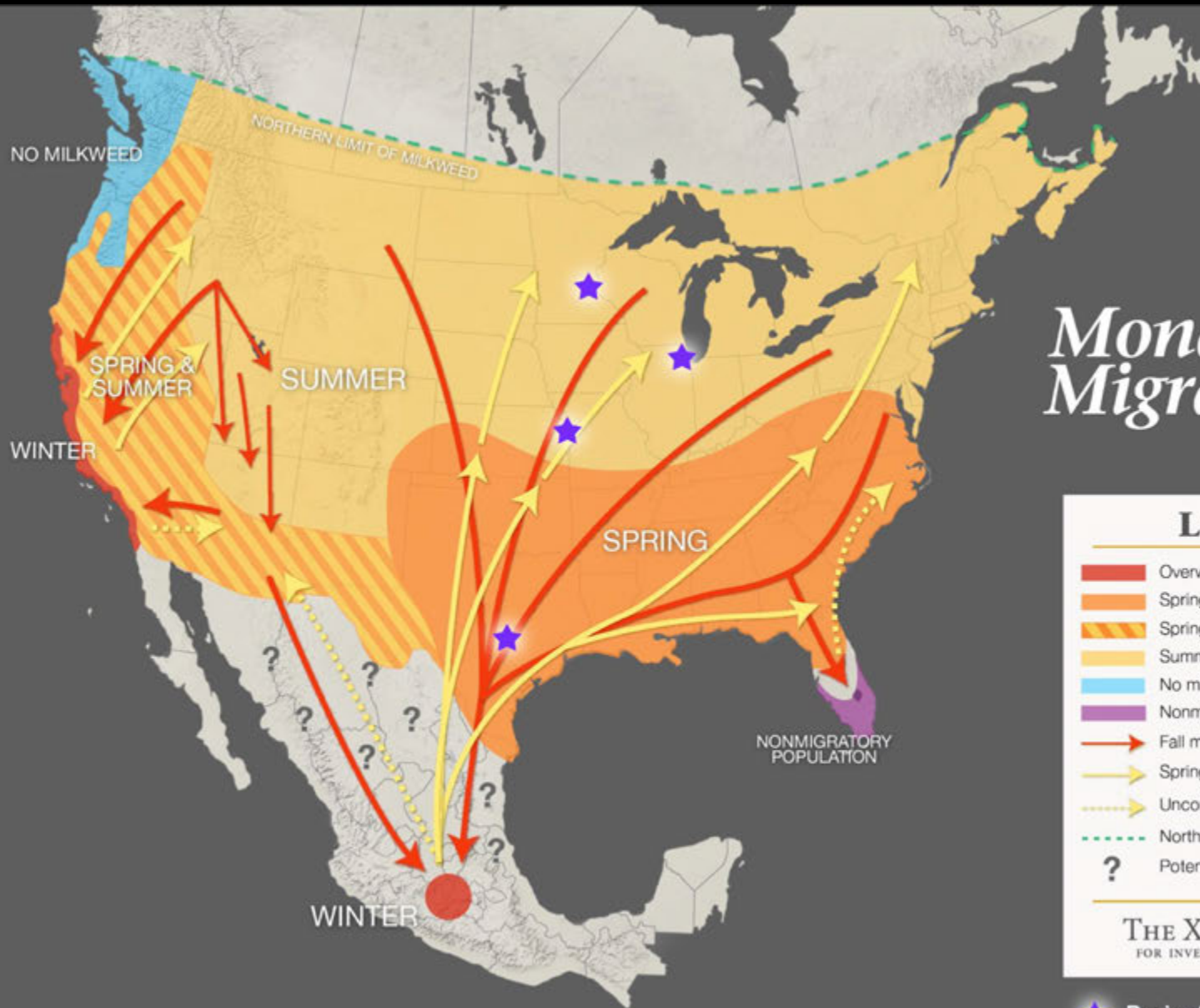




A Monarch's View of the City:

Conservation Design for Monarchs in Developed Areas












Monarch Migration


Spring & Fall



LEGEND

-  Overwintering areas
-  Spring breeding areas
-  Spring & summer breeding areas
-  Summer breeding areas
-  No milkweed - no breeding area
-  Nonmigratory population
-  Fall migration
-  Spring migration
-  Unconfirmed migration
-  Northern limit of milkweed
-  Potential monarch breeding habitat

THE XERCES SOCIETY
FOR INVERTEBRATE CONSERVATION

 Project pilot cities



Does **nature** need cities?



Guides & templates

Framework for planning

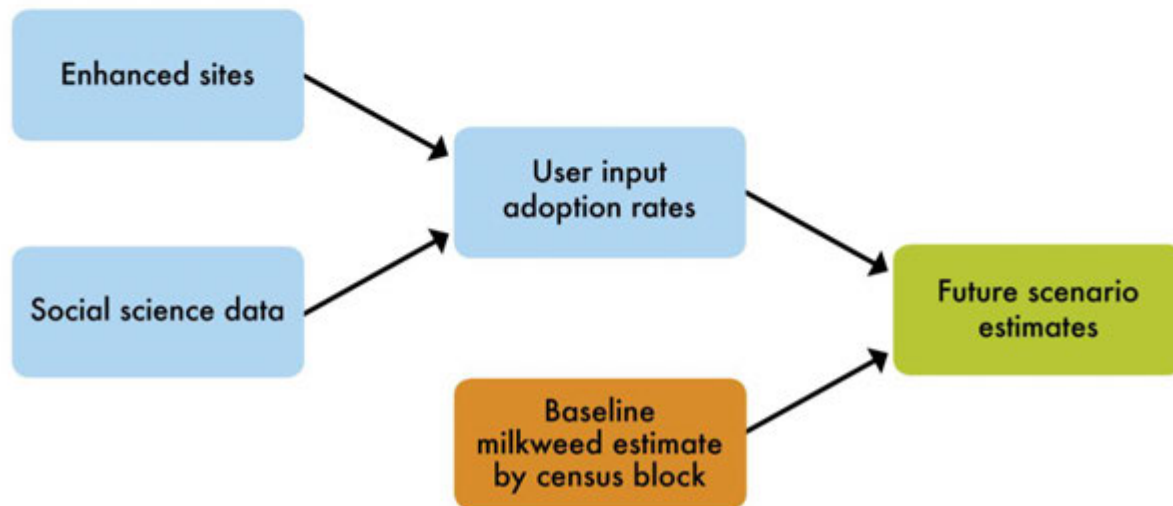
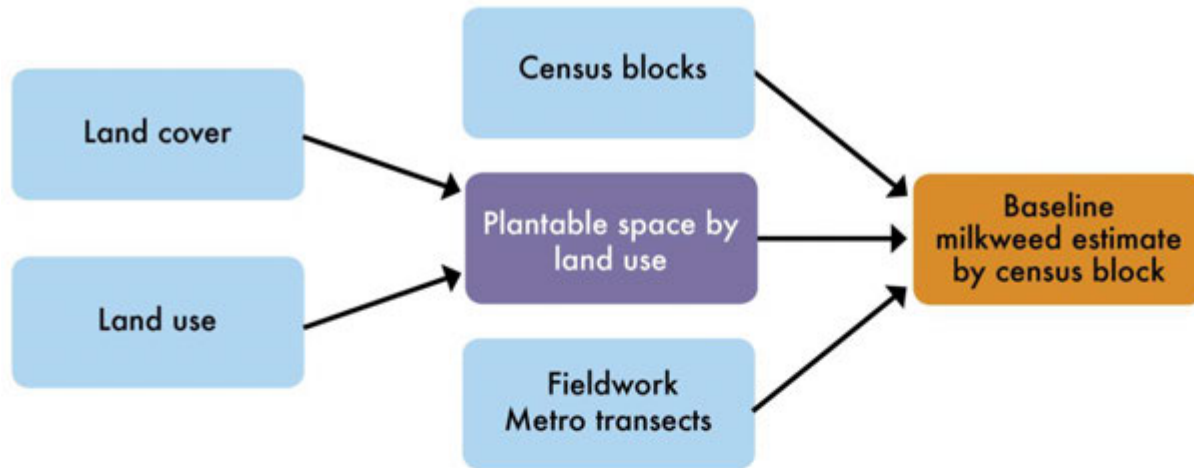
- Urban Monarch Conservation Guidebook
- Social survey and interview guide (English & Spanish)
- Best practices by land use type
- Rapid color guide: Creating monarch habitat in your Midwestern garden

Sampling & mapping tools

- Urban milkweed baseline Tool
- Urban scenario planning Tool
- Natural areas sampling protocol
- Metro transect methodology
- Maps and conservation designs for pilot cities



