan

In 2006, the Mayoral Nature and Wildlife Advisory Committee and the Chicago Department of Planning and Development (now the Department of Housing and Economic Development) developed the Chicago Nature and Wildlife Plan as a 5-year plan to improve conditions for nature and wildlife in the city. The Plan was adopted by the Chicago Plan Commission. It was produced in response to the ground-breaking 1999 Biodiversity Recovery Plan created by Chicago Wilderness for the greater Chicago region. The Chicago Nature and Wildlife Plan aims to implement regional biodiversity goals within the city. The Chicago Nature and Wildlife Plan Update 2011-2016 reviews progress since the original plan and sets priorities for the next five years.

2011 Committee Members

Chair: Gerald Adelmann ..... Openlands
Vice-Chair: Aaron Durnbaugh ..... Chicago Department of Environment
Dr. Justin Borevitz ..... University of Chicago
Dr. Joel Brown ..... University of Illinois at Chicago
Suzanne Carlson ..... Chicago Public Schools
Kathleen Dickhut ..... Chicago Department of Housing and Economic Development
Martin Felsen ..... UrbanLab & Archeworks
Madiem Kawa ..... Washington Park Conservancy
Dr. Joe Lill ..... Chicago Audubon Society
John McCabe ..... Forest Preserve District of Cook County
Dr. Greg Mueller ..... Chicago Botanic Garden
Heidi Natura ..... Living Habitats
Judy Pollock ..... Audubon-Chicago Region
Jill Riddell ..... Illinois Nature Preserves Commission
Terry Schilling ..... Bill Jarvis Migratory Bird Sanctuary
Dr. Doug Stotz ..... The Field Museum
Dr. Doug Taron ..... Chicago Academy of Sciences' Peggy Notebaert Nature Museum
Dr. Steve Thompson ..... Lincoln Park Zoo
Sean Wiedel ..... Chicago Department of Environment
Dr. Chris Whelan ..... Illinois Natural History Survey
Lyndon Valicenti ..... WRD Environmental
Zhanna Yermakov ..... Chicago Park District

2006 Chicago Nature & Wildlife Plan Contributors

Alliance for the Great Lakes • Association for the Wolf Lake Initiative • Audubon-Chicago Region • Bird Conservation Network • BW Phillips Realty Partners • Center for Humans and Nature • Chicago Academy of Sciences' Peggy Notebaert Nature Museum • Chicago Audubon Society • Chicago Botanic Garden • Chicago Department of Housing and Economic Development • Chicago Department of Environment • Chicago Herpetological Society • Chicago Park District • Chicago Ornithological Society • Chicago Wilderness • Earth Tech • Farr and Associates • The Field Museum • Forest Preserve District of Cook County • Friends of the Chicago River • Friends of the Forest Preserves • Friends of the Parks • Gaylord and Dorothy Donnelley Foundation • Illinois Department of Natural Resources • Illinois-Indiana Sea Grant College Program • Lincoln Park Zoo • Metropolitan Water Reclamation District of Greater Chicago • North Branch Restoration Project • Northeastern Illinois Planning Commission • Openlands • Sierra Club-Illinois Chapter • Shedd Aquarium • The Trust for Public Land • University of Illinois at Chicago • U.S. Army Corps of Engineers • U.S. Environmental Protection Agency • U.S. EPA • Great Lakes National Program Office • U.S. Fish and Wildlife Service • Wetlands Research Inc. • Wild Flower Preservation Society • Wild Ones Natural Landscapers

PRODUCED BY THE CHICAGO MAYOR'S NATURE & WILDLIFE ADVISORY COMMITTEE AUGUST 2011

I am pleased to present this update of the Chicago Nature and Wildlife Plan to affirm and provide a blueprint for Chicago's commitment to expand and improve natural habitats across the city. Miles of publicly-accessible lakefront, a revitalized riverfront and nearly 5,000 acres of natural areas in our parks, forest preserves, community-managed green spaces and other protected lands provide opportunities for connections with nature within easy reach for all.

More than 80% of U. S. residents now live and work in urban areas, so it is more important than ever to protect nature in the city and to build a strong constituency of people who understand that it is vital to the city's long-term health, vitality and international stature. The environmental, economic and social benefits of urban forests, parks and other public and private green spaces have been well documented. These green assets reduce air pollution and stormwater runoff, mitigate the effects of climate change and increase both business and residential property values.

Chicago's particular reputation as a green city continues to grow, enhancing our brand as a world class city. This reputation is especially strong because our efforts to protect and care for our natural areas depend on an extensive collaboration among public agencies, non-profit organizations and dedicated individual stewards. This ambitious plan represents the hard work and commitment of this broad public-private partnership, whose members have pledged to continue working together to implement it.

The City of Chicago looks forward to doing our part in collaboration with these many partners to ensure that Chicago continues to be an even greener and better place in which live, work and visit.

Rahm Emanuel, Mayor

Executive Summary

Chicago supports many native ecosystems from prairies, savannas and dunes to woodlands and wetlands that support mammals, birds, reptiles, amphibians and fish. These habitat areas not only support our urban ecosystems but contribute to the city's economic vitality, stature, and quality of life.

The Mayor's Nature and Wildlife Committee's vision is to renew and strengthen the City's commitment to nature and wildlife with the 2011 Chicago Nature and Wildlife Plan. This plan is an update to the original plan produced in 2006 that reviews progress made, considers new issues and emerging information, and sets priorities for the next five years.

Incredible progress has been made on the priority actions identified in 2006, including:

» Public Open Space (3) zoning was applied to all city-owned sites in the Calumet region, including Big Marsh, Indian Ridge Marsh, Hegewisch Marsh, and Van Vlissingen Prairie.

» There has been significant growth in volunteer stewardship; the Forest Preserve District of Cook County has seen volunteer hours increase from 34,150 in 2006 to 93,500 hours in 2010.

