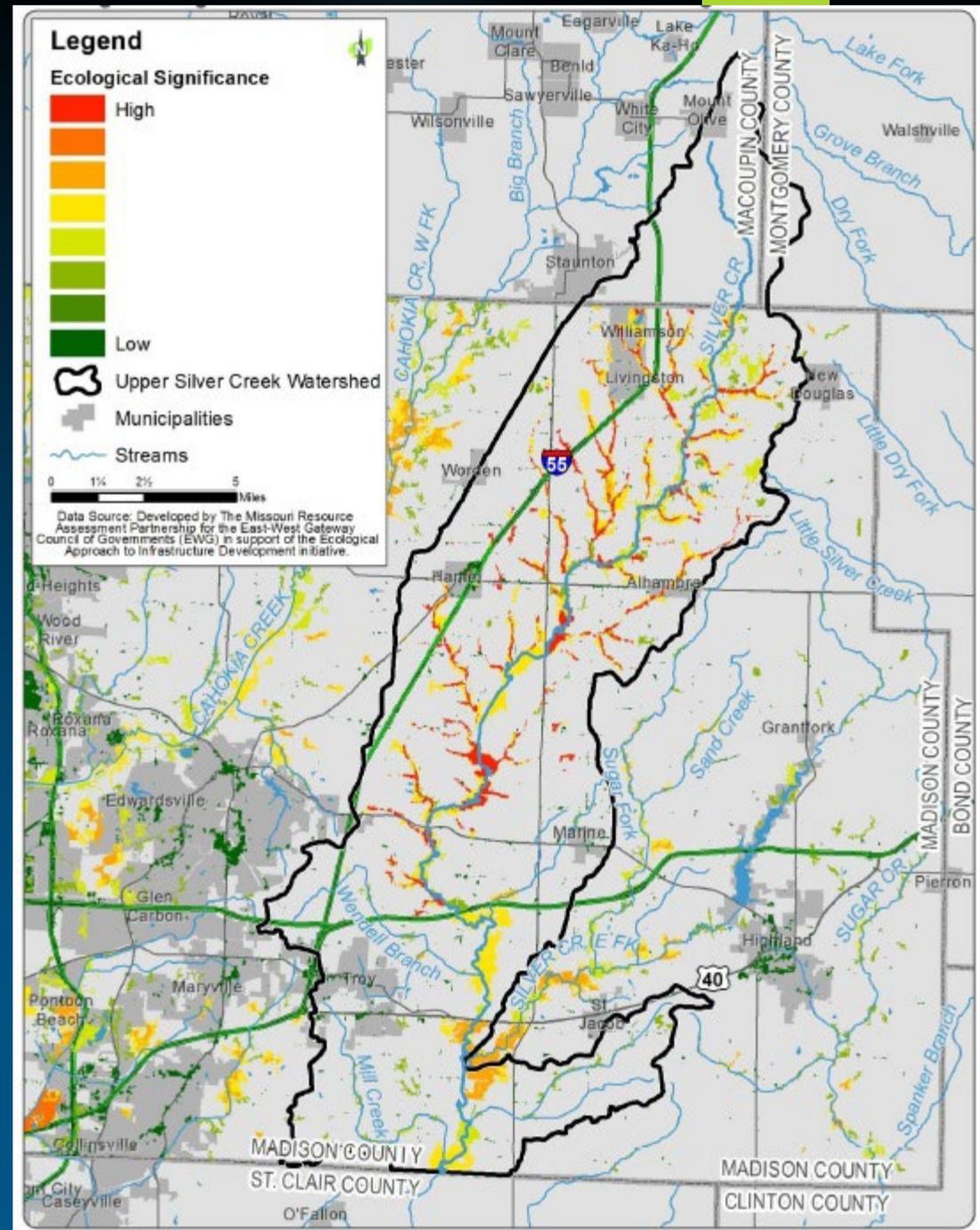


Ecological Approach to Infrastructure Development Initiative



**EAST-WEST GATEWAY
Council of Governments**

Creating Solutions Across Jurisdictional Boundaries



What is it?

- DOT directive to link transportation planning and environmental decision-making
- Identifies ecologically-significant natural resources and combines dozens of data sources
- Free datasets on conservation, mitigation, and restoration

East-West Gateway Partners

★ Missouri Resource Assessment Partnership (MoRAP) at University of Missouri-Columbia

- ▶ USACE, St. Louis District & Kansas City District
- ▶ USEPA, Region 5 & Region 7
- ▶ USFWS, MO & IL
- ▶ US Geological Survey
- ▶ US Dept. of Interior
- ▶ Federal Highway Admin, MO & IL
- ▶ Illinois and Missouri State Departments of Conservation, Natural Resource Management, and Transportation
- ▶ Metropolitan St. Louis Sewer District (MSD)
- ▶ Metro Transit – St. Louis
- ▶ Metro East Park and Recreation District
- ▶ Heartlands Conservancy
- ▶ Great Rivers Greenway
- ▶ The Nature Conservancy
- ▶ Open Space Council
- ▶ Missouri Botanical Garden

What are the data sets?

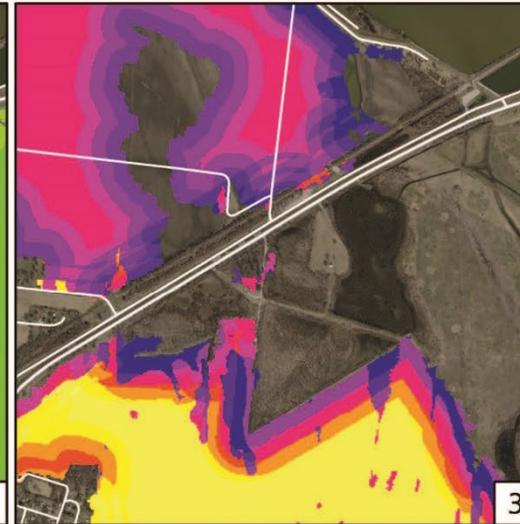
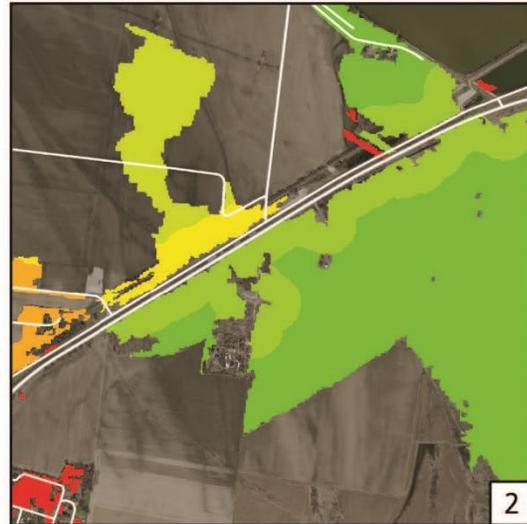
- Multi-resolution Land Cover & Urban Land Cover
- Water & Wetlands, with Mitigation and Restoration Importance Ranking
- Ecological Significance

Wetlands

Datasets used LiDAR elevation and vegetation height, aerial images, and satellite data to further define land cover type and digital soils to map existing wetland patches.

Wetlands were ranked for mitigation and restoration importance, meaning all areas over bottomland soils were ranked as having either potential wetland mitigation value or potential wetland restoration value.

WETLANDS



1) Wetland Type, 2013

- Deciduous Forested Wetland, Permanently Flooded-PFO1H
- Deciduous Forested Wetland, Seasonally Flooded-PFO1C
- Deciduous Forested Wetland, Temporarily Flooded-PFO1A
- Deciduous Short Shrub/Scrub Wetland, Permanently Flooded-PSSS1H
- Deciduous Short Shrub/Scrub Wetland, Seasonally Flooded-PSSS1C
- Deciduous Short Shrub/Scrub Wetland, Temporarily Flooded-PSSS1A
- Deciduous Tall Shrub/Scrub Wetland, Permanently Flooded-PTSS1H
- Deciduous Tall Shrub/Scrub Wetland, Seasonally Flooded-PTSS1C
- Deciduous Tall Shrub/Scrub Wetland, Temporarily Flooded-PTSS1A
- Emergent Marsh, Permanently Flooded-PEM1H
- Emergent Marsh, Seasonally Flooded-PEM1C
- Emergent Marsh, Temporarily Flooded-PEM1A
- Upland Forested Vegetation-UFO
- Upland Tall Shrub/Scrub-UTSS
- Upland Short Shrub/Scrub-USSS
- Upland Herbaceous Vegetation-UEM
- Barren Pondshore-PUBH
- Not Natural Vegetation-N
- River Water-RH2