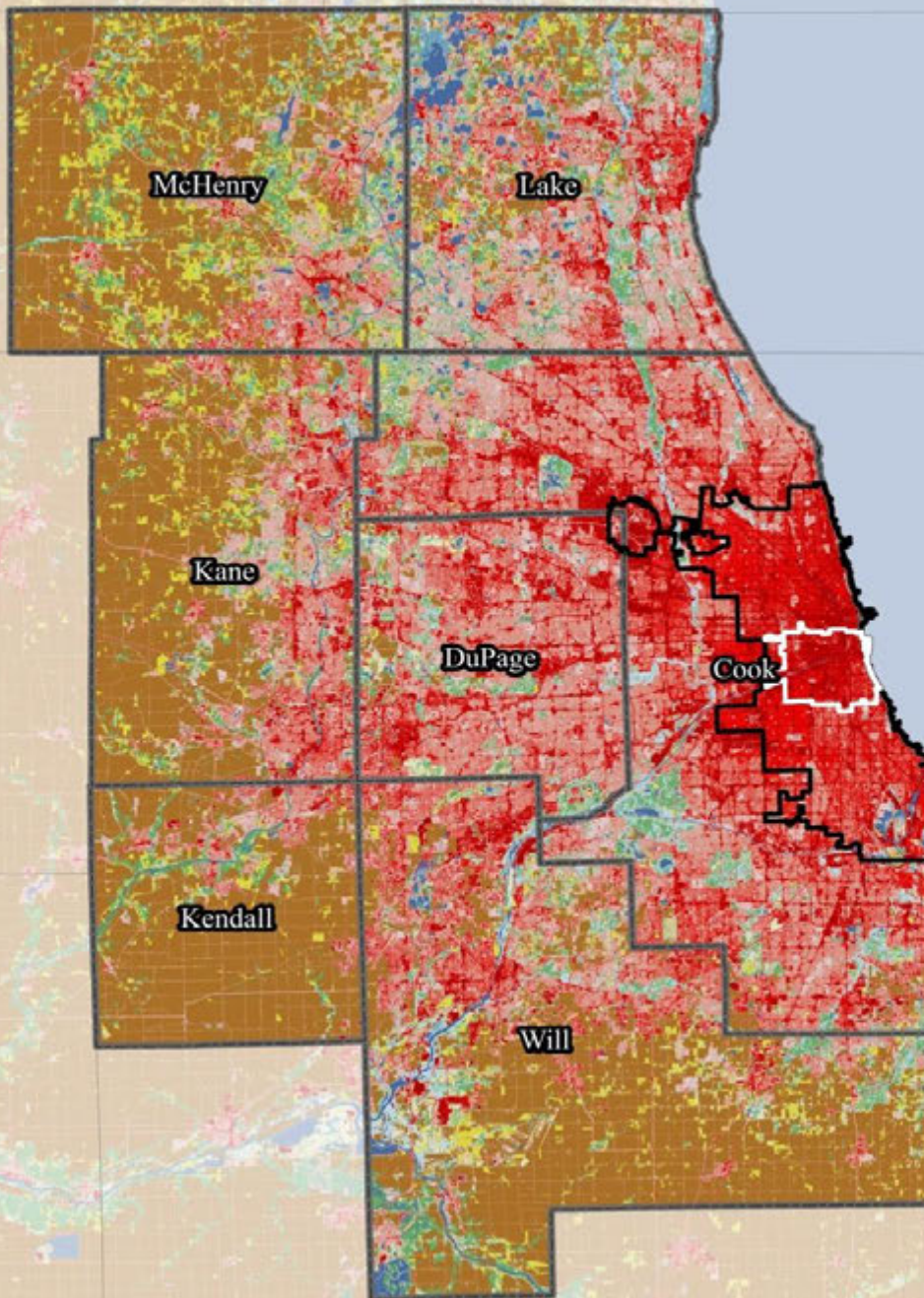
Milkweed scenario modeling



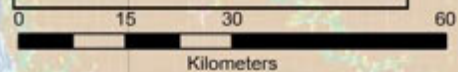
Wisconsin

Illinois

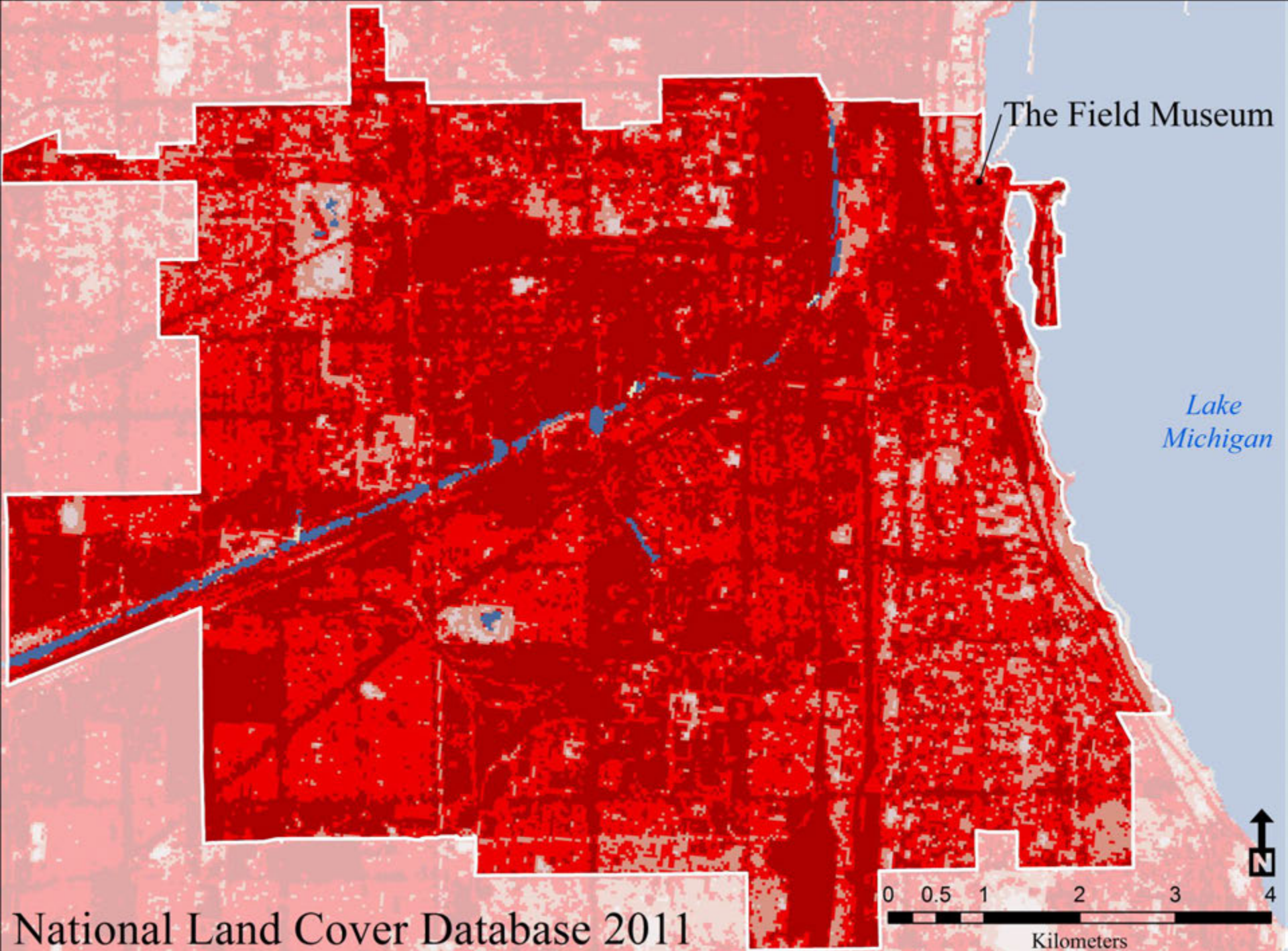
National Land Cover Database 2011



- Area of Analysis
- 7 County Extent
- Chicago Boundary
- U.S. Counties



Illinois Indiana

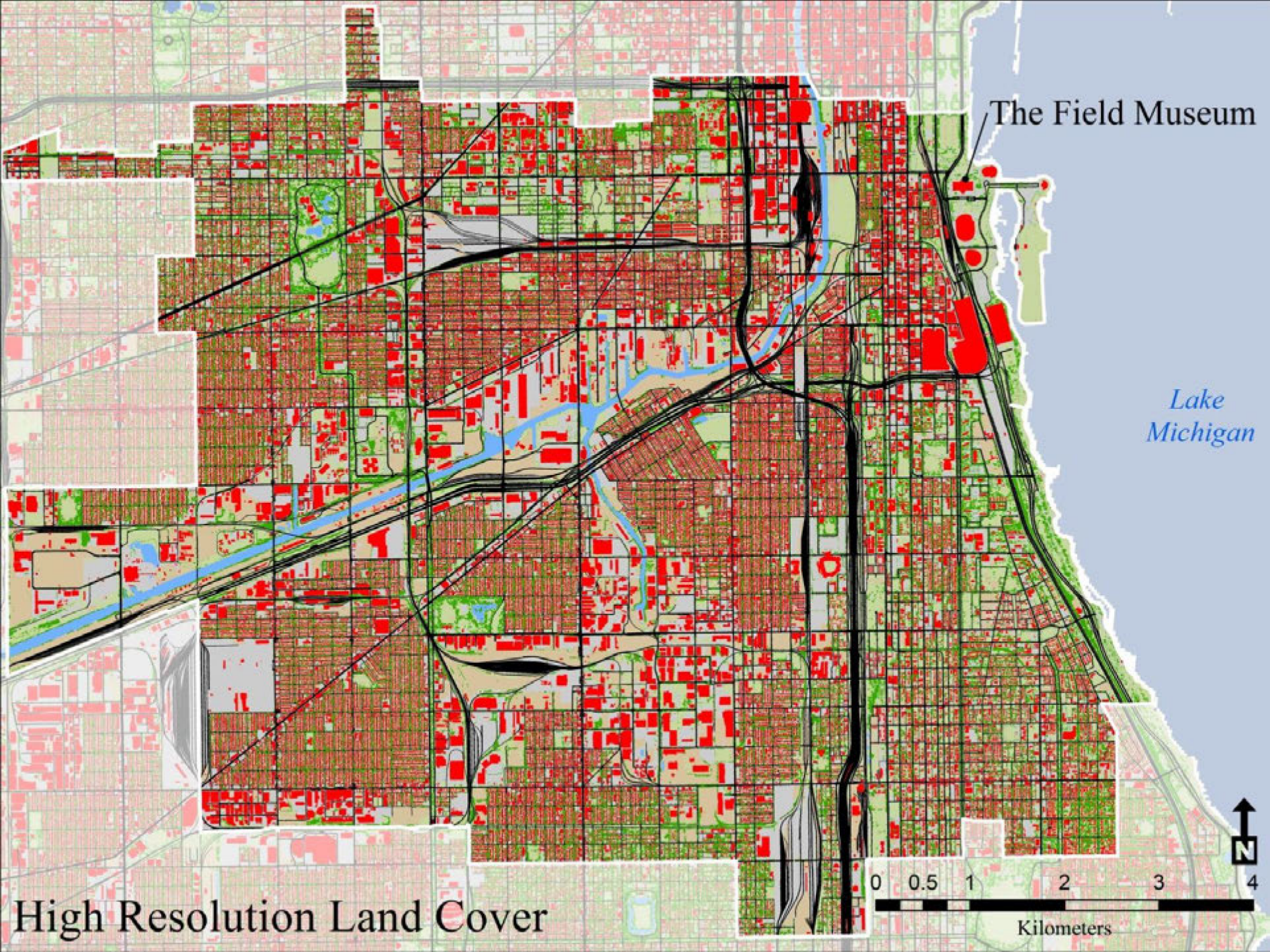


The Field Museum

Lake Michigan



National Land Cover Database 2011

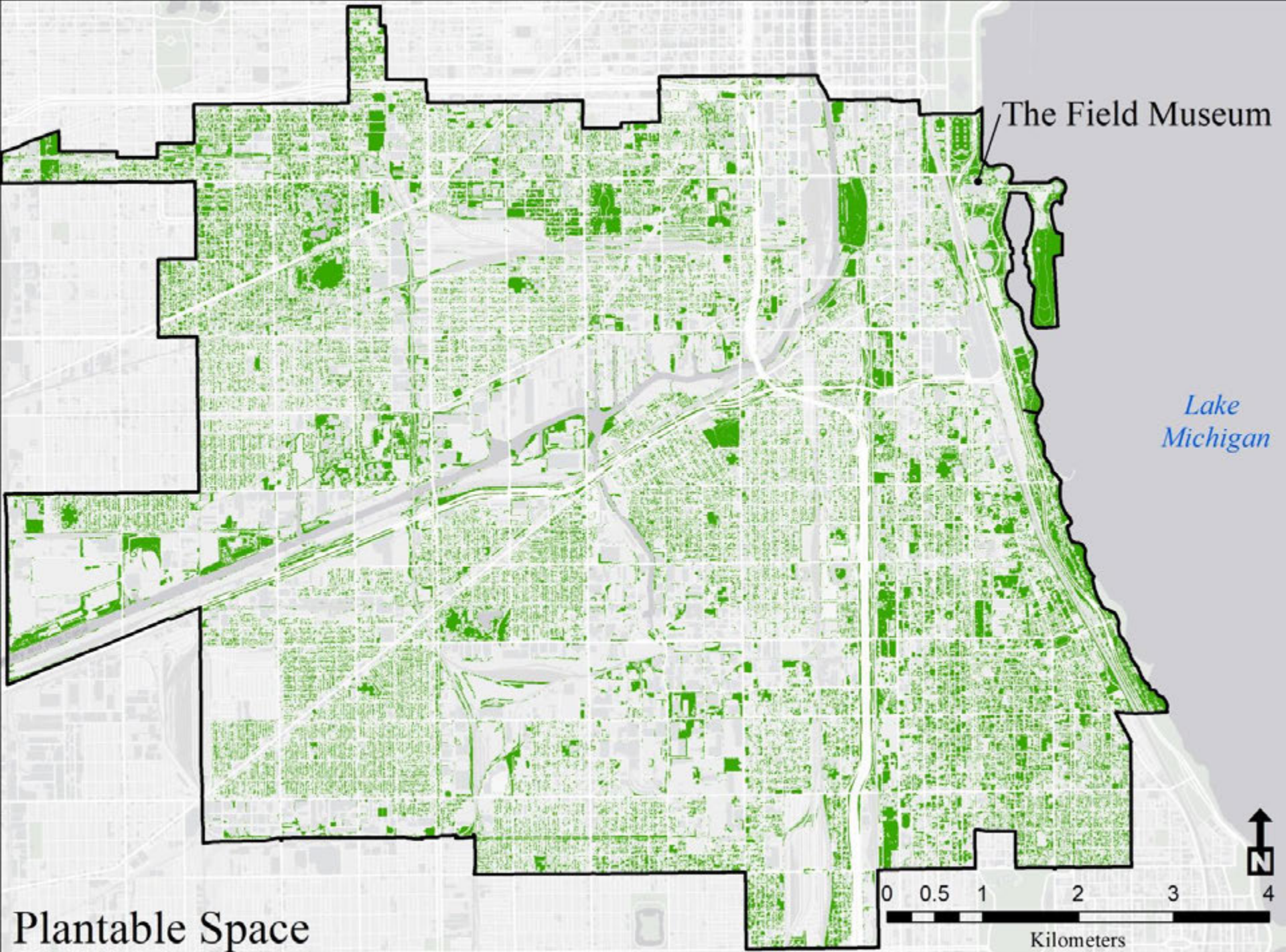


The Field Museum

Lake Michigan

High Resolution Land Cover

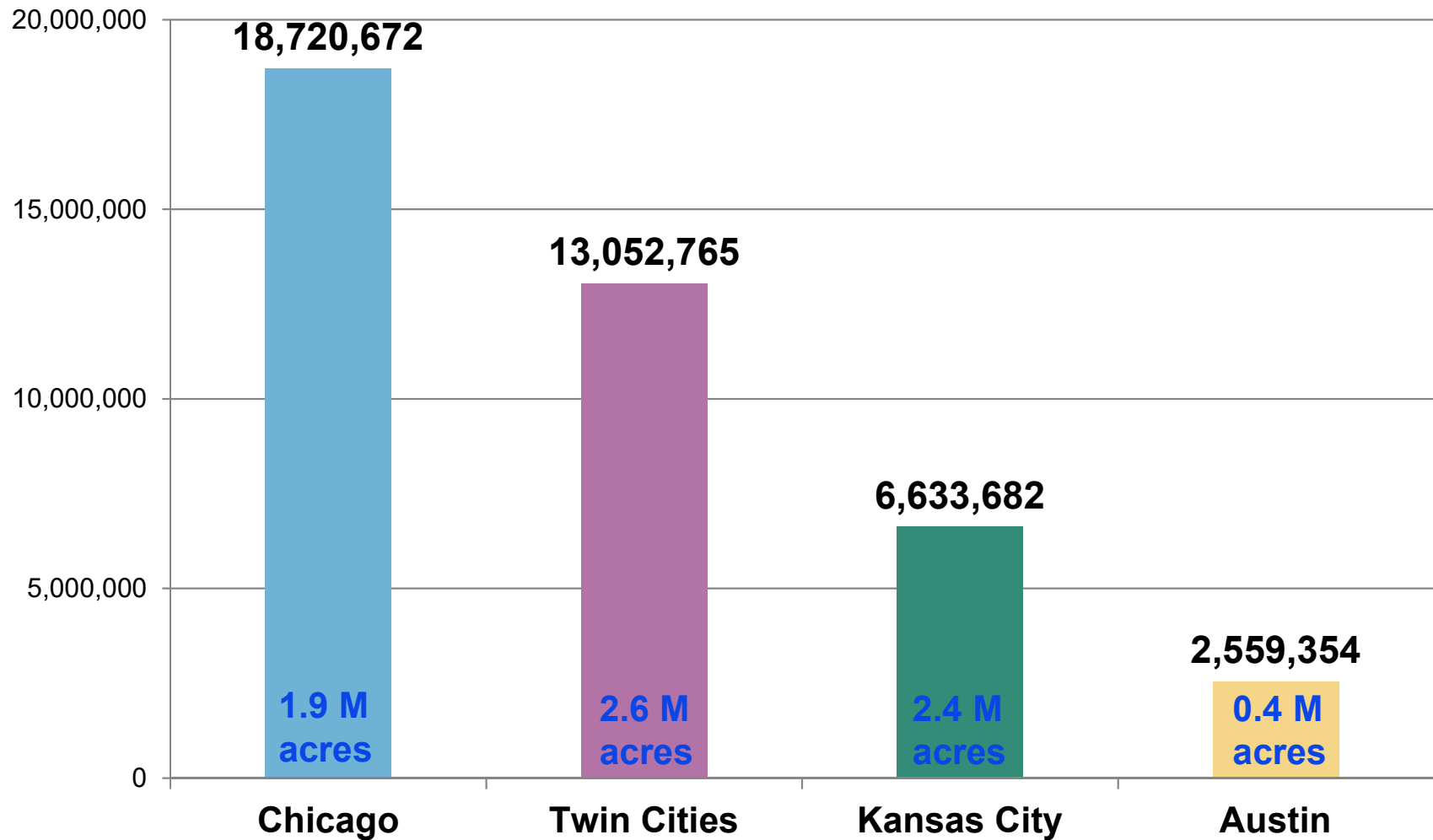




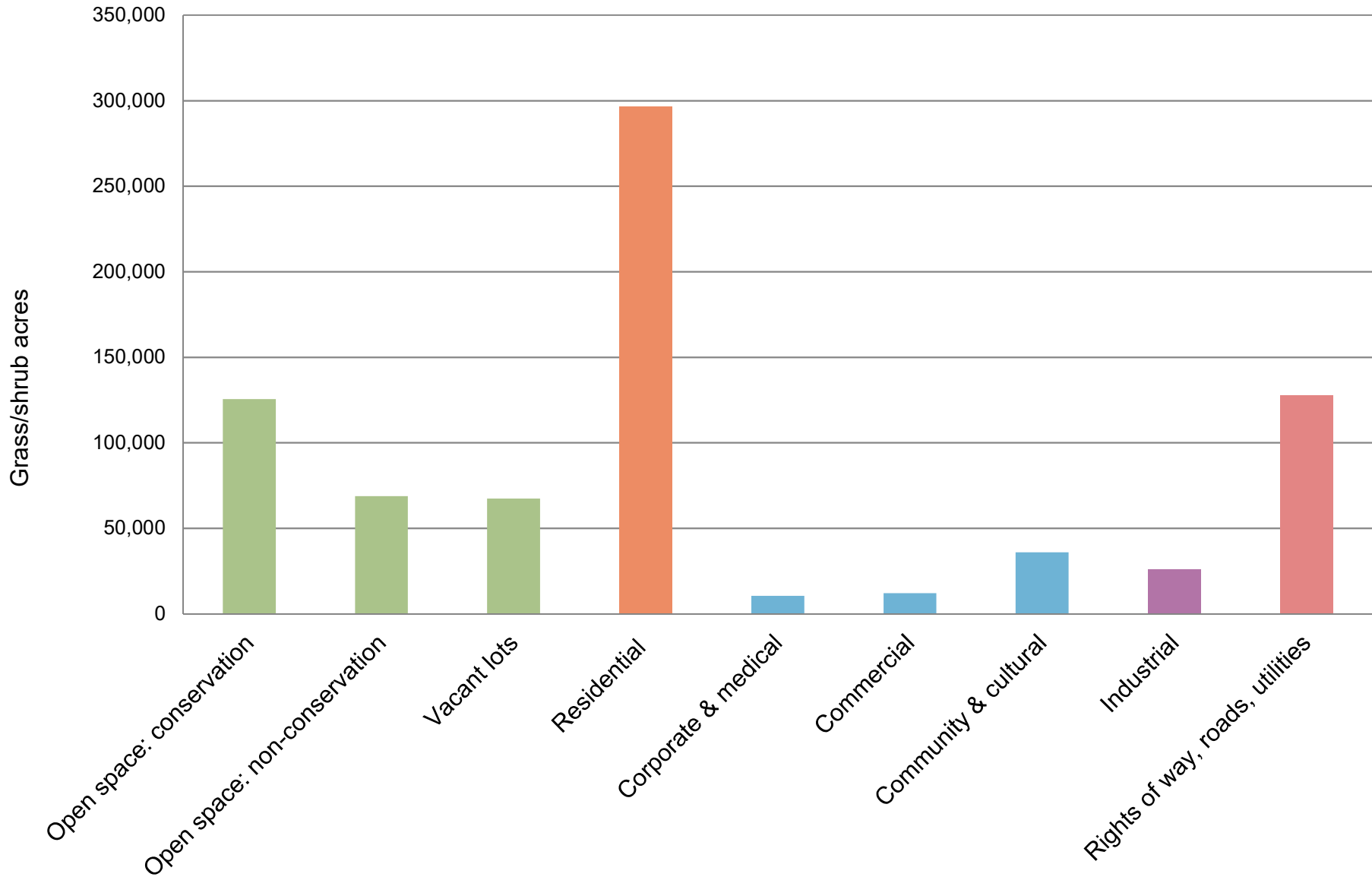


Baseline milkweed stems by metropolitan area

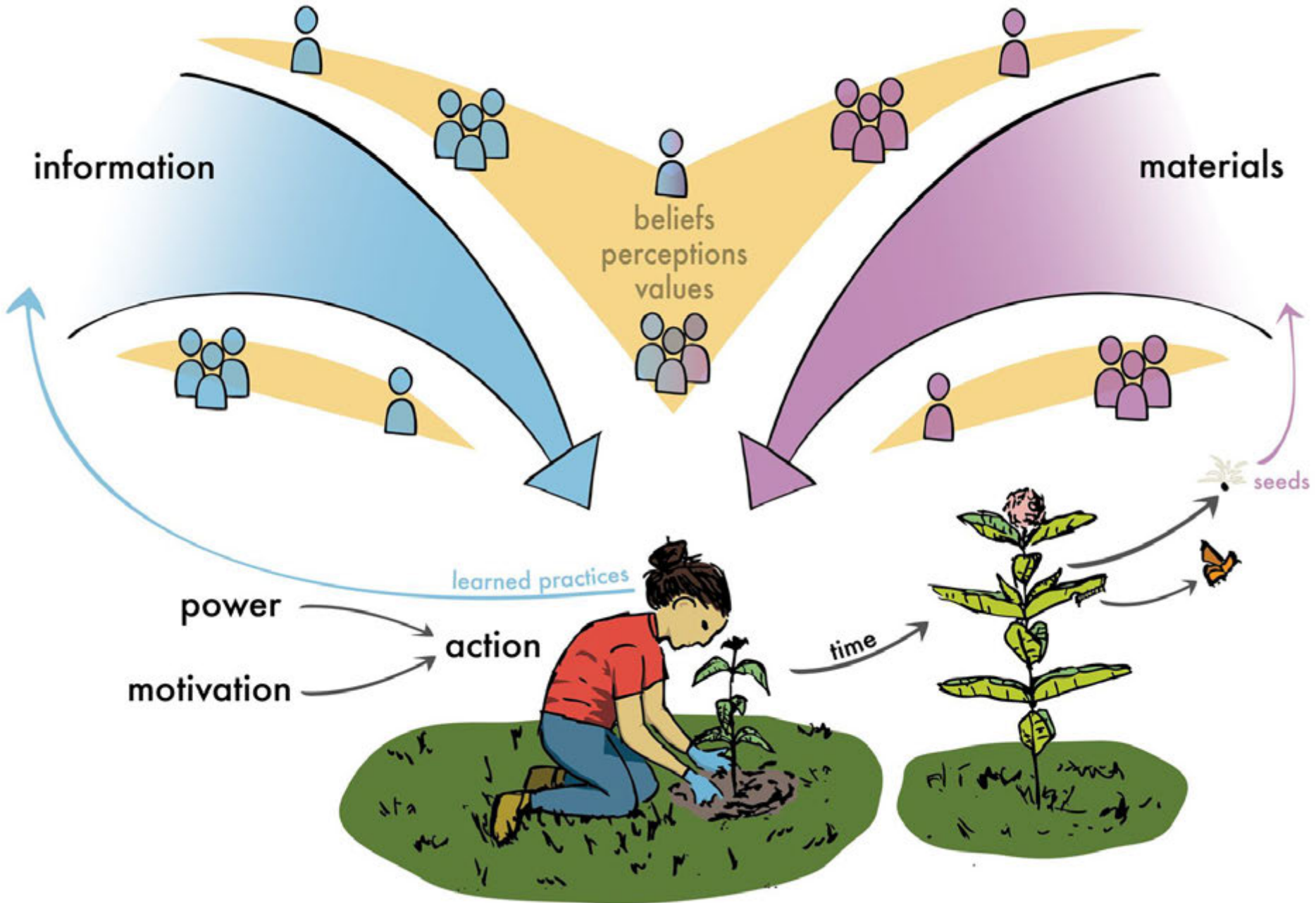