» As part of a national trend in the emergence of urban ecology, the Mayor's Nature & Wildlife Committee hosted a Research Summit in 2009 to identify priority research needs, connect researchers to land managers and policymakers, and envision a biodiversity research network for Chicago.

Since the original plan, a number of issues have emerged which have significant implications on the way we protect, expand, manage, and ensure the resiliency of our urban natural areas. These issues, discussed throughout this document, include the impacts of climate change, the role of green infrastructure, and the need for applied urban ecological research. In this iteration of the plan, the priority actions listed on the following pages aim to reflect and address these emerging issues.

Echinacea (purple coneflower) growing atop City Hall

Definition

Natural area is managed open space dominated by native vegetation that supports wildlife and provides ecosystem services.

Open space is all the public space in the city, including natural areas, which are predominantly used for recreation.

Value of Nature in Chicago

Chicago's natural areas provide a multitude of ecosystem services from improved air quality and livability to stormwater management. Many of these services are seen as free benefits to society, lacking economic value or a formal market. Because of this, the critical contributions of urban natural areas can be overlooked in periods of tough decision-making.

Recognizing our urban ecosystems as assets with economic and social value can help promote their protection and expansion. More and more research efforts are dedicated to investigating their economic value and are finding that investments in urban green space are well worth it.

A 2004 study suggests that Chicago beaches are valued at $800 million to $1 billion each year by those who visit them. A 2009 study on Chicago's urban forest found that the annual value of our 3.6 million trees exceeds $7 million for carbon sequestration and air pollution reduction, not including the carbon storage value of $14.8 million dollars and structural value of $2.3 billion. Further value can be seen in the stormwater management, noise abatement, and public health benefits of trees.

Beyond beaches and trees, researchers at the University of Chicago are working to understand the specific role natural areas and community gardens play in influencing property values in Chicago. Studies from other cities show that the value of homes adjacent to parks and open spaces are typically 8 to 20 percent higher than comparable properties elsewhere.

While not all benefits provided by urban nature can, or should have financial value placed on it, increasing the use of new economic tools in natural resource management is needed and shows a more complete picture of the health and economic vitality of the city.

01
Protect and Expand Natural Areas

Our number one priority is to protect remaining natural areas in the city and create new ones to expand the green infrastructure network.

Priority Actions:

- Acquire or protect additional unprotected natural areas in the city, especially along the riverfront.
- Work with land managers to set targets and identify priority land for acquisition, protection, and natural area expansion.
- Create new programs to work with large land owners to enhance the quality of their natural lands.

02
Manage Existing Natural Areas

Management is imperative for sustaining and improving the quality and usefulness of natural areas to native plants and animals and city residents.

Priority Actions:

- Publish management plans for all natural areas for public participation and engagement.
- Establish a climate-ready checklist for restoration projects to ensure today's efforts will be sustained in the face of climate change.
- Support long-term options for hydrologic separation of the Chicago River that support fish habitat and biodiversity.
- Use the city's built infrastructure to improve biodiversity where possible and encourage architects to create designs that are safe for birds and other wildlife.

03
Foster Stewardship

Engaging residents in a deeper appreciation and stronger stewardship of our natural areas will ensure the long-term survival of natural areas and increase the quality of life for all Chicagoans.

Priority Actions:

- Initiate a “Backyard Biodiversity” outreach campaign that engages large property owners and homeowners to protect and expand wildlife habitat on private land.
- Explore innovative ways to inspire new connections with nature for the public.
- Increase awareness of and opportunities for ecotourism in Chicago.

04
Monitor Sites and Conduct Research

Monitoring the effects of management and conducting applied ecological research will ensure that restoration efforts are done well and will utilize resources more effectively.

Priority Actions:

- Support professional consistent, ongoing monitoring, and link with citizen science.
- Assess and improve the ecoliteracy of Chicago residents on urban ecosystems.
- Create new integrated approaches to human-wildlife conflicts.

Pr

otect

PROTECT AND EXPAND NATURAL AREAS

The Challenge: Some habitat sites and natural areas are in jeopardy of being used for purposes other than supporting our natural communities of plants and animals and providing important green spaces for people. Land adjacent to natural areas has competing, and often conflicting, uses.

The Vision: Permanent preservation of all natural lands in public conservation ownership, and the acquisition of land or conservation easements on other areas where possible.

Lincoln Park in Chicago

RECOMMENDATIONS

- Work with land managers to identify priority land for acquisition, protection, and natural area expansion.
- Develop a Master Plan for the expansion of Chicago's natural areas.
- Place conservation easements over all designated natural areas within the city.
- Work with the Chicago Metropolitan Agency for Planning to reflect the city's open spaces and natural areas in Chicago Wilderness's Green Infrastructure Vision update.
- Apply for the Illinois Nature Preserves Commission's Land and Water Reserve designation to provide permanent protection to key sites not protected by other means.
- Designate appropriate sites as Important Bird Areas with the National Audubon Society.
- Increase native habitat within community managed-open spaces, schools and residential yards.
- Acquire or protect additional unprotected natural areas along the riverfront.
- Create new programs to work with large land owners to enhance the quality and biodiversity value of their lands.
- Investigate and document the locations of unprotected lands where species of conservation concern are living. Work with Chicago Botanic Garden's Plants of Concern to monitor endangered species.
- Evaluate the biodiversity value of specific pieces of unprotected, unmanaged open spaces, including under power lines, along railroads, and in large vacant lots.