Source: MoRAP

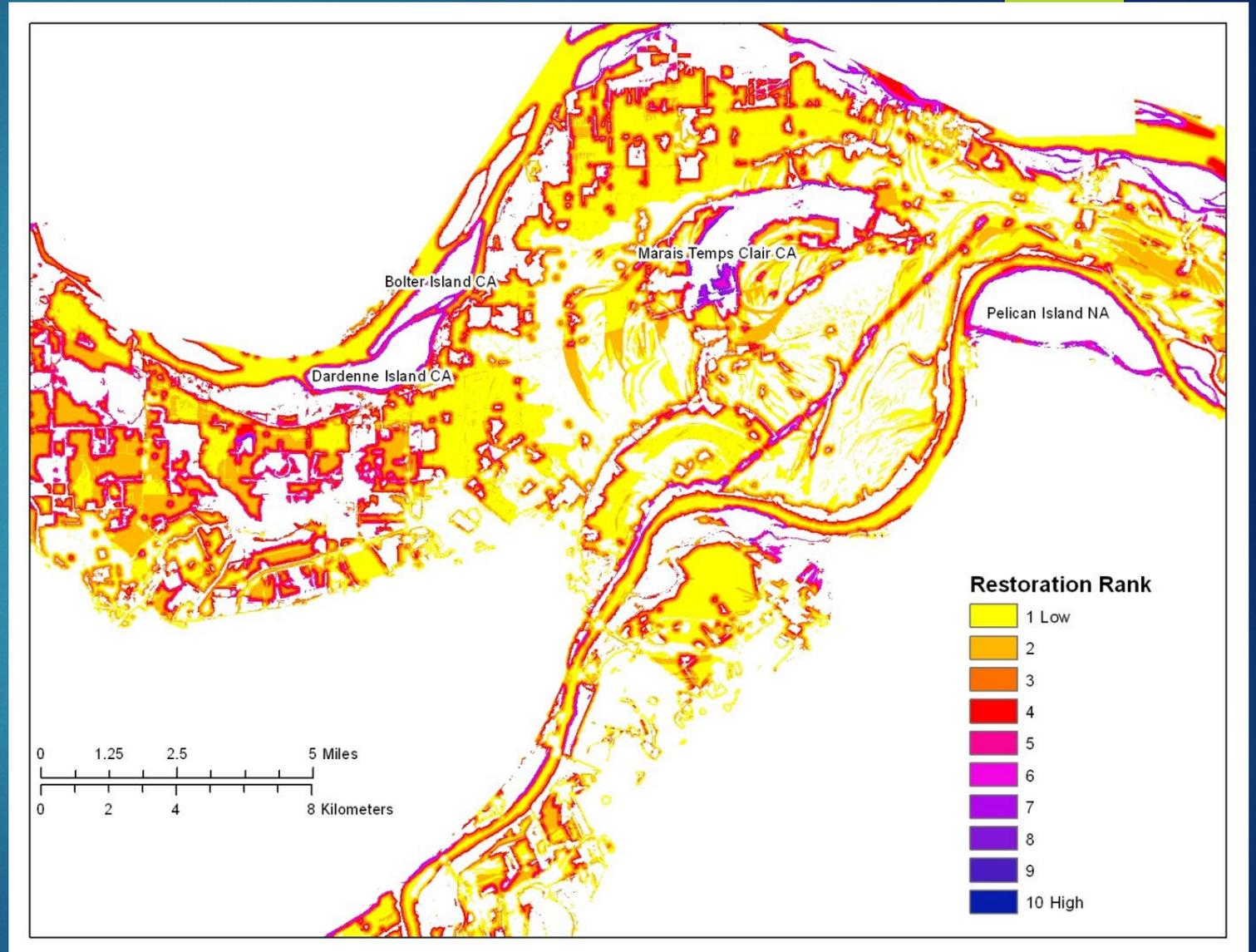
Extent: East-West Gateway Region

Recommended Scale: Region, County, City

Date: 2013

Restoration Ranking Prioritization

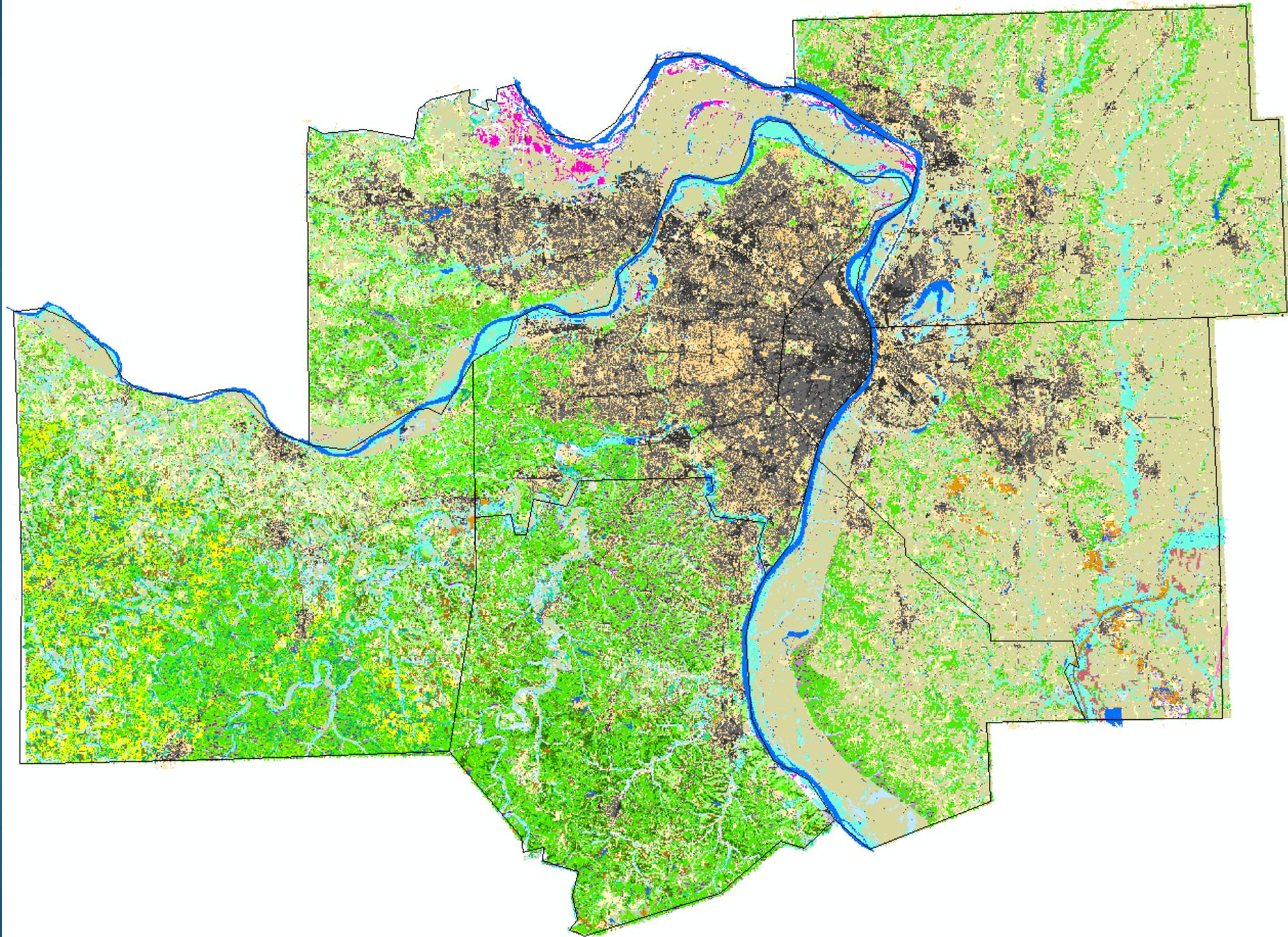
- Water Regime
- Distance to Protected Lands
- Distance to Urban Lands
- Distance to Water
- Distance to Existing Wetlands



10m LULC (61 Types)

Examples:

- Barren / sparsely vegetated
- Bottomland forest – White / Red Oak, Dogwood, Sycamore forest
- Central dissected till plains – loess and Till Bur Oak / Post Oak upland Woodland
- Cultural disturbance



National Land Cover (30m)



Celebrating 20+ years of Partnership
Multi-Resolution Land Characteristics
Consortium

