

# Exploring the Synergies Between Biodiversity and Human Use of Urban Greenspaces

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# Ecosystem Services of Urban Greenspaces

- Urban population is projected to increase from 55% to 68% by 2050
- Provide essential habitats and vital ecosystem services
- Greenspace: Accessible to the community and designated/managed as parks or recreational space





# Greenspaces for People

Greenspace planning strategies tend to focus on maximizing the human experience





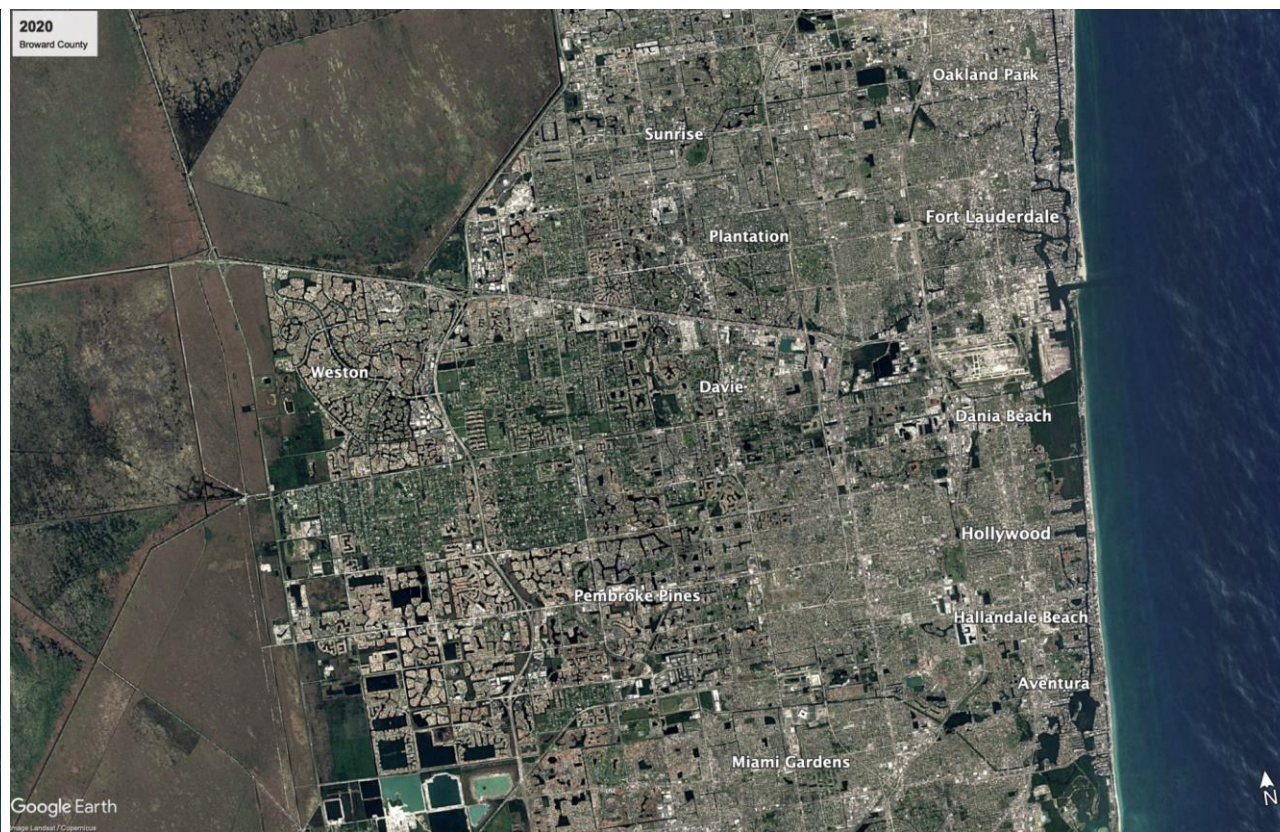
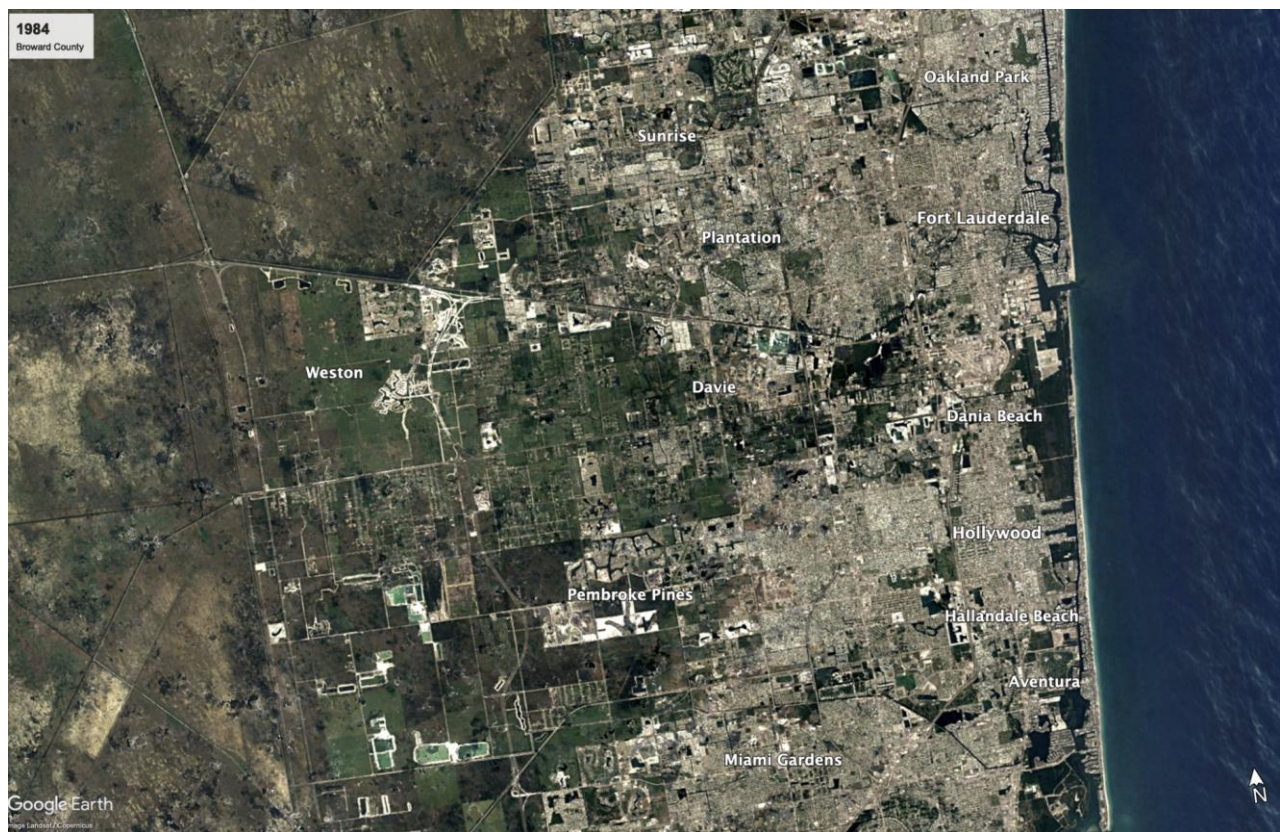