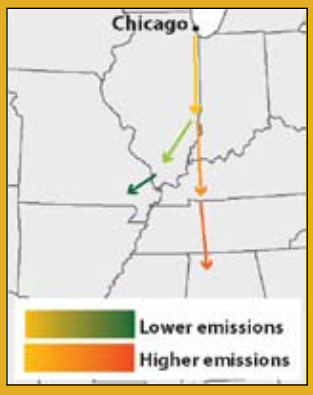
ACCOMPLISHMENT HIGHLIGHTS

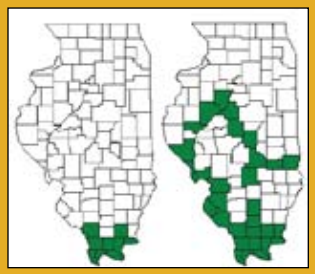
« Washington Park Conservancy
The Washington Park Conservancy is a grassroots conservation organization founded by Madiem Kawa in 2008 to preserve, enhance, and promote the natural resources of Washington Park and its surroundings through stewardship and environmental education. Since its inception, the Conservancy has garnered over 3,100 volunteer hours to mulch 450 trees, plant 3,450 native plants, and removed 9,000 gallons of trash. The Conservancy's work is supported by the Chicago Park District, Friends of the Park, and the Washington Park Advisory Council. Madiem is a member of the Mayor's Nature and Wildlife Advisory Committee and was named Governor Pat Quinn's 2009 Environmental Hero.

The City of Chicago's zoning designation for public open space (POS-3) should be applied to habitat sites.	» POS 3 zoning was applied to all city-owned sites in the Calumet region: Big Marsh, Indian Ridge Marsh, Hegewisch Marsh, and Van Vlissingen Prairie.
Work with the State of Illinois Nature Preserves Commission to designate appropriate city parcels as Illinois Land & Water Reserves.	» Powderhorn Marsh and Prairie received dedication as an Illinois Land Nature Preserve in 2010.
Promote riparian areas along the Chicago River through shoreline enhancements.	» Wolf Point, Ronan East, Erie Park, Ping Tom Park, Von Steuben, Gompers Park, and North Side College Prep High School have all had shoreline enhancements to improve habitat.
Increase the number of areas along the lakefront where the primary use is natural habitat and recreate dunes and wetlands in these areas.	» The Burnham Centennial Prairie is a new natural area that brings 32 acres of habitat to the lakefront.

CLIMATE CHANGE IMPACTS	»	**“Migrating” Seasons**	**Temperature Increase**
		By century’s end, Chicago winters will likely feel similar to Pittsburgh and summers will likely feel similar to Knoxville or, if no carbon mitigation actions occur, similar to Baton Rouge.	In a high emissions scenario, 2010 predictions show that by the end of the century, Chicago’s annual average temperature could increase from the current average of 50° Fahrenheit (F) to 59° F.

Climate Change





Source: Climate Change and Chicago: Projections and Potential Impacts. 2008. Katharine Hayhoe and Donald Wuebbles.

Climate change has emerged as one of the most significant and pressing environmental issues of our time. The impacts of climate change, from milder winters to longer stretches of drought, threaten the resiliency of Chicago’s nature and wildlife. Since 1990, we have seen our plant hardiness zone shift from 5 to 6. This trend is expected to continue; if left unchecked, climate change will make our plant hardiness zone equivalent to that of northern Alabama by the end of the century. Shifts in our climate make our natural areas even more vulnerable to invasive species,

« **Left, top:** Under lower emissions, Chicago’s plant hardiness zone would “migrate” along the path of the yellow arrow (30 years), the light green arrow (50 years), and then the dark green arrow (100 years). Under the higher emissions scenario, Chicago’s zone would “migrate” along the path of the yellow arrow (30 years), the orange arrow (50 years), and the dark orange arrow (100 years).

« **Left, bottom:** These maps show the spread of kudzu across Illinois from 1971 (left) to 2006 (right). Illinois’ cold winters have stymied this invasive weed, but warming temperatures may allow it to threaten additional conservation and farmland across the state.

diseases, and destructive pests, compounding current threats.

Most of our current restoration efforts inherently help mitigate climate change and improve the health of our natural areas. However, the success of our efforts depends on our ability to recognize and adapt to a changing climate. We must strengthen our work to prevent and control invasive species, to preserve and maintain open space, to monitor vulnerable species, and to measure and evaluate the success of these efforts. Furthermore, we must be willing to adapt our strategies as we learn and respond to a shifting climate.

Protecting the health of our natural areas will help our neighborhoods reduce carbon emissions, manage storm and flood water, reduce urban heat islands, and improve air and water quality. It is a win-win for us to strengthen our commitment to our precious natural resources. Chicago Wilderness outlines the benefits of protecting our regional natural areas in the face of climate change in the 2010 Climate Action Plan for Nature.

Changed Precipitation Patterns	Great Lake Impacts	Plant Hardiness Zone Shift
As compared to the 1961-1990 average, spring and winter in 2070, will likely have 20-35% more large precipitation events. Summers will have 10-15% less.	Long-term trends discern under high emissions that the average Lake Michigan level could decrease by up to 1.5 feet by century's end. The Great Lakes will experience an increased likelihood of extreme storms, which may lead to combined sewer overflows that threaten the quality of the Chicago River and occasionally Lake Michigan.	The Midwest's Zones have shifted and are forecasted to shift ½ to 1 zone every 30 years. From 1990 to 2006, Northern Illinois' shifted, representing a 10° F range change in the lowest temperature of the year

Species Impacted

Species for which our region is near the southern end of their range may be at particular risk. Many familiar and widespread species may no longer be able to survive or breed in Chicago by the end of the century, including:

- Tree swallows
- Black-capped chickadees
- Whitebreasted nuthatch
- House wren
- Yellow warbler
- Scarlet tanager
- Baltimore oriole
- American goldfinch
- Karner blue butterfly
- Paper birch tree
- Black ash
- Quaking aspen
- Big-toothed aspen
- Butternut tree

Source: Climate Change and Regional Biodiversity. 2008. Chicago Wilderness.