Contents Legend

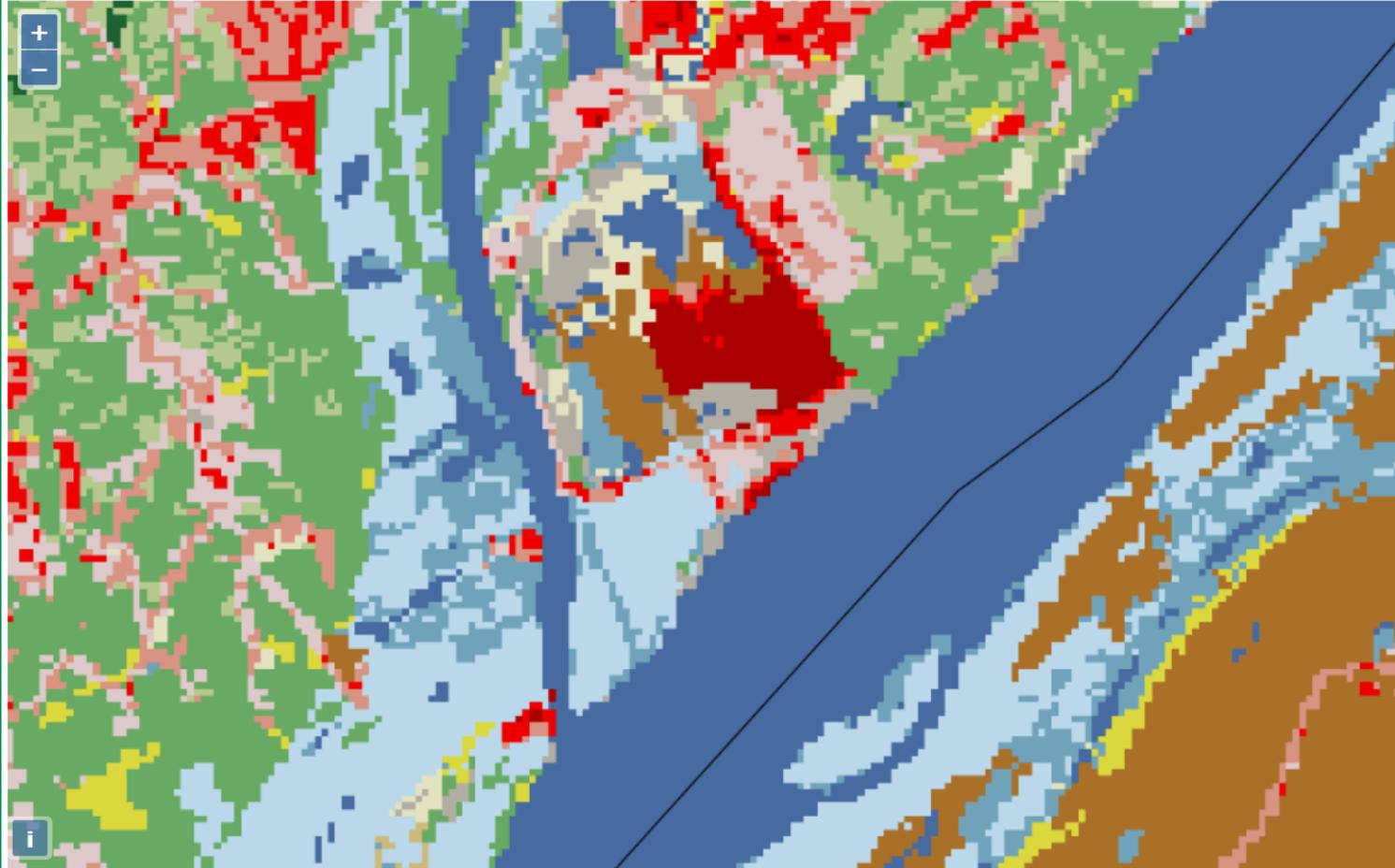
NLCD 2016 ALASKA Land Cover

NLCD 2019 Land Cover

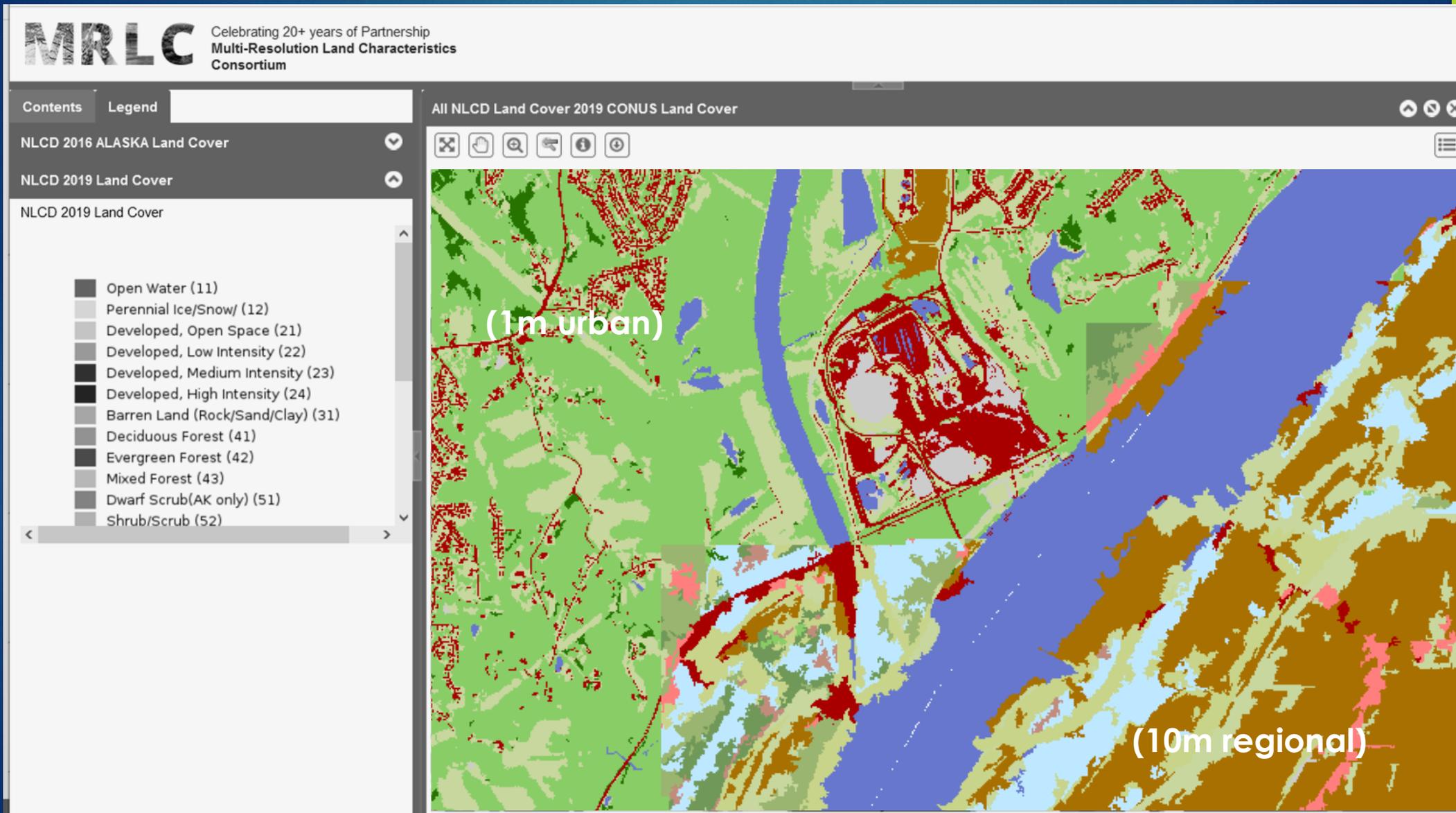
NLCD 2019 Land Cover

- Open Water (11)
- Perennial Ice/Snow/ (12)
- Developed, Open Space (21)
- Developed, Low Intensity (22)
- Developed, Medium Intensity (23)
- Developed, High Intensity (24)
- Barren Land (Rock/Sand/Clay) (31)
- Deciduous Forest (41)
- Evergreen Forest (42)
- Mixed Forest (43)
- Dwarf Scrub(AK only) (51)
- Shrub/Scrub (52)

All NLCD Land Cover 2019 CONUS Land Cover



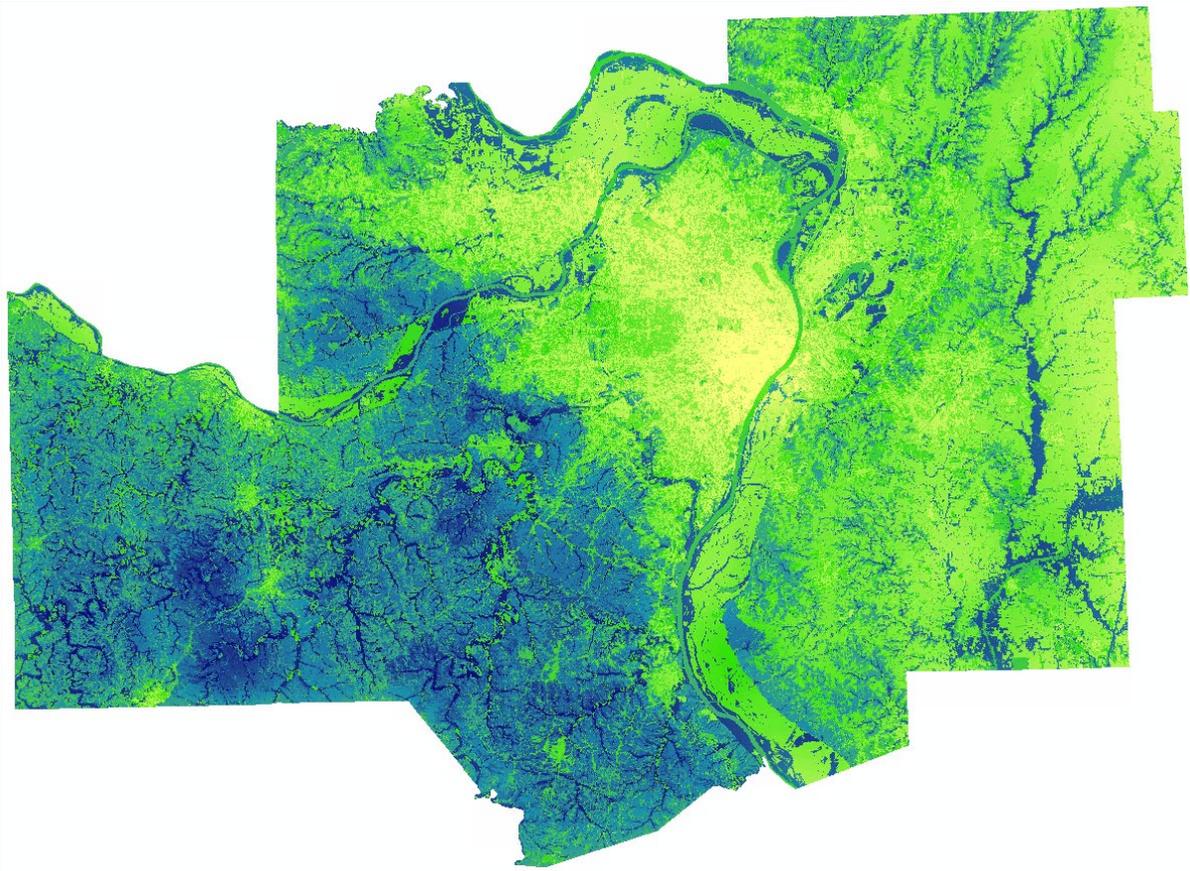
Regional Land Cover (Portions in 10m and 1m)