## Greenspaces for Biodiversity

- Habitats for wildlife
- Provide a wildlife corridor







# Broward County, Florida

- 2/3 of the county is Everglades
- Unique sub-tropical climate
- Second most populous county in Florida



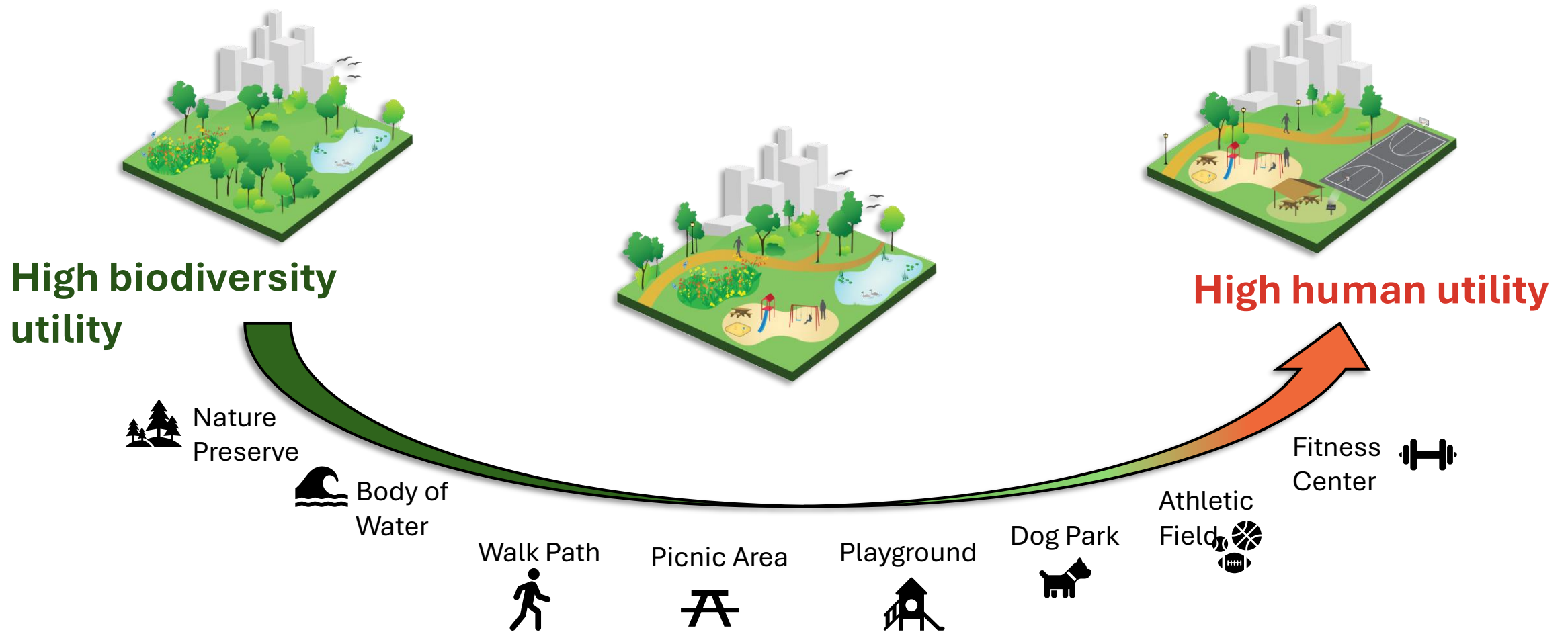
# Research Objective

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To quantify the synergies and tradeoffs between human utility and biodiversity benefits in urban greenspaces.