Definition

Resiliency can be defined as the ability of a system to tolerate disturbance, withstand shocks and rebuild itself to a stable state when necessary.

Manage

MANAGE EXISTING NATURAL AREAS

The Challenge: City habitats tend to fall short of their ecological potential; they're too small, and the diversity of vegetation and wildlife is limited; and invasive species take over quickly.

The Vision: Management actions are taken that sustain and expand the viability and resiliency of native plants, animals and aquatic systems in all Chicago natural areas.

Volunteers planting trees in Calumet

RECOMMENDATIONS

- Continue to implement existing management plans for the largest, high quality natural areas, such as Powderhorn Marsh, Sauganash Prairie, Bunker Hill Prairie, Edgebrook Flatwoods, Beaubien Woods and Dan Ryan Woods.
- Engage new strategies and partnerships, including the Northeast Illinois Invasive Plant Partnership (NIIPP) and the Special Application of Herbicides to Control Invasive Plants on Public Lands section of the Illinois Pesticide Act, to help reduce the threat of invasive species,
- Draft adaptive planting lists for trees and native plants that will have a better chance of survival in the face of climate change.
- Determine and provide prescriptions to land managers for the most successful, climate-ready seed mixes and plants for Chicago's natural areas. Encourage more sources for local seeds and plants from suppliers, volunteer growers, or a seed-sharing network.
- Streamline management plan development process for natural areas that still lack them.
- Develop a standardized, digital way to monitor, collect and capture information on sites, including management histories.
- Improve the habitat quality of rivers, lagoons and other water features.
- Determine and provide prescriptions to land managers for the most effective and important soil amendments that land managers should use for Chicago's natural areas. Develop specifications for soil amendments to utilize in Chicago's natural areas.
- Pursue long-term options for hydrologic separation of the Chicago River that support fish habitat, biodiversity and water quality.
- Use the city's built infrastructure to improve biodiversity where possible and encourage architects to create designs that are safe for birds and other wildlife.
- Share management training manuals for volunteers between The Nature Conservancy, Chicago Wilderness, Openlands, Chicago Park District, Forest Preserve District of Cook County, and other appropriate partners.
- Establish a climate-ready checklist (adaptive management protocol) for restoration projects to ensure today's efforts will be sustained in the face of climate change.

ACCOMPLISHMENT HIGHLIGHTS

Greencorps Chicago »
Since 1994, Greencorps Chicago—Chicago's community landscaping and green industry job training program—has been establishing natural spaces that are safe, healthy and sustainable. Through hands on involvement with trainees and community partners, the program promotes environmental stewardship and improves quality of life.

Greencorps provides field and classroom experience in six technical areas: landscaping and horticulture, ecological restoration, tree care, environmental health and safety, electronics recycling and home weatherization. Commonly referred to as 'green jobs,' these fields offer pathways to employment while supporting parks, preserves and community gardens.

As Chicago renews its commitment to protecting, expanding and better maintaining its natural areas with the 2011 Nature and Wildlife Plan Update, there is the potential for job growth in restoration and management. Through Greencorps and many other green jobs programs, the City is preparing a new workforce to help implement this Plan.

Establish environmental support teams that can help select plants, disconnect downspouts and perform projects related to improving biodiversity.	» The Chicago Department of Environment and Chicago Conservation Corps continue to lead the Sustainable Backyard Program to encourage residents to disconnect their downspouts, install rain barrels, plant trees and native plants, and compost food scraps and yard waste.
Explore ways to reduce the negative effects of Chicago's ambient light on nocturnal animals and insects.	» In 2006, the Chicago Department of Environment, Audubon-Chicago and the Chicago Bird Agenda partners expanded the Lights Out! Program to include more building levels and hours of day, as well as more participants.
Increase the number of volunteers that help perform management activities at habitat sites.	» The Forest Preserve District of Cook County has seen incredible growth in volunteer stewardship since 2006, volunteer hours have increased from 34,150 in 2006 to 93,500 hours in 2010.
Look for ways to encourage landowners adjacent to natural areas, both public and private, to use natural landscaping.	» Audubon-Chicago works with ComEd to protect key shrubland bird habitat under power lines at the Nike site in Jackson Park.

» The Lincoln Park Zoo's recently naturalized, award wining "Nature Boardwalk at Lincoln Park Zoo" combined built and naturalized elements to create a 14.5 nature reserve in the heart of Lincoln Park. This naturalization includes innovative swallow nest sites under the Lester E. Fisher Bridge. It also restored natural fish, avian, and reptile faunas, native prairie and aquatic plants, and a breeding rookery of Illinois endangered black-crowned night herons.

Urban Ecology

Cities across the country are gaining appreciation for the important roles and values of nature. As this appreciation leads to action, there is a growing need to better understand and strengthen nature's role in our urban landscapes. Unfortunately, our academic research structure has long-precluded applied ecological research, especially in an urban context, favoring research that is cutting-edge and publishable; finding answers to vexing problems that urban land managers face generally is neither. Recently, at the federal level, resources have shifted towards management-driven and urban-centric ecological research. This can be seen in the National Science Foundation's work to establish Urban Long-Term Research Areas (ULTRA) sites in cities across the country.

Sustaining healthy ecosystems in the urban environment is faced with many challenges from scale limitations to human-wildlife conflicts. Often conflicting priorities, be they ecological, social, economic, or educational goals, must be reconciled. Urban land managers require the right information at the right time to make timely decisions with ever-limited resources. It is imperative that the scientific community helps support land managers by researching key issues and providing necessary data to solve on-the-ground challenges.

More integrated research efforts are required to fully understand the range and value of ecological services provided by green infrastructure. Furthermore, to improve the health of our natural environment, land managers and policymakers require sound, scientific information to make effective decisions.