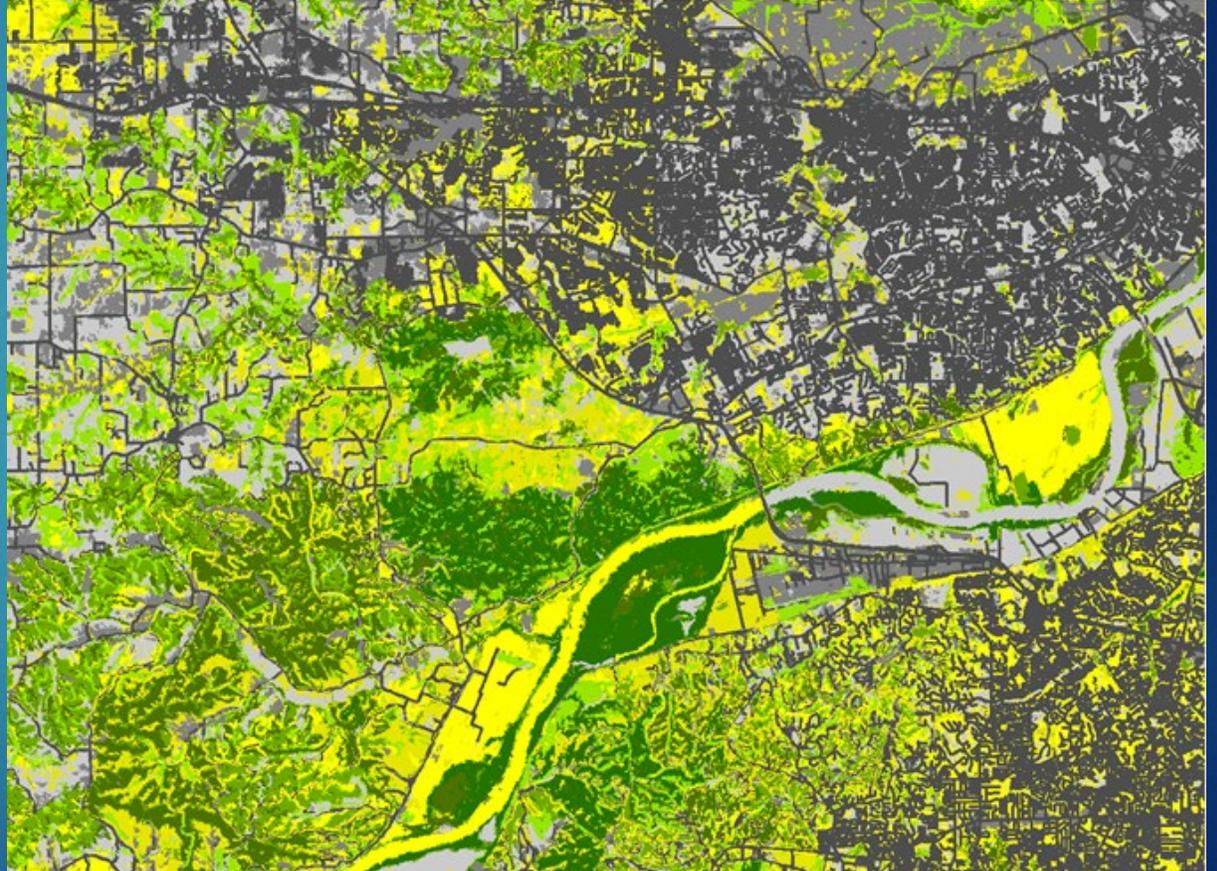
Ecological Significance Ranking

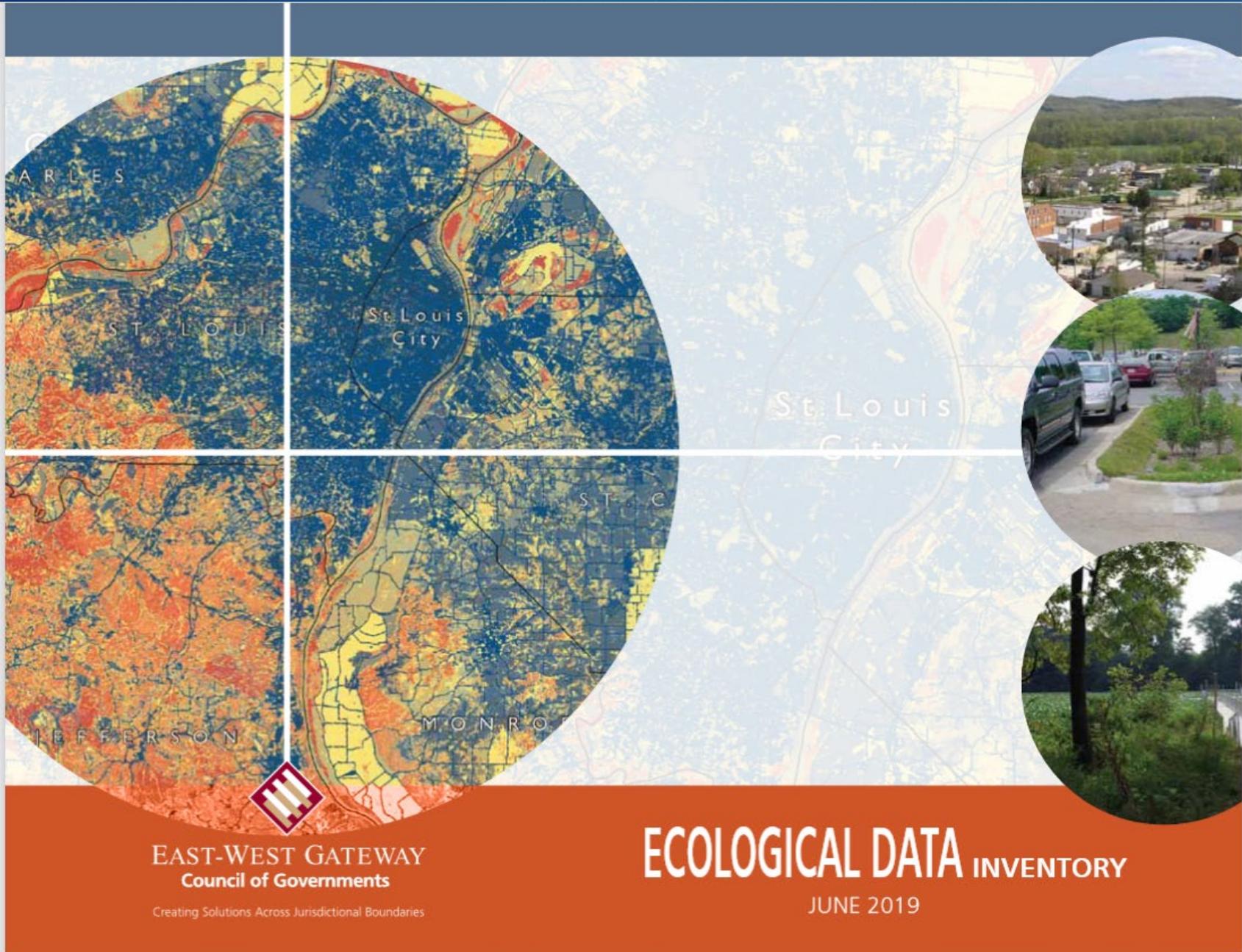
- Partner-driven helped decide what is ecologically valuable
- Basic method attaches value to patches land area
 - Ranked on value of 1 – 10
 - Large scale (6 meter) - community type, patch size
 - Small scale (1 meter) - species, other features
- Multiple Resolutions
 - Large scale used for regional analysis emphasizes landscape context
 - EWG's Long Range Transportation Plan scenarios
 - Small scale used for local projects
 - EWG's Transportation Improvement Program (TIP)
 - Special consideration for wetland mitigation and restoration

6m Regional
Ecological
Significance



1m Urban
Ecological
Significance





We have it
all summed
up.

[www.ewgateway.org/
eco](http://www.ewgateway.org/eco)


EAST-WEST GATEWAY
Council of Governments

Creating Solutions Across Jurisdictional Boundaries

ECOLOGICAL DATA INVENTORY

JUNE 2019

A Quick Sustainability Update



Urban Heat Island

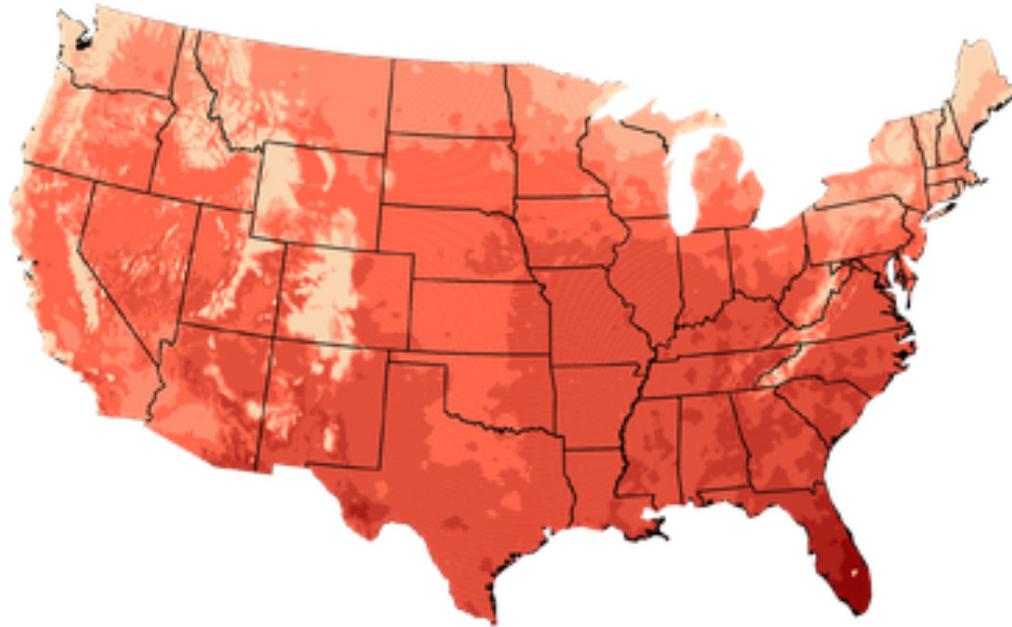
Aligning efforts

- Local advocates working on adaptation and mitigation
 - Urban forestry
 - Human health
 - Energy burden
- Ameren MO required to address impact on customers
- EWG interested in impacts on air quality, infrastructure, user experience, and emergency response
- Local media attention during heat waves
- Other interests
 - Worker safety and productivity
 - Water quality and supply
 - Agriculture, gardening, landscaping