Total estimated stems: 41,000,000
Total analysis acreage: 7.3 M acres



Potential plantable space by land use type: Chicago metro region



Social world of monarch conservation



Best practices and insights by land use type

Best practices and engagement insights

Example/demonstration habitat spaces go far in educating others and encouraging them to create monarch habitat.

Home gardens and adjacent green space often function as informal **environmental education** spaces. Native plants spark conversation among neighbors and may inspire others to create monarch habitat. These conversations may build local **social cohesion**.

Creating habitat for monarchs or pollinators may seem less daunting and more concrete than other, broader ecosystem services goals where the results are less immediately visible or tangible (e.g., **conserving water**).

However, focus on a particular species may deter those concerned about restrictions that official "threatened" or "endangered" designations could bring. In these cases, it may be more effective to frame a project in terms of **overall ecological health** and/or connect it to practical concerns like **occupational safety** and **decreased mowing costs**.

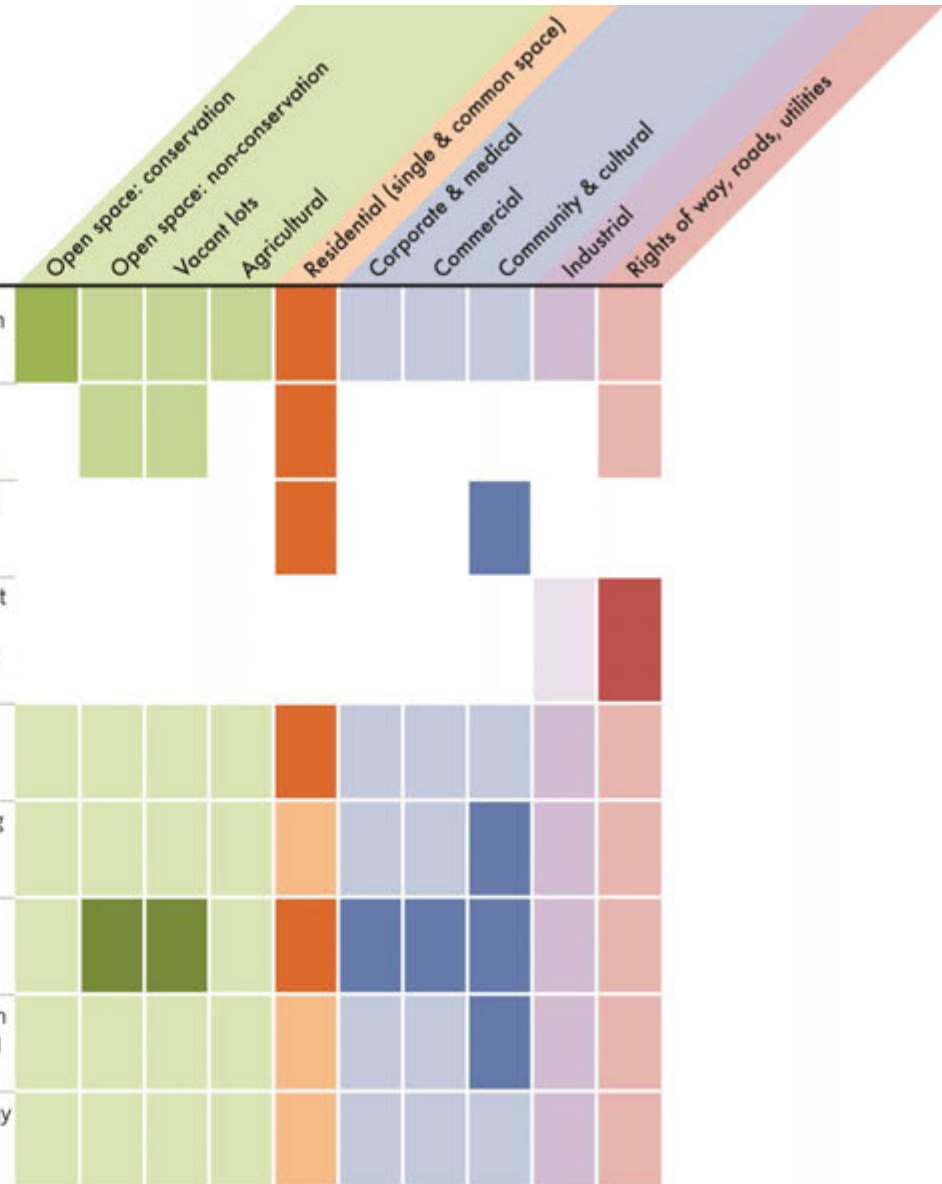
One-on-one in-person communication is a highly effective method of education/promotion of monarch-friendly practices.