The relationship between humans and nature is an increasingly important area of study. We must better understand how to:

» Cultivate enjoyment, awareness, and stewardship of nature among city dwellers;

» Best describe and talk about natural areas in ways that excites interest; and

» Engage people in appreciating the aesthetics of native ecosystems, which can sometimes appear unkempt and unintentional to those expecting groomed landscapes in parks.

Green Infrastructure

Green infrastructure, and the associated ecological services, is increasingly valuable as the impacts of regional growth, urban redevelopment, and climate change becomes more evident. Looking at the city's existing green infrastructure network, it becomes evident that engaging private land-owners is imperative to expanding and improving the connections between ecological features. Creating corridors, particularly those running North/South through the city, improves the survival and ability for wildlife to adapt to climate change. The benefits of green infrastructure are not limited to the ecological services provided to our urban communities, but are critical to supporting nature and wildlife. These green spaces are also responsible for delivering joy and pleasure to residents who utilize open spaces for recreation and contemplation.

Cemeteries, rail and river corridors, and residential yards present incredible opportunities for green infrastructure. A priority action moving forward is to engage private land owners in Chicago's green infrastructure vision.

If green infrastructure is nature sustaining urban communities, then "gray habitat" can describe the opportunities for our urban infrastructure to provide for wildlife and nature. Urban planners and architects are seeing the value of a city's delicate relationship with nature and evidence of this can be found in our newest infrastructure, be it rooftops, bridges, or buildings. Current examples of this include Chicago's nationally recognized green roof efforts. Another emerging priority for Chicago is to find opportunities to create wildlife habitat within our gray infrastructure, or "gray habitat."

Definitions

Green infrastructure, or ecostructure, encompasses the naturally occurring and human-built features that manage stormwater, remove pollutants, conserve energy, reduce erosion and provide other ecological services through vegetation, soil percolation, and other natural functions in an ecological, cost-effective, and sustainable way. At the city and regional scale, existing green infrastructure in Chicago is the interconnected network of green space and waterways that provide ecological services to our urban communities and habitat to diverse plant and animal communities. At the neighborhood scale, green infrastructure includes trees, rain gardens, community gardens, and green roofs.

Ecological services can be defined as the benefits arising from healthy ecosystems, including those that provide for human health, cultural, environmental, and economic needs. Such services include greenhouse gas mitigation, groundwater recharge, stormwater management, insect and rodent pest control, pollination, seed dispersal, and other functions.

Foster

FOSTER STEWARDSHIP

The Challenge: City dwellers may have misconceptions about or apathy toward wildlife habitat in Chicago and how our natural areas relate to local, regional and worldwide ecosystems.

The Vision: To have Chicagoans' take great pleasure and pride in their nearby natural resources; for them to visit natural areas frequently; and for them to understand how nature and wildlife benefit them.

Public hike through savanna

Foster Stewardship

RECOMMENDATIONS

- Continue to increase and better train volunteer stewards and citizen scientists at sites across the city.
- Initiate a “Backyard Biodiversity” outreach campaign that engages private landowners to protect and expand wildlife habitat especially in key corridor areas.
- Increase participation of Chicago homeowners in existing “Backyard Biodiversity” programs.
- Explore innovative ways to inspire new connections with nature for the public.
- Expand early invaders watch program to target railroads, rivers, and other unmanaged corridors.
- Encourage landowners adjacent to natural areas, both public and private, to use natural landscaping.
- Target information to owners of large tracts of land, homeowners, landscape and garden-related businesses, elected officials, religious organizations, community gardeners, and pet owners about the importance of biodiversity conservation.
- Increase awareness of and opportunities for ecotourism in Chicago, promoting urban habitats and the importance of biodiversity conservation through media outreach and informational materials placed at select tourist destinations.

ACCOMPLISHMENT HIGHLIGHTS

Work with the City of Chicago's "After School Matters" and "Gallery 37" programs to include workshops that focus high school students' attention on local nature, biodiversity, greening and gardening.		» In 2006, Chicago Conservation Corps (C3) took on the role of building CPS teacher capacity for establishing environmental after-school clubs. After School Matters has initiated Green Teens, a program that combines horticulture and entrepreneurship.
Build on existing educational programs at Chicago public libraries.		» During the summers of 2008 and 2009, Chicago Public Library hosted the Read Green, Live Green program to engage residents in reading about and exploring the environment and participating in its protection.
Improve teacher access to existing habitat curricula.		» In 2008, the Mayor's Office convened a group of stakeholders to work together on the Growing School Gardens initiative with the goal of bringing a garden and curriculum to every public school in the City, including native habitat gardens.

« Leave No Child Inside

According to researchers, families and children are spending increasingly less time outside, exploring and playing in their local parks and preserves, and more and more time in front of the TV and computer. Consequently, children are missing out on a wealth of emotional and physical benefits associated with outdoor play, and the next generation of community stewards is growing up increasingly disconnected from nature.

To combat these trends, the Forest Preserve District of Cook County, Chicago Park District and the Illinois Department of Natural Resources regularly offer programs to reconnect children with the outdoors and convey to families the joy and excitement of nature play. For example, the Chicago Park District's Nature Oasis program offers overnight family camping at several parks.

The Chicago Wilderness' Leave No Child Inside initiative also aims to connect families to the natural world in ways that foster generations of healthy children who care about nature and will protect it. Efforts are underway at the city, state, and national levels to support Leave No Child Inside and build environmental literacy among youth (also called eco-literacy). The Leave No Child Inside initiative, with the Children's Outdoor Bill of Rights, declares that every child should have the opportunity to:

- » Discover wilderness -- prairies, dunes, forests, savannas, and wetlands
- » Camp under the stars
- » Follow a trail
- » Catch and release fish, frogs, and insects
- » Climb a tree
- » Explore nature in neighborhoods and cities
- » Celebrate heritage
- » Plant a flower
- » Play in the mud or a stream
- » Learn to swim

Monitor

MONITOR SITES AND CONDUCT RESEARCH

The Challenge: Land managers face unique challenges working in an urban setting; and there are limited incentives for applied urban ecological research.