# Utility on a sliding scale



# Defining Human Utility

- Assessed 639 parks across Broward County
- Human utility index – sum of physical attributes



Athletic facilities

Bodies of water

Walking path

Playgrounds

Athletic field

Picnic Area

Nature Preserve

Dog Park



# Quantifying biodiversity



Measured biodiversity by looking at species richness



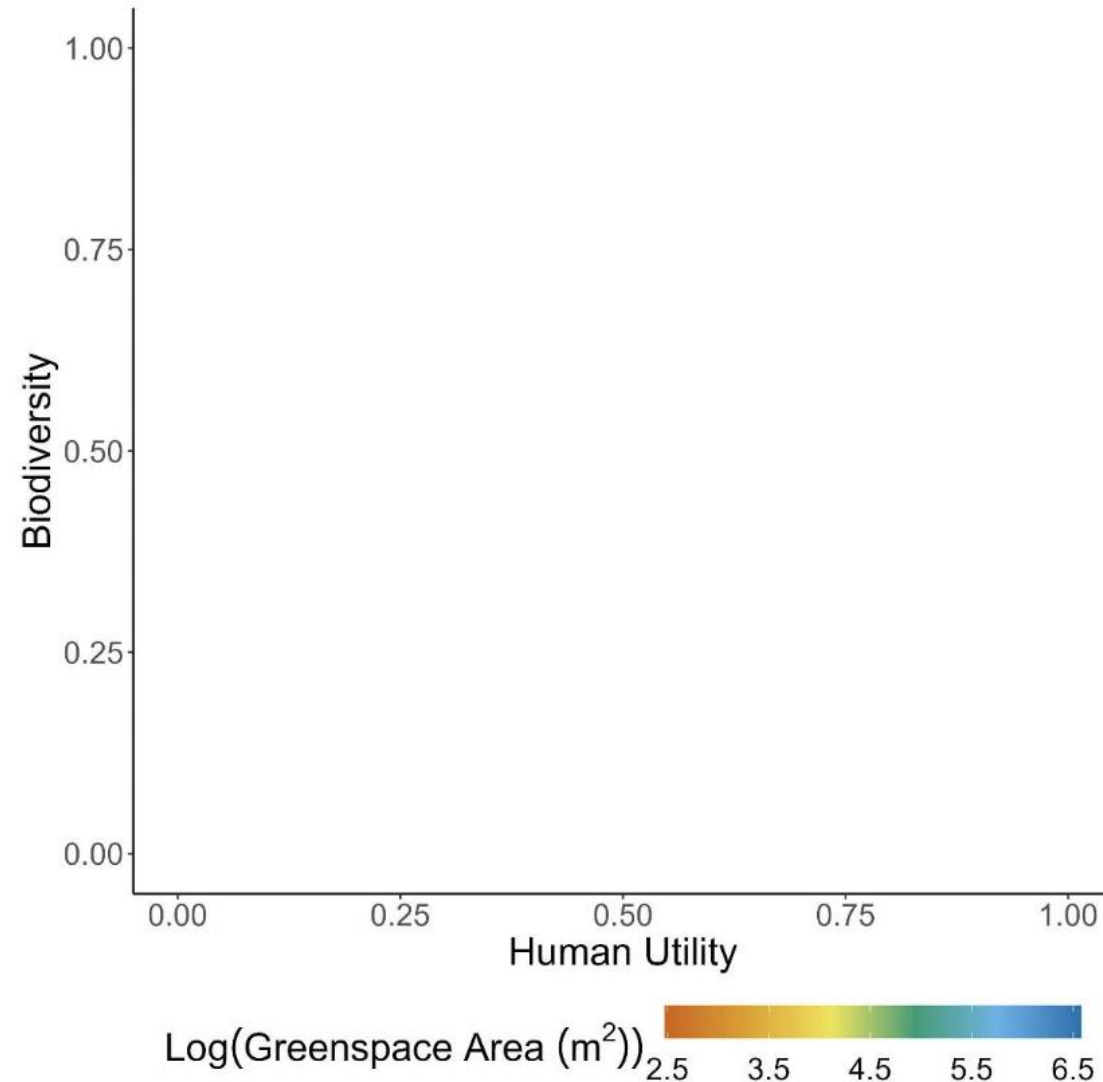
iNaturalist – a citizen science platform