Hands-on, up-close encounters with monarchs and their host plants are most compelling when educating people about monarchs and creating habitat. The next best option is compelling video and/or photos.

To create a landscape that will be received well by its occupants and neighbors, be flexible and willing to balance native plants with more manicured plantings that signal awareness of mainstream aesthetic conventions.

Learning about monarchs promotes **observational skills** and **knowledge of geography** in youth. Children end up learning about more ecology and conservation more broadly, and that they can have a positive impact on their environment.

Plants used for **stormwater management** efforts such as bioswales and rain gardens may also provide monarch habitat; thus stormwater related grants and resources may be leveraged to help the monarch.



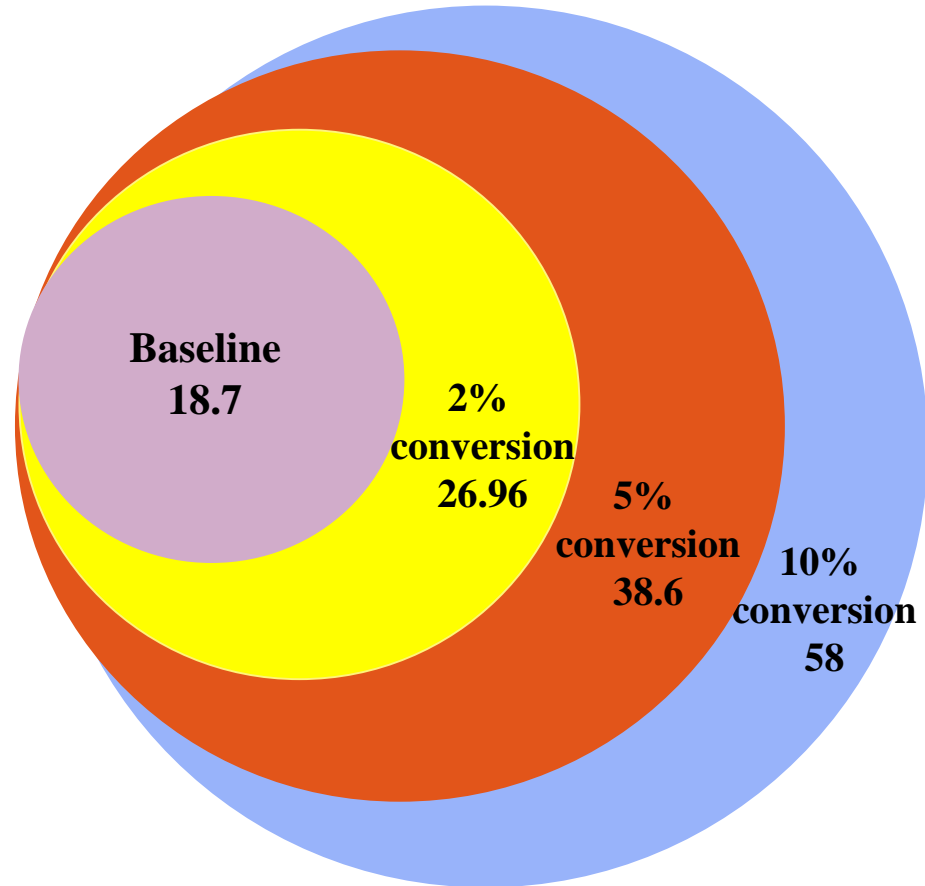
Best practices and insights by land use type

Best practices and engagement insights

	Open space: conservation	Open space: non-conservation	Vacant lots	Agricultural	Residential (single & common space)	Corporate & medical	Commercial	Community & cultural	Industrial	Rights of way, roads, utilities
Example/demonstration habitat spaces go far in educating others and encouraging them to create monarch habitat.	Green	Green	Green	Green	Orange	Blue	Blue	Blue	Purple	Red
Home gardens and adjacent green space often function as informal environmental education spaces. Native plants spark conversation among neighbors and may inspire others to create monarch habitat. These conversations may build local social cohesion .		Green	Green		Orange					Red
Creating habitat for monarchs or pollinators may seem less daunting and more concrete than other, broader ecosystem services goals where the results are less immediately visible or tangible (e.g., conserving water).					Orange		Blue			
However, focus on a particular species may deter those concerned about restrictions that official "threatened" or "endangered" designations could bring. In these cases, it may be more effective to frame a project in terms of overall ecological health and/or connect it to practical concerns like occupational safety and decreased mowing costs .					White			Purple	Red	
One-on-one in-person communication is a highly effective method of education/promotion of monarch-friendly practices.	Green	Green	Green	Green	Orange	Blue	Blue	Blue	Purple	Red
Hands-on, up-close encounters with monarchs and their host plants are most compelling when educating people about monarchs and creating habitat. The next best option is compelling video and/or photos.	Green	Green	Green	Green	Orange	Blue	Blue	Blue	Purple	Red
To create a landscape that will be received well by its occupants and neighbors, be flexible and willing to balance native plants with more manicured plantings that signal awareness of mainstream aesthetic conventions.	Green	Dark Green	Dark Green	Green	Orange	Blue	Blue	Blue	Purple	Red
Learning about monarchs promotes observational skills and knowledge of geography in youth. Children end up learning about more ecology and conservation more broadly, and that they can have a positive impact on their environment.	Green	Green	Green	Green	Orange	Blue	Blue	Blue	Purple	Red
Plants used for stormwater management efforts such as bioswales and rain gardens may also provide monarch habitat; thus stormwater related grants and resources may be leveraged to help the monarch.	Green	Green	Green	Green	Orange	Blue	Blue	Blue	Purple	Red



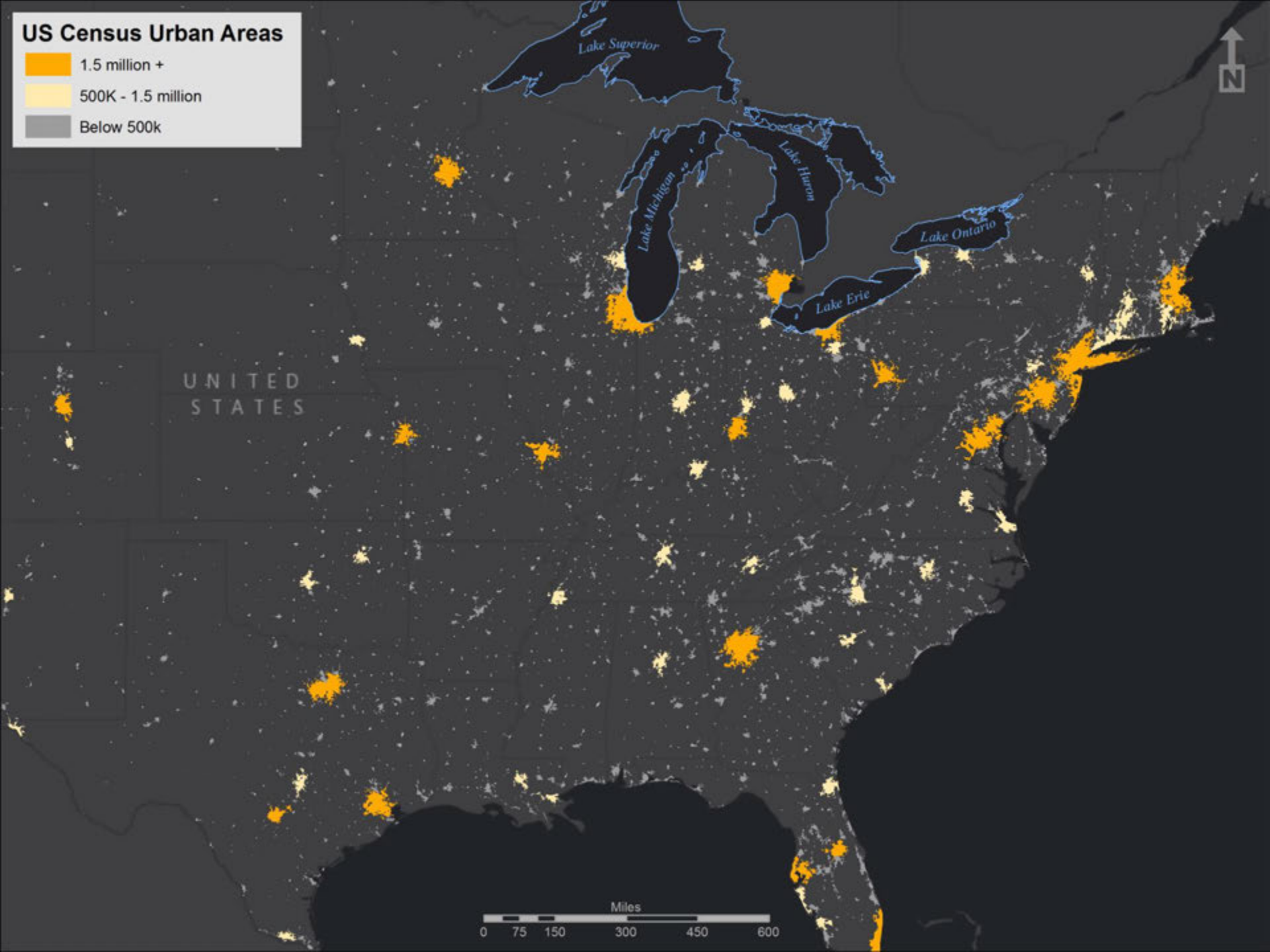
Milkweed Scenario Modeling



Millions of stems of milkweed
[Chicago Metropolitan area]