Urban Heat Island

Climate Science Special Report- National Climate Assessment 4

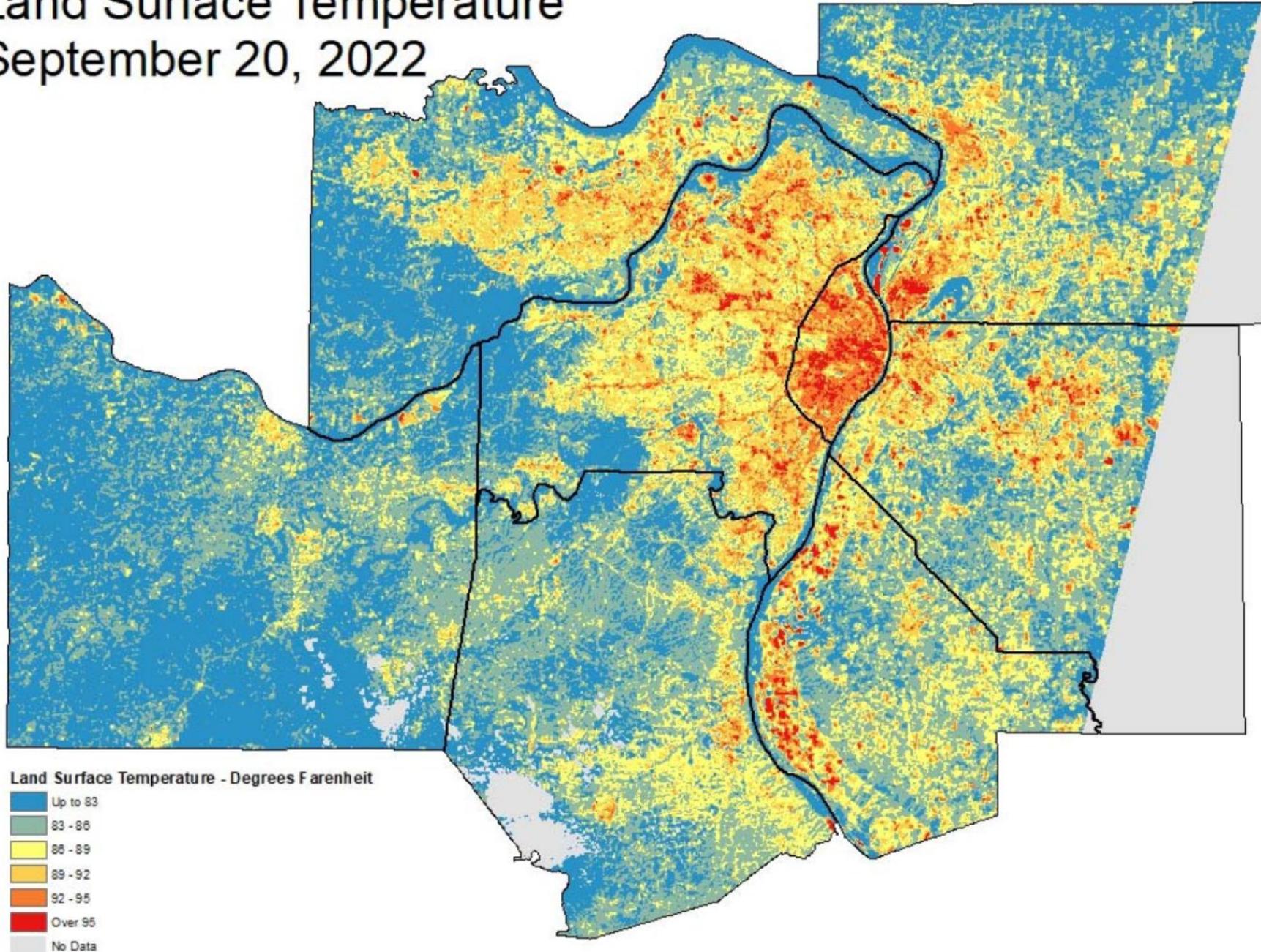
Projected Change in Number of Days Above 90°F
Mid 21st Century, Higher Scenario (RCP8.5)



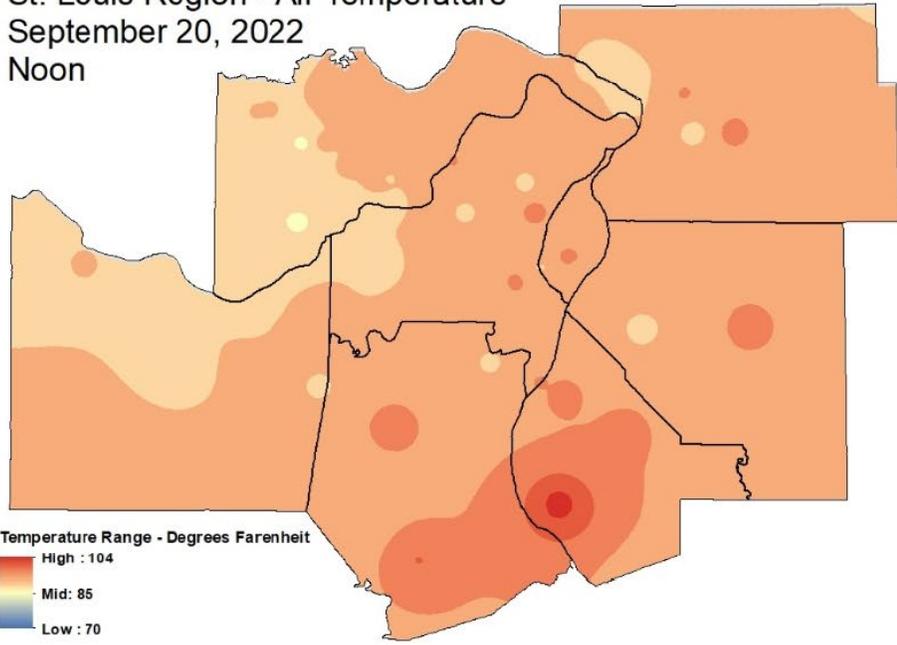
Weighted Multi-Model Mean



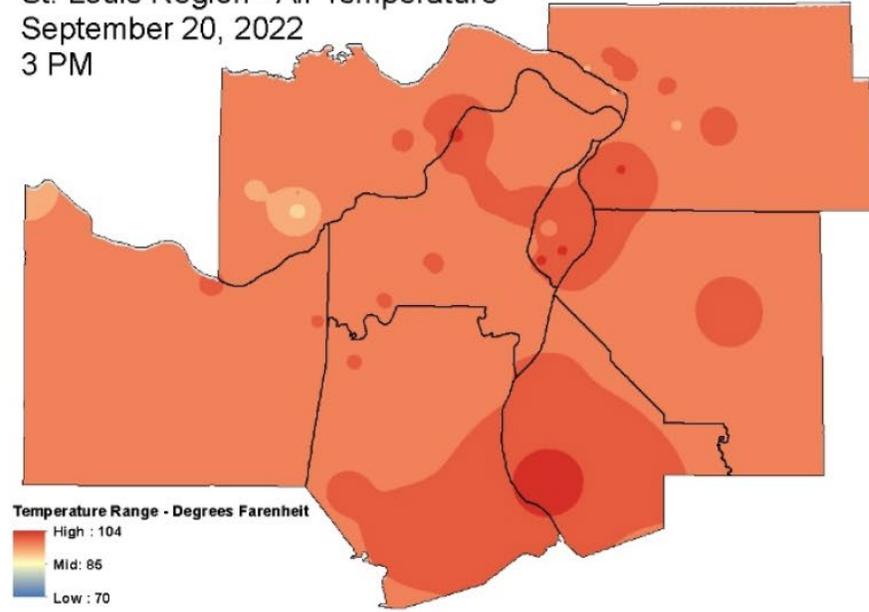
St. Louis Region Land Surface Temperature September 20, 2022



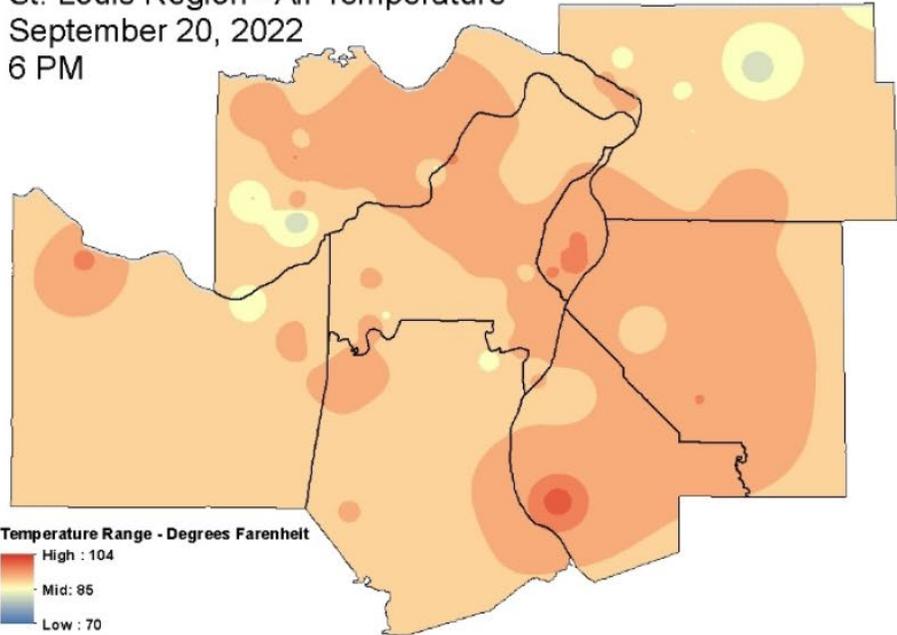
St. Louis Region - Air Temperature
September 20, 2022
Noon



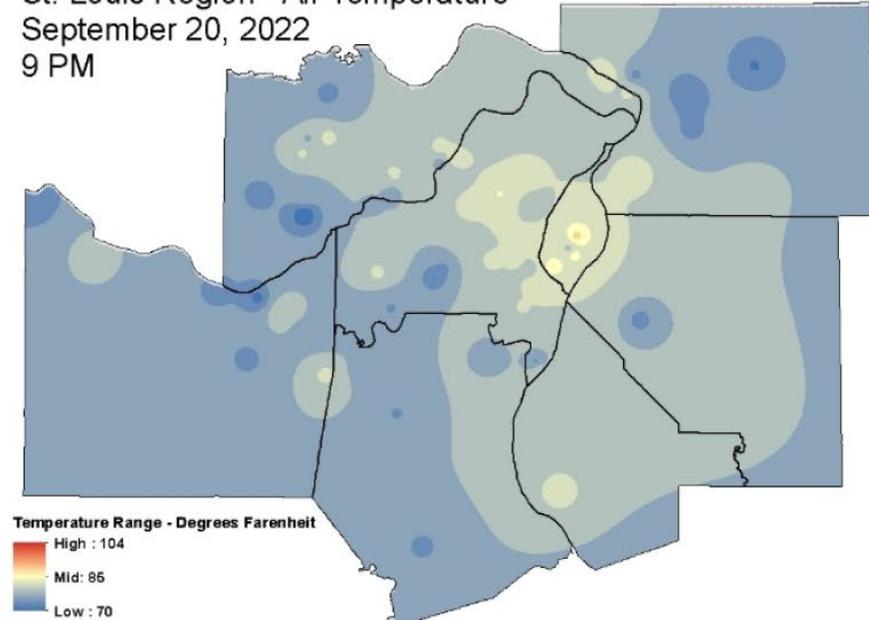
St. Louis Region - Air Temperature
September 20, 2022
3 PM