The Vision: To have more concrete tools that can lead to development of best practices for urban restoration projects; to generate an increase in scientific data that sets priorities for habitat improvement efforts and quantifies the importance of urban nature.

Butterflies feed on native plants

RECOMMENDATIONS

- Identify sites in Chicago to expand coverage of existing regional biodiversity monitoring efforts.
- Share and coordinate biodiversity monitoring protocols across the region and state.
- Support professional consistent, ongoing monitoring on priority sites.
- Produce baseline inventories of existing natural areas and sites slated to undergo restoration in order to compare current and future conditions.
- Create an online system for sharing data and information between researchers, land managers, stewards, citizen scientists, contractors, and the public.
- Investigate sources of funding for seed grants that can help pay for joint projects between researchers and land managers.
- Collaborate with volunteers on monitoring. Utilize, distribute, and support data collection from citizen scientists, volunteer stewards, and land managers.
- Employ “problem formulation” strategies for addressing urban ecology research questions.
- Assess and improve the knowledge and attitudes of Chicago residents regarding biodiversity, sustainable landscape practices, and stewardship.
- Study wildlife-human conflicts in the city and recommend methods for reducing conflict and raising public awareness.
- Set up programs for all endangered and threatened species to monitor how populations are faring now and over the long-term.

ACCOMPLISHMENT HIGHLIGHTS

Produce baseline inventories of all existing natural areas and of all sites slated to undergo restoration.		» The Forest Preserve District of Cook County has detailed inventories of nearly all of their sites within the city and the Metropolitan Water Reclamation District has initiated biodiversity monitoring at all of their facilities, including the Calumet and North Branch plants.
Expand and integrate research among institutions, agencies and individuals.		» In 2010, Chicago was chosen as a pilot site for the National Science Foundation's Urban Long Term Research Area (ULTRA-EX) for urban ecology research.
Compile a prioritized list of research needs.		» In 2009, the Mayor's Nature & Wildlife Committee hosted a Research Summit to identify priority research needs, connect researchers to land managers and policy makers, and envision a biodiversity research network for Chicago.

Problem Formulation

Problem formulation involves the decomposition of an analytic problem into appropriate components such as structures, functions, and mission areas. The ultimate goal of problem formulation is to develop alternative impact hypothesis or alternative action plans to address a desired change to the problem situation. It is as an iterative process that evolves over time and identifies the context of the problem situation and related issues:

1. Identify the variables that bound the problem space.
2. Determine the outputs (dependent variables) and the inputs (independent variables), through analysis or investigation, and how inputs relate to outputs. The choice of dependent variables results from a clear specification of the issues or products needed to adequately address the actual problem.
3. Determine interactions and feedbacks among all the factors or variables of interest.

KEY:

CBG	Chicago Botanic Garden
CDOE	Chicago Department of Environment
CDOT	Chicago Department of Transportation
CPD	Chicago Park District
CPS	Chicago Public School
DHED	Chicago Department of Housing and Economic Development
IDNR	Illinois Department of Natural Resources
LPZOO	Lincoln Park Zoo
MWRD	Metropolitan Water Reclamation District of Greater Chicago
FPDCC	Forest Preserve District of Cook County
USDA	United States Department of Agriculture

	Priority Actions from 2006 Plan		Progress Achieved by 2010
Protect Natural Habitat	*The City of Chicago's zoning designation for public open space (POS-3) should be applied to habitat sites.*		POS 3 zoning was applied to all city-owned sites in the Calumet region: Big Marsh, Indian Ridge Marsh, Hegewisch Marsh, and Van Vlissingen Prairie. All natural areas at Chicago Park District or Forest Preserve District of Cook County sites are covered by POS 1 zoning.
	Acquire unprotected natural areas in the Calumet Open Space Reserve and along the western edge of Rosehill Cemetery.		DHED has acquired 700 acres in the Calumet Area since the passage of the Calumet Area Land Use Plan (2002). City is attempting to purchase the natural area at Rosehill Cemetery.
	Work with the State of Illinois Nature Preserves Commission to designate appropriate city parcels as Illinois Land & Water Reserves.		Powderhorn Marsh and Prairie received dedication as an Illinois Land Nature Preserve in 2010. Hegewisch Marsh is targeted for dedication by 2011. Two new Important Bird Areas have been designated in Chicago: (1) Chicago lakefront, for Peregrine Falcons, Black-crowned Night Herons, and migrants, and (2) Lake Michigan, for migrating waterfowl.
	Promote riparian areas along the Chicago River through shoreline enhancements.		Wolf Point, Ronan East, Erie Park, Ping Tom Park, VonSteuben, Gompers Park have all had shoreline enhancements to improve habitat.
	Increase the number of areas along the lakefront where the primary use is natural habitat and recreate dunes and wetlands in these areas.		The Burnham Centennial Prairie is a new natural area that brings 32 acres of habitat to the lakefront. A number of sites have seen dramatic improvements and expansion, including Marovitz, Osterman, Montrose Dunes, South Pond, Loyola, Rainbow Beach, Jarvis Bird Sanctuary, McCormick Bird Sanctuary, 63rd Street Beach, and Peace Garden. In 2009, Friends of the Parks published "The Last Four Miles," a plan to complete the lakefront as a single, unbroken stretch along Chicago's shoreline.