US Census Urban Areas

- 1.5 million +
- 500K - 1.5 million
- Below 500k



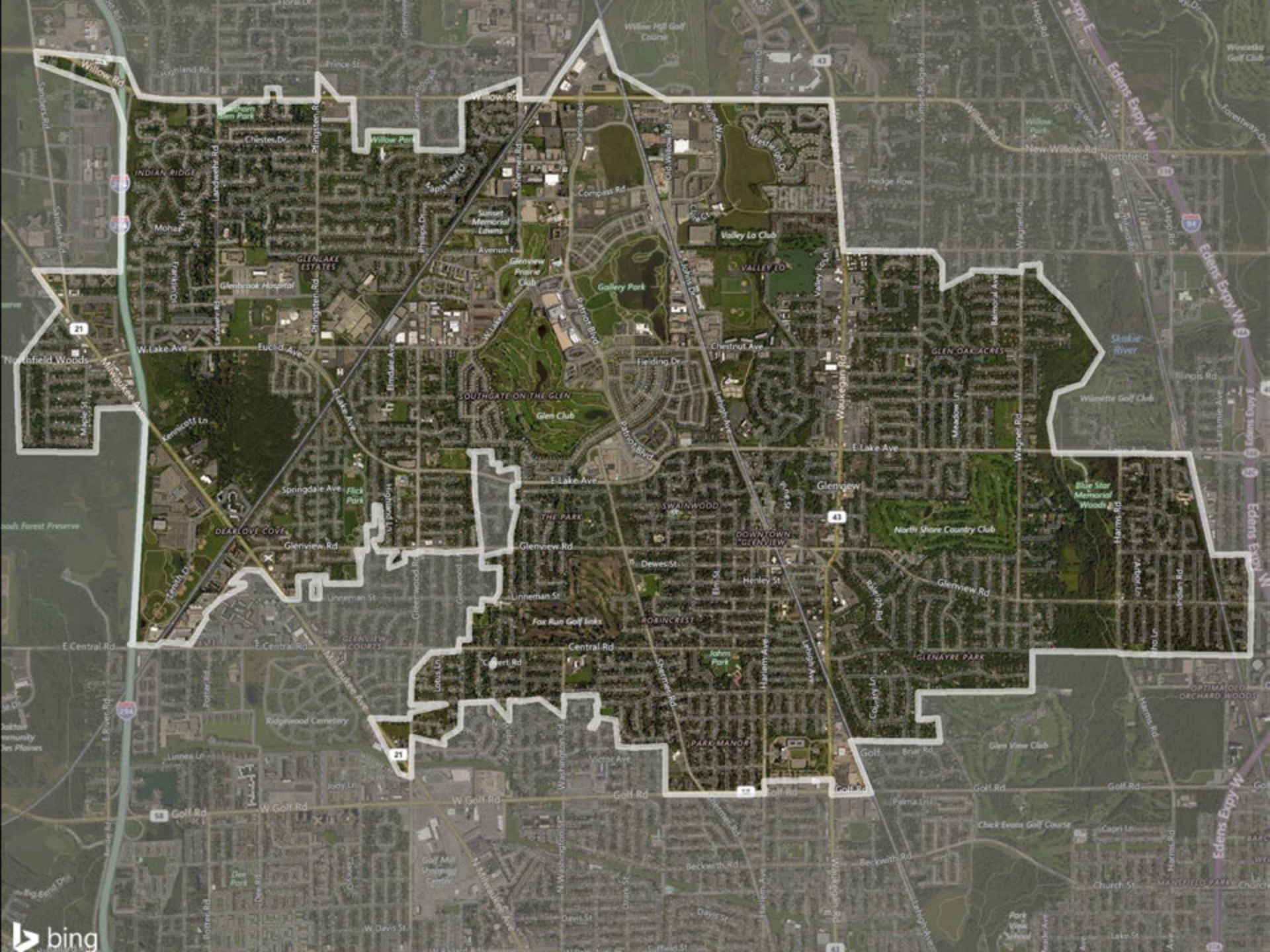
Steps for running the scenario planning tool



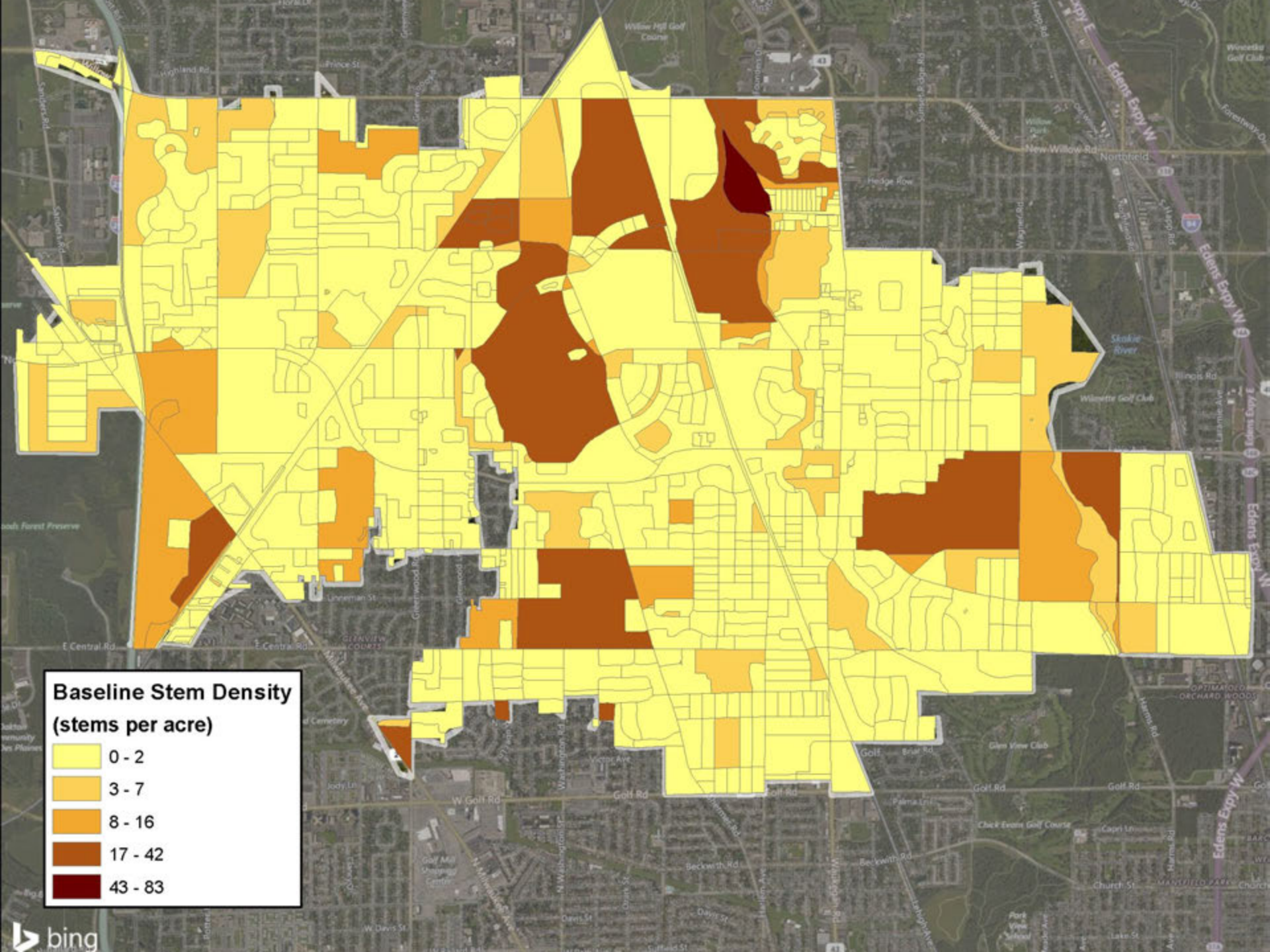
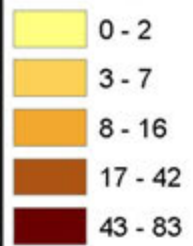
1. Zoom to research area.
2. Open baseline map.
3. Select census blocks for your area of interest.
4. Run the scenario planning tool.