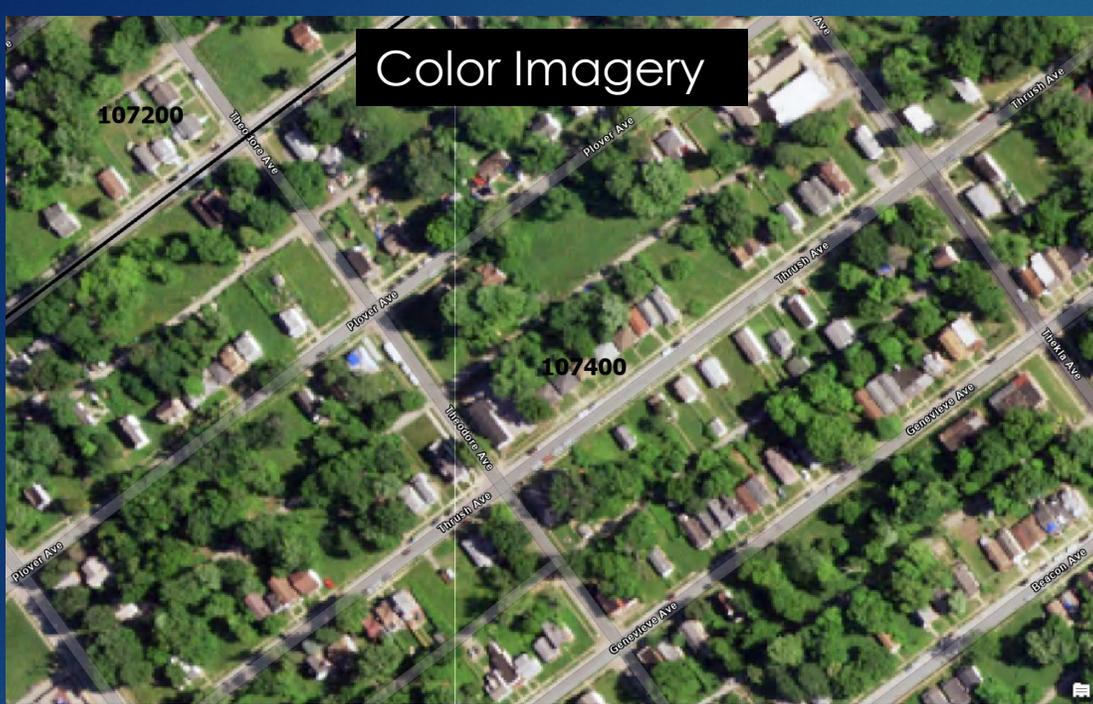
St. Louis Region - Air Temperature
September 20, 2022
6 PM



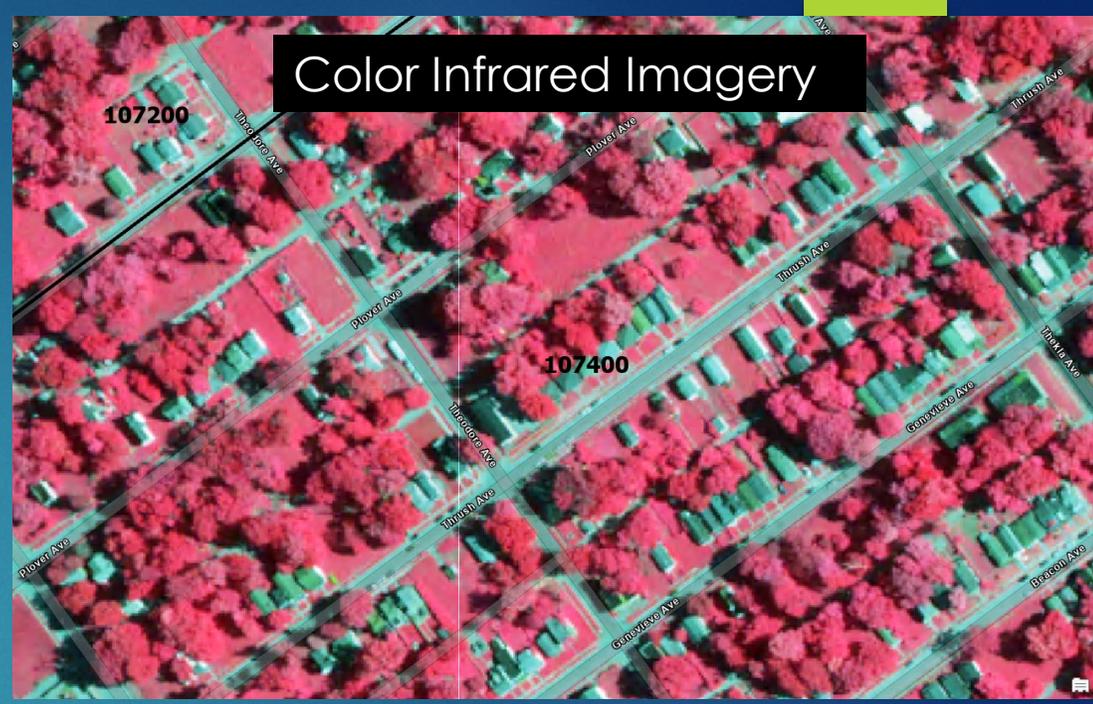
St. Louis Region - Air Temperature
September 20, 2022
9 PM



Color Imagery



Color Infrared Imagery



NDVI (Biomass)

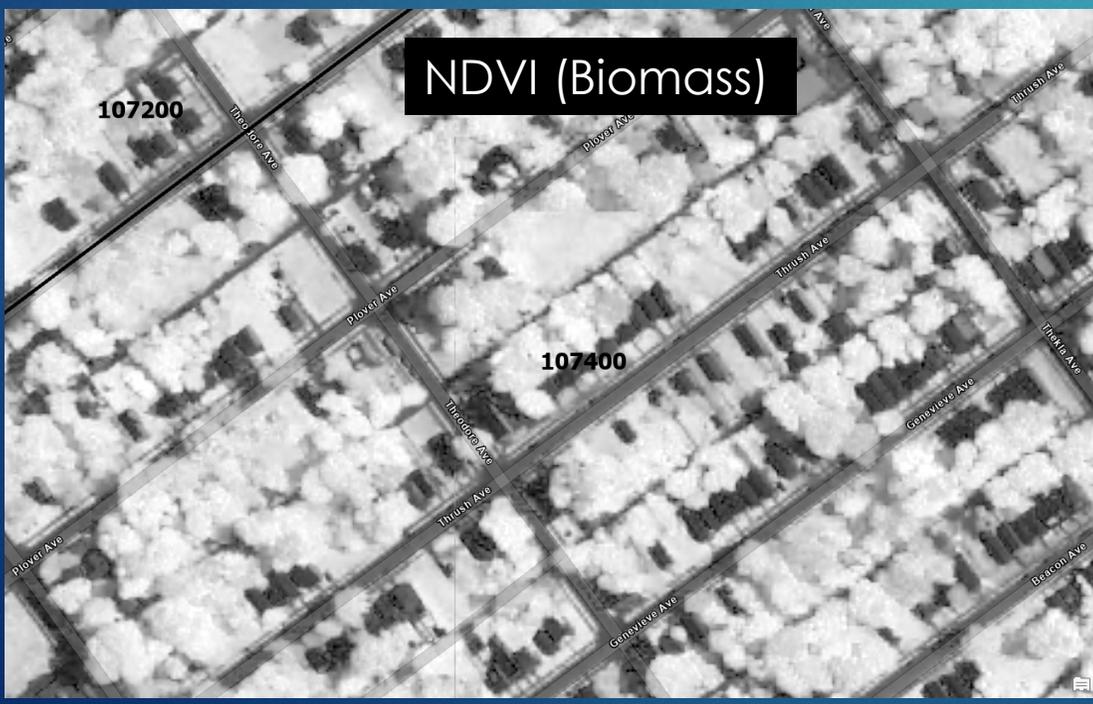
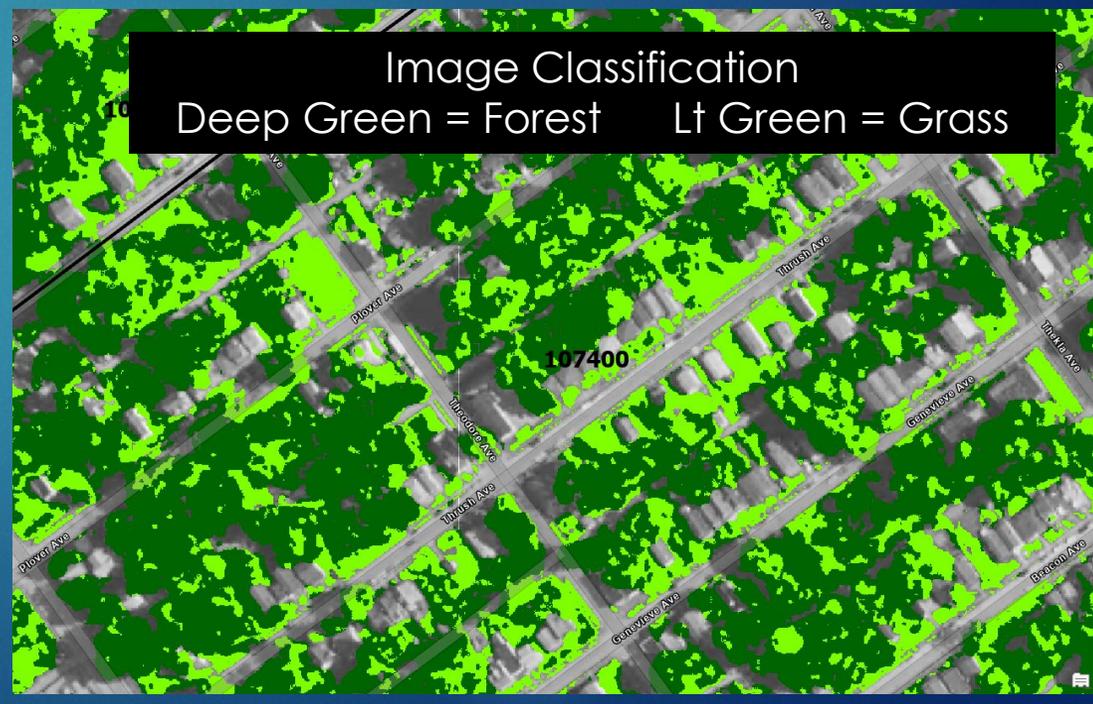
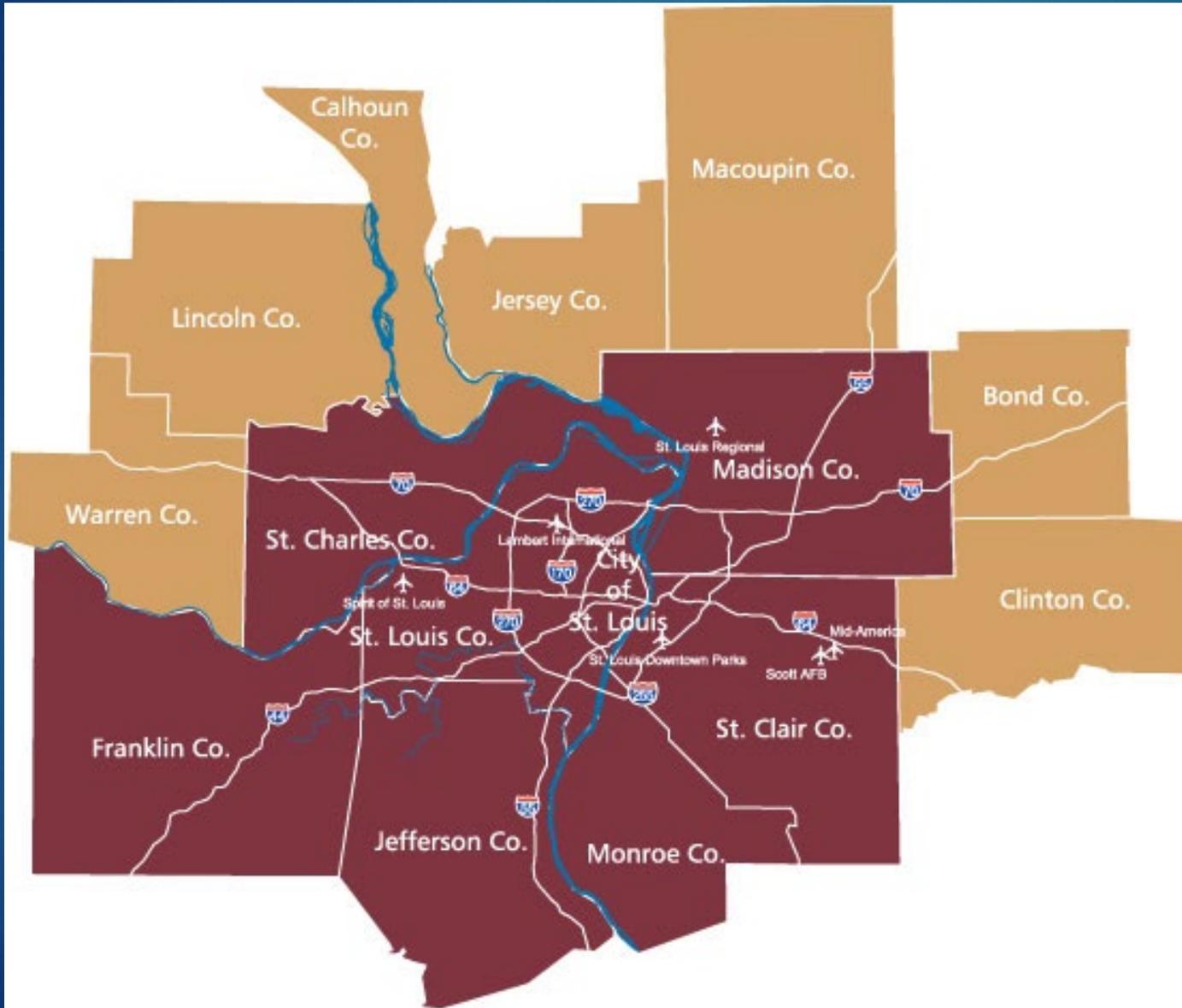