Manage Existing Open Spaces	*Use the city's built infrastructure to improve biodiversity where possible and encourage architects to create designs that are safe for birds and other wildlife.*		CDOE and Chicago Bird Agenda partners produced Bird Safe Building Design Guide and have promoted bird-safe design in several ways including incorporation as a category in the Chicago Green Homes Program and in LEED certification standards. They organized sessions on bird-safe building design in several ways, including incorporation as a 2007, 2008 and 2010 GreenBuild conferences. In 2008, CDOE and CDOT created a migratory bird policy field guide to help construction crews avoid harming migratory birds, particularly around bridges. At Lincoln Park's South Pond, special seams have been incorporated into a bridge to encourage barn swallow nesting.
	Increase and improve garbage pick-up at beaches to discourage excessive gull populations that contribute to poor water quality.		CPD has implemented daily garbage collection, ensured all beaches have adequate trash cans with lids including solar trash compactors at some locations, banned the feeding of gulls on beaches, improved its beach raking technology and initiated a beach ambassador volunteer program to foster stewardship and raise awareness of the issue. CDOE in collaboration with CPD and USDA has reduced the number of Ring-billed Gulls on beaches through its Ring-billed Gull management and research program. In 2011, CDOE will work with CPD to initiate a public education campaign to reduce feeding and litter at beaches.
	Encourage owners of private buildings to install "green roofs," "bat boxes," "nesting poles," "nesting pads," "artificial chimneys" and other structures used by various species for nesting, shelter, or hunting.		CDOT coordinated with CPD and IDNR to design artificial reefs as part of their Chicago Shoreline Protection Project. The reefs, expected to be installed in fall of 2012, are meant to provide fish habitat and increase near-shore fishing opportunities. The reefs will be designed in three different shapes and orientations and studied to determine which attracts fish most effectively. CDOE hosted Tweet Home Chicago, a bird house design and build competition, to raise awareness among private landowners about the importance of bird habitat. This resulted in over 120 birdhouses made by over 1,000 adult and youth.

	Establish environmental support teams that can help select plants, disconnect downspouts and perform projects related to improving biodiversity.		CDOE continues to lead, with assistance from Chicago Conservation Corps leaders, the Sustainable Backyard Program to encourage residents to disconnect their downspouts, install rain barrels, and compost food scraps and yard waste. Greencorps Chicago distributes native plants annually to community gardens throughout the city.
	Explore ways to reduce the negative effects of Chicago's ambient light on nocturnal animals and insects.		In 2006, CDOE, Audubon-Chicago and the Chicago Bird Agenda partners expanded the Lights Out! Program to include more building levels and hours of day, as well as more participants. Beyond the efforts for birds, no specific programs have been formulated to address other animals and insects.
	Expand local sources for rain barrels, native plants and other materials necessary for the success of management projects.		CDOE has worked closely with local garden centers to encourage them to stock rain barrels, compost bins, and native plants, while limiting the sale of invasive ornamentals.
	Increase the number of volunteers that help perform management activities at habitat sites.		FPDCC has seen incredible growth in volunteer stewardship, volunteer hours have increased from 34,150 in 2006 to 93,500 hours in 2010. Audubon-Chicago interns continue to support stewards at 7 FPDCC sites in the city. The Chicago Conservation Corps (C3) keeps a current and comprehensive system for existing and prospective volunteers to take part in environmental stewardship opportunities throughout Chicago. Though numbers were not specifically tracked from 2006 to 2010, it is likely they were increased through these and other efforts.
	Look for ways to encourage landowners adjacent to natural areas, both public and private, to use natural landscaping.		Audubon-Chicago works with ComEd to protect key shrubland bird habitat under powerlines at the Nike site in Jackson Park. Audubon-Chicago and the CDOE published the Guide for Landowners: Improving Habitat for Birds and distributed it to the city's major landowners, including cemeteries. The Northeast Illinois Invasive Plant Partnership was established in 2010 to coordinate efforts in managing invasive species across the region; CPD and CDOE are active partners in this effort. In 2009, CDOE added 14 terrestrial invasive species to the City's invasive species ordinance and published the Guide to Land-based Invasive Species, with recommendations of native alternatives to common invasive ornamentals.

Monitor Sites and Compile Research	*Produce baseline inventories of all existing natural areas and of all sites slated to undergo restoration.*		The FPDCC has detailed inventories of nearly all of their sites within the city and MWRD has initiated biodiversity monitoring at all of their facilities, including the Calumet and North Branch plants. Surveys for wetland birds have been conducted by IDNR on FPDCC, IDNR, and city-owned wetlands within the Calumet region. Bird Conservation Network has conducted inventories of nesting birds at key sites.
	Expand and integrate research among institutions, agencies and individuals.		Interesting new collaborations emerged. CDOE, CPD and FPDCC have collaborated with DePaul, University of Illinois at Chicago, and University of Chicago on a myriad of research projects. In 2010, Chicago was chosen as a pilot site for the National Science Foundation's Urban Long Term Research Area (ULTRA-EX) program, bringing financial resources and energy to Chicago's issues. FPDCC has issued over 36 research permits for sites in the city in the last five years.
	Compile a prioritized list of research needs.		In 2009, the Mayor's Nature & Wildlife Committee hosted a Research Summit to address this need. The list will need to be kept up to date as issues change over time.
	Set up programs for all endangered and threatened species to monitor how populations are faring now and over the long term.		CPD worked with the CBG's Plants of Concern Program to get volunteers for monitoring rare and endangered species. The Bird Conservation Network and Chicago Audubon have identified threatened or endangered bird species in the Calumet area.
	Research how water and sewage treatment processes could better benefit wildlife.		While no general program is underway in this regard, MWRD is researching the role biosolids could play in restoring the soil conditions of brownfields to support urban restoration efforts.
	Explore how restoration efforts benefit migratory birds.		FPDCC, CPD, and Audubon-Chicago have been studying this relationship, particularly in grasslands. No formal reports have been published yet.
	Study the relationship between coyotes and diminishing populations of nuisance species.		No formal studies are underway at this time, though this remains an area of interest to land managers. LPZOO uses motion detecting camera traps to study carnivores, such as coyotes, grey foxes, and raccoons, in and around the zoo and on 50km long transects that radiate outward from the zoo through urban and suburban areas into more rural areas ringing the city.