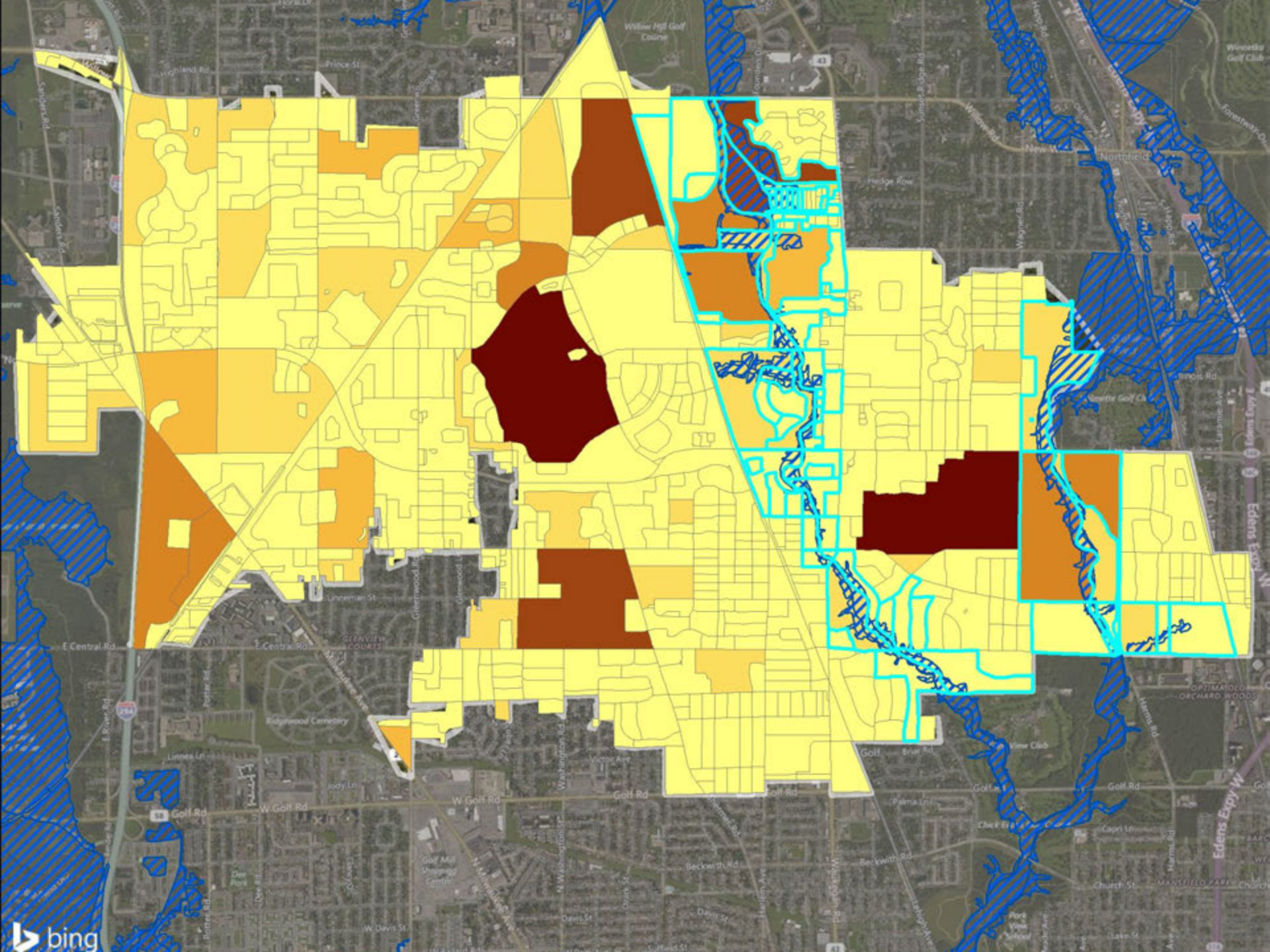
How the scenario planning tool works: Case study Village of Glenview





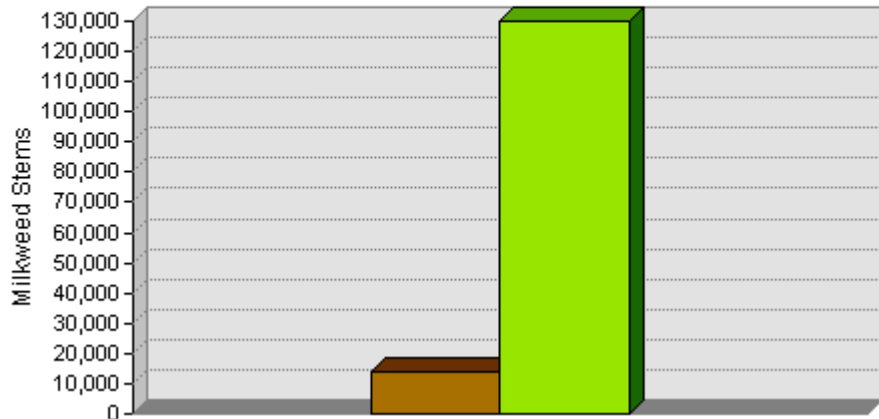
**Baseline Stem Density
(stems per acre)**