Image Classification
Deep Green = Forest Lt Green = Grass



Regional Climate Action Plan



- EPA Climate Pollution Reduction Grant program
- Priority list of projects due **March 1, 2024**
- Implementation grants available
- Final Climate Action Plan complete **August 2025**

Regional Climate Action Plan

2010 & 2015 EMISSIONS BY SECTOR

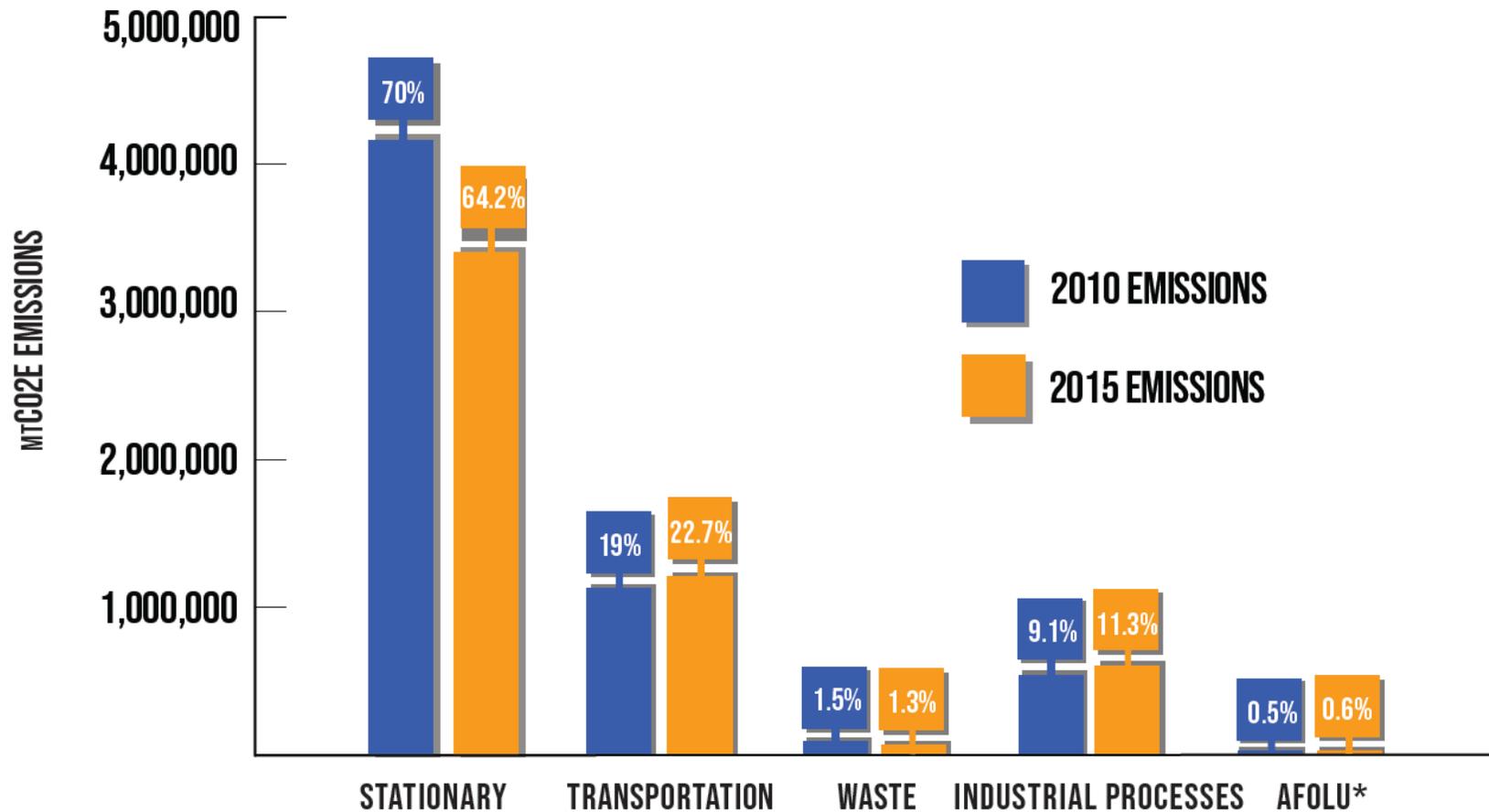


Figure 1: Bar chart comparing 2010 and 2015 St. Louis regional emissions by sector. *AFOLU stands for Agriculture, Forestry, and Other Land Use. The percentages included are the percentage of total emissions for the respective year.

- Priority projects selected to reduce baseline GHG emissions (2015)
- Projects must contribute to Justice 40 goals
- Send us carbon/GHG reduction project ideas and local contacts

Regional Climate Action Plan



Learn more about the plan at the monthly OneSTL Sustainability Lab on **Tuesday, September 26 at 3:45pm** (details at OneSTL.org).

To contribute ideas or projects to the plan, contact Aaron.Young@ewgateway.org or Anna.Chott@ewgateway.org.

BiodiverseCity St. Louis

- Network of organizations, including Missouri Botanical Garden, Saint Louis Zoo, Great Rivers Greenway, Forest ReLeaf, and many more!
- **New DRAFT regional target:**
 - Increase biodiversity populations and promotions in STL metro region (*area served by EW Gateway*) by 20% by 2030, compared to ____ baseline year.
 - **Metrics:** Defined by tracking populations of 5 (specifics TBD) indicator species and promotions of 5 (specifics TBD) projects.