Educate the Public	*Work with the City of Chicago's "After School Matters" and "Gallery 37" programs to include workshops that focus high school students' attention on local nature, biodiversity, greening and gardening.*		After School Matters has initiated Green Teens, a program that combines horticulture and entrepreneurship. Teens learn and apply the fundamentals of plant science and gardening to create and market natural, botanically inspired products. In 2006, Chicago Conservation Corps (C3) took on the role of building CPS teacher capacity for establishing environmental after-school clubs. Over 80 schools now have C3 clubs that engage students in environmental service projects. In their Environmental Action Plan, CPS identified the environmental goal of increasing green space and gardens on school campuses as one of eleven goals.
	Increase awareness of Chicago's visitors about urban habitats and the importance of biodiversity conservation through media outreach and informational materials placed at select tourist destinations.		CDOE, with a grant from the Office of Tourism, published the Chicago Birding Trail Guide to raise the city's profile among birders across the country. CPD published Nature in the City to promote the city's natural areas and wildlife among residents and tourists alike.
	Build on existing educational programs at Chicago public libraries.		During the summers of 2008 and 2009, Chicago Public Library hosted the Read Green, Live Green program to engage residents in reading about and exploring the environment and participating in its preservation. In 2010, the Field Museum and Illinois Library Association launched a "Go Green" website for librarians interested in doing more for nature and the environment.
	Improve teacher access to existing habitat curricula.		In 2008, the Mayor's Office convened a group of stakeholders to work together on the Growing School Gardens initiative with the goal of bringing a garden and curriculum to every public school in the City.

About the Mayor's Nature and Wildlife Committee
The committee is composed of key staff at city and county agencies and of representatives from the City's many conservation-related organizations. These include national environmental organizations, regional conservation organizations, smaller neighborhood groups, zoos, museums, and others. The Committee is one of several standing taskforces related to the City's landscape.

MAYOR'S NATURE & WILDLIFE ADVISORY COMMITTEE
CHICAGO

Mission
The Committee's mission is to give a voice and standing to the needs of nature and wildlife in the City of Chicago.

Vision
The goal of the Committee is to increase the visibility and accessibility of Chicago's natural environment, to foster stewardship, and to rebuild our connection to nature. The Committee envisions an interconnected network of natural areas that supports Chicago's rich, native wildlife, both resident and migratory. This growing network of green space presents opportunities to maintain and restore ecological and social function within our urban context. In pursuit of this vision, the Committee:

- Sets forth a five-year plan of priority actions for nature and wildlife;
- Advocates for the protection and expansion of natural areas;
- Advises City leadership and agencies;
- Serves as a resource for designers and planners;
- Links researchers to land managers;
- Supports stewardship and citizen science within the city; and
- Engages and informs community stakeholders.

Guiding Values
The Committee recognizes and promotes the following values of creating, protecting, and maintaining nature in the city:

Ecological	Create a network of functioning natural areas that represent a variety of native ecosystems to support the region's rich biodiversity.
Social	Bring nature into the daily lives of Chicago residents to strengthen our connection to the natural world, create a sense of community and place, and improve health and well-being.
Economic	Improve the economic vitality and global competitiveness of Chicago by using and expanding green infrastructure to create a sustainable city.
Educational	Provide educational opportunities to build an informed public with a sense of awareness, engagement, and stewardship.

Research Summit

On November 6, 2009, the Mayoral Nature and Wildlife Advisory Committee convened the Nature and Wildlife Research Summit to identify priority research needs, connect researchers to land managers and policy makers, and envision a biodiversity research network for Chicago. Over 100 land managers and researchers attended the Summit held at Chicago Botanic Garden Daniel F. and Ada L. Rice Plant Conservation Science Center. Through plenary sessions, breakout groups, poster sessions, and informal conversations, three research areas were determined to be essential:

1) Understand and improve the contribution of Chicago's natural areas to biodiversity.

   In order to make the moral and economic case for sustained investment in urban nature, research is needed to quantify the value of Chicago's natural areas in supporting biodiversity and providing ecosystem services. With government and private funding in short supply, it is more important than ever that natural area dollars and labor are used strategically. It is imperative that the scientific community help support land managers by researching key issues and providing necessary data to solve real-world challenges.

2) Understand, improve and accurately describe the ecosystem services that natural areas provide.

   Natural areas provide an extraordinary array of services to our human communities. Plants improve air quality and sequester carbon dioxide; birds and other wildlife consume insects and various pests; and open spaces provide porous soils for rainwater to soak in. These ecosystem services are not always obvious to decision makers when they are in the midst of a furious economic or political debate. Scientific research is needed to better quantify these services in Chicago. With data in hand on how natural areas provide important civic functions and improve quality of life, advocates will be better prepared to defend open spaces threatened by development. They will also be better positioned to help secure the resources necessary to sustain natural areas. In some cases, pertinent research may have already been conducted, and the task will be to apply and test it in Chicago.

3) Understand the relationships and interfaces of the urban built environment with the natural one, and discover best practices for improving the relationship between the two while addressing negative impacts.

   Having Chicago's dense population living in close proximity to natural areas provides outstanding opportunities for fostering citizens knowledgeable about nature and wildlife. However, the intensity and pervasiveness of the built environment, with its many inherent disruptions to habitat make harmony between humans and nature difficult to achieve.

For the full Summit Report, including the proposed next steps and list of participants, please visit http://www.cityofchicago.org/city/en/depts/zlup/supp_info/chicago_nature_andwildlifeplan.html.

Rahm Emanuel
Mayor

CITY OF CHICAGO © 2011