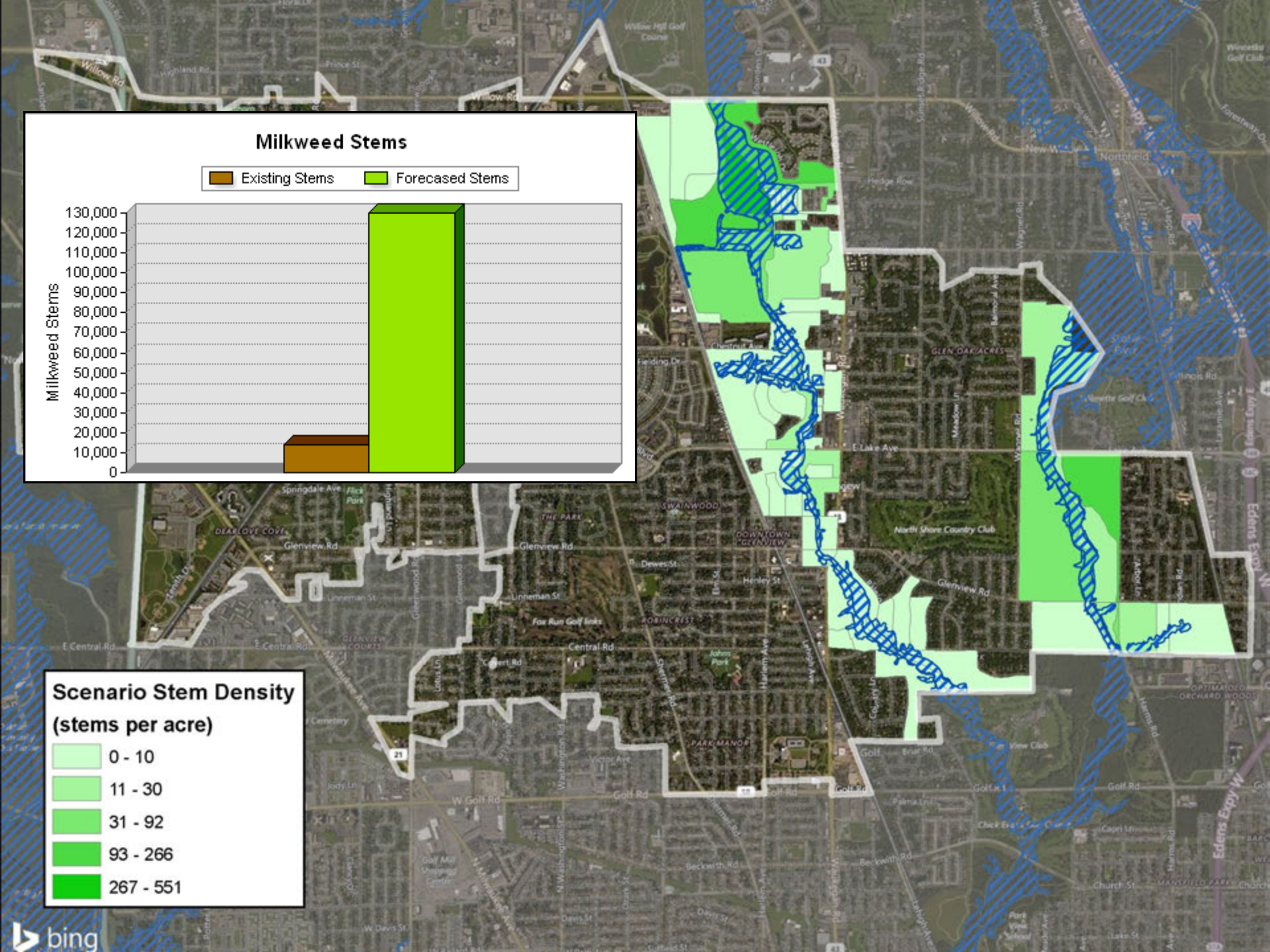
Milkweed Stems

Existing Stems Forecasted Stems

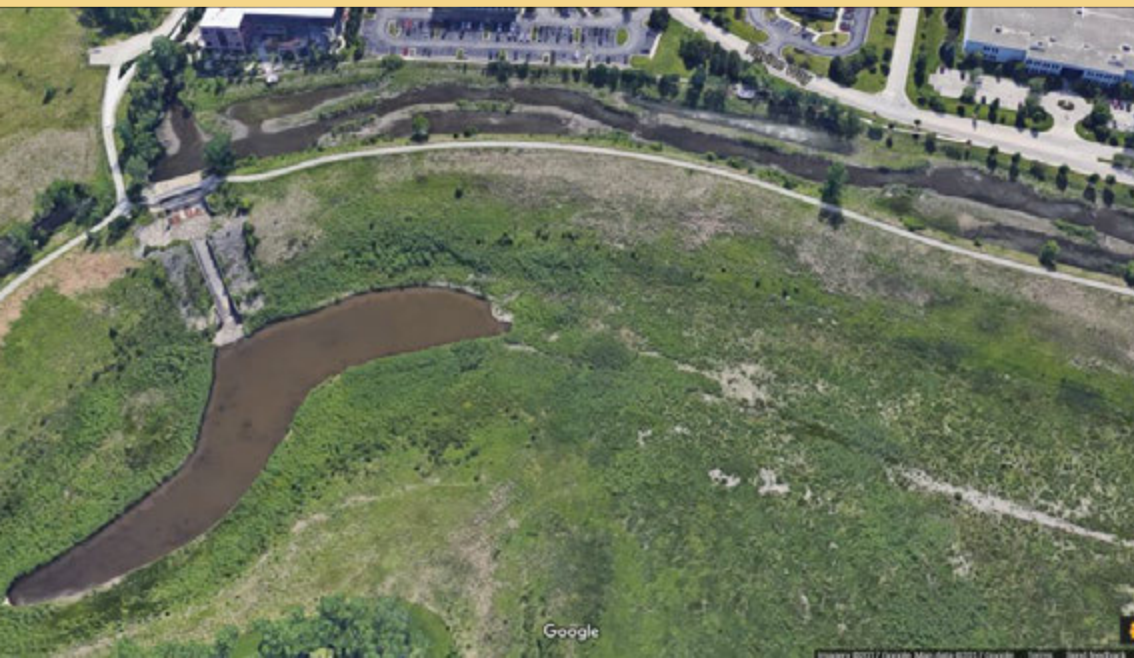


Scenario Stem Density (stems per acre)

- 0 - 10
- 11 - 30
- 31 - 92
- 93 - 266
- 267 - 551



Glenview: Flooding and green infrastructure improvement projects also create monarch habitat

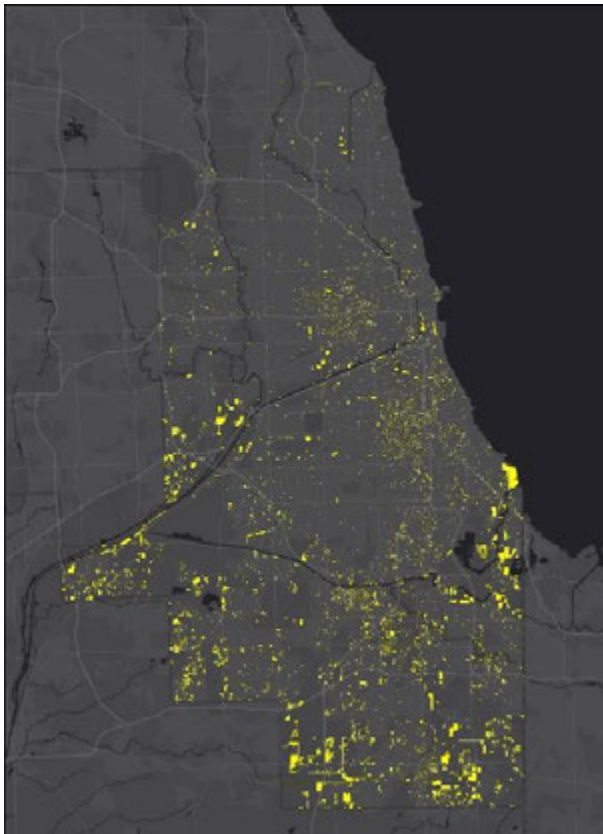


Green space conversions: Case study of vacant lots and public schools in Cook County, IL



Scenario planning: Vacant lots

Vacant Lots (Cook County / Chicago)

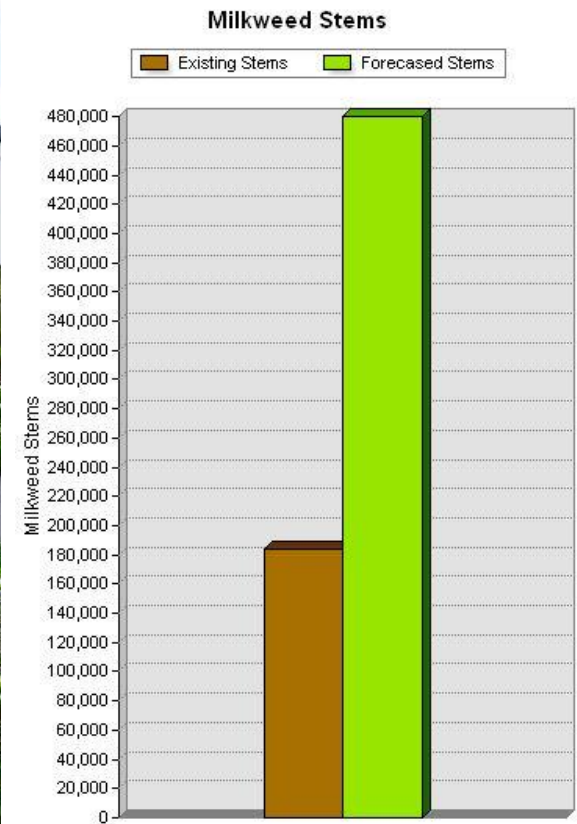


Example conversion of vacant land



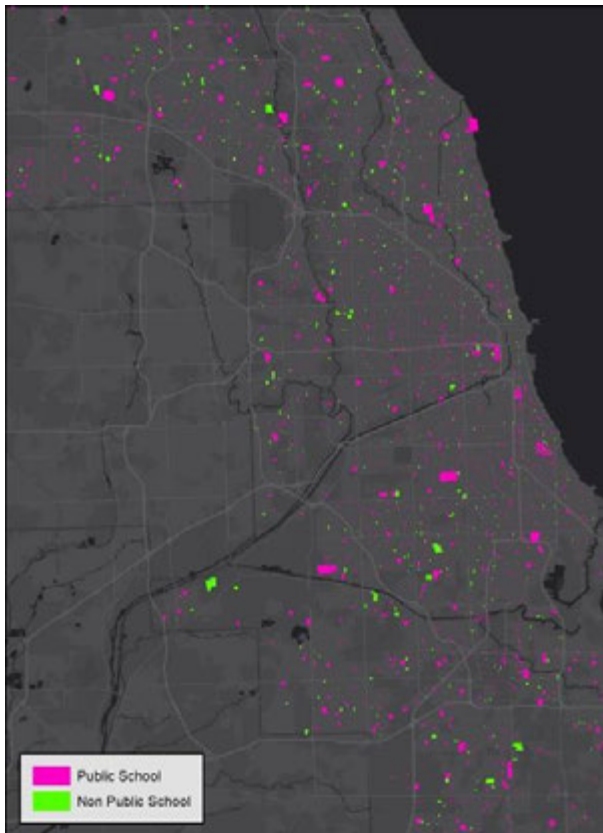
Piet Oudolf

20% land owner adoption results in 296,000 added stems



Scenario planning: Public schools

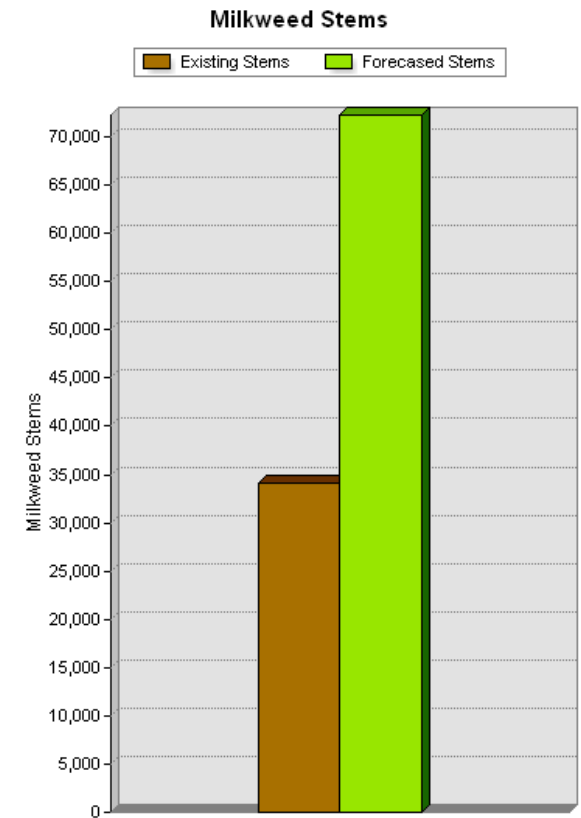
Public and private schools
(Cook County / Chicago)



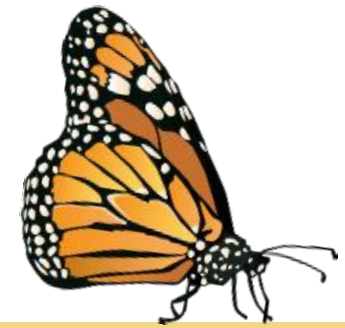
Example conversion of
school green space



20% of public school green
spaces results in 38,000
added stems



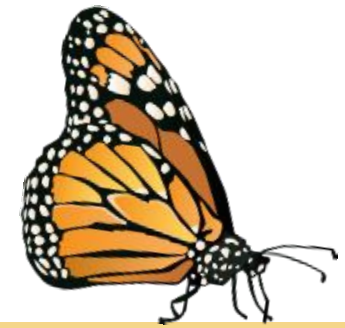
Next steps



Learning from all of you as we begin to...

- Translate this effort to work in small and mid-sized cities (Peoria, Lincoln, Carbondale)
- Test out best practices for engaging different stakeholders in cities (South Chicago & Gary, IN)
- Understand how to connect and support pollinator work across urban intersections

Next steps



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Chicago
Wilderness



INSTITUTE ON THE
ENVIRONMENT
UNIVERSITY OF MINNESOTA
Driven to DiscoverSM



Heartland
CONSERVATION ALLIANCE