BiomeSTL

BiomeSTL

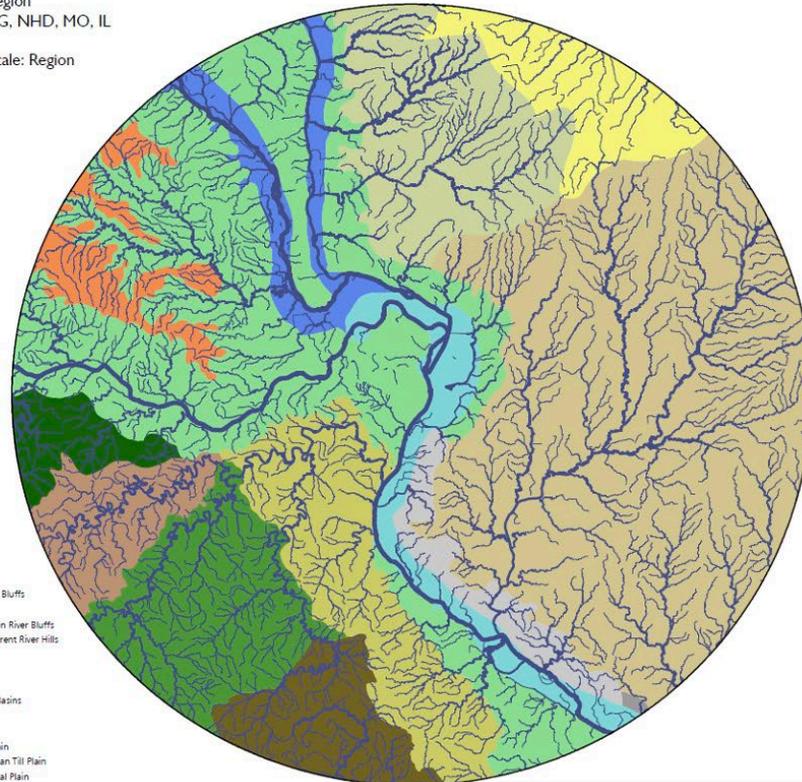
Biodiversity of metropolitan St. Louis

An ArcGIS Hub

- **Species inventory**
- **Biodiversity corridor projects and plans**
- **Stories**
- **Research findings**
- **Nature-friendly policies and practices**
- **County-by-county inventory of groups actively stewarding local landscapes**

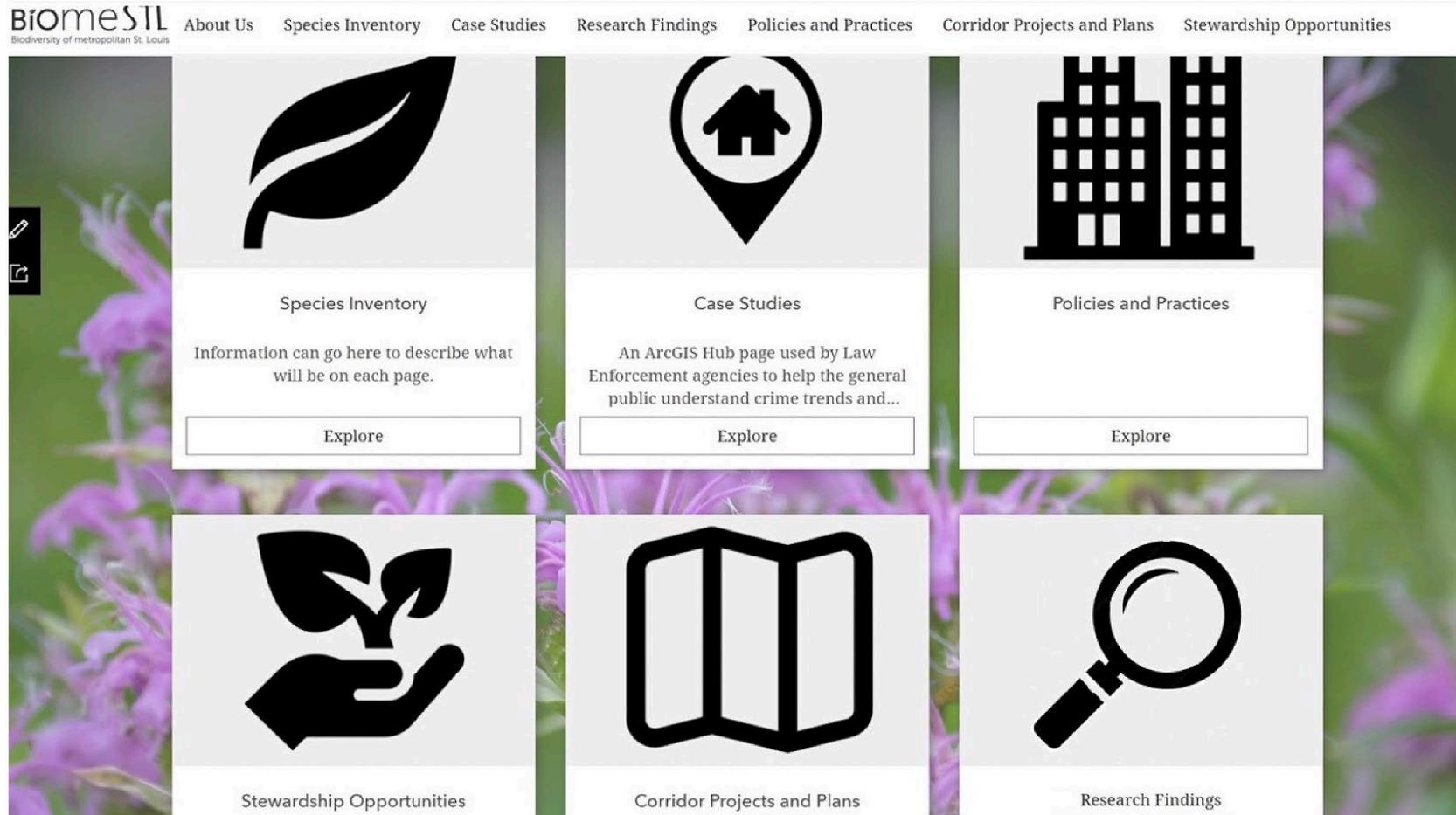
Name: 75-Mile Region
Source: EPA, EWG, NHD, MO, IL
Extent: Regional
Recommended Scale: Region
Date: 2018

River / Stream
Ecoregions
Southern Ozarkian River Bluffs
Eastern Ozark Border
Karstic Northern Ozarkian River Bluffs
Meramec River Hills; Current River Hills
Osage/Gasconade Hills
River Hills
Central Plateau
St. Francois Knobs and Basins
Caypan Prairie
Illinois/Indiana Prairies
Southern Illinoian Till Plain
Western Dissected Illinoian Till Plain
Middle Mississippi Alluvial Plain
Upper Mississippi Alluvial Plain



BiomeSTL

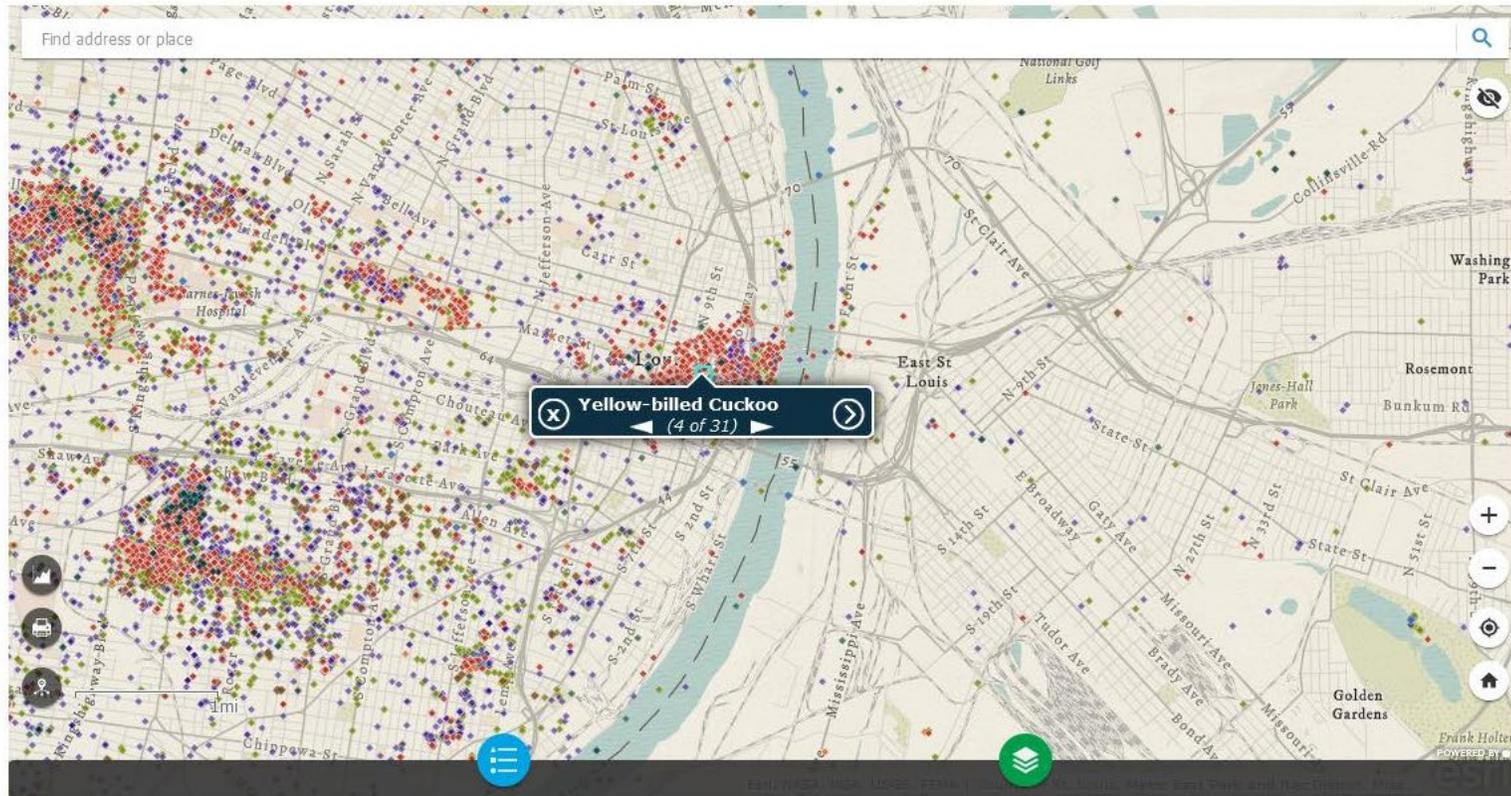
BiomeSTL includes mapped resources, narrative and links to external resources covering six areas of focus



Species Inventory - Case Studies - Policies and Practices

Stewardship Opportunities - Corridor Projects and Plans – Research Findings

BiomeSTL – Species Inventory



dGBIF.org (19 December 2021) GBIF occurrence download <https://doi.org/10.15468/dl.que7x4>

Contact information

Ecological Process and Data

Mary Grace Lewandowski, AICP
Director of Community Planning
marygrace@ewgateway.org

Jennifer Vuitel
Manager, Environment and Community Planning
jennifer.vuitel@ewgateway.org

Ted LaBoube
GIS Manager
ted.laboube@ewgateway.org

Sustainability

Aaron Young
Manager of Sustainability Planning
aaron.young@ewgateway.org

Anna Chott
Sustainability Planner
anna.chott@ewgateway.org