Devised random forest model to predict species richness

# Findings

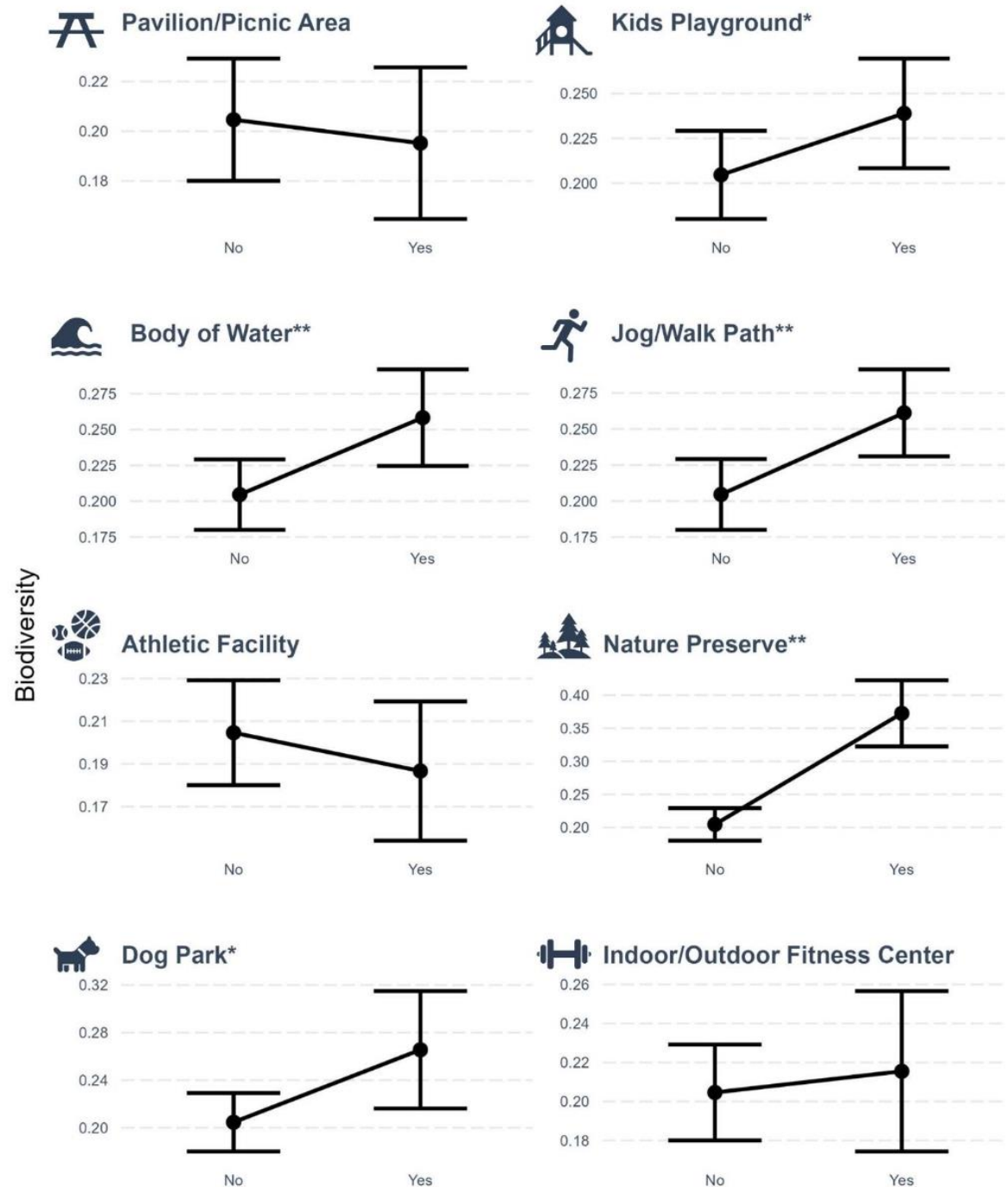
- No significant correlation between biodiversity and human utility
- Challenges the division between prioritizing one over the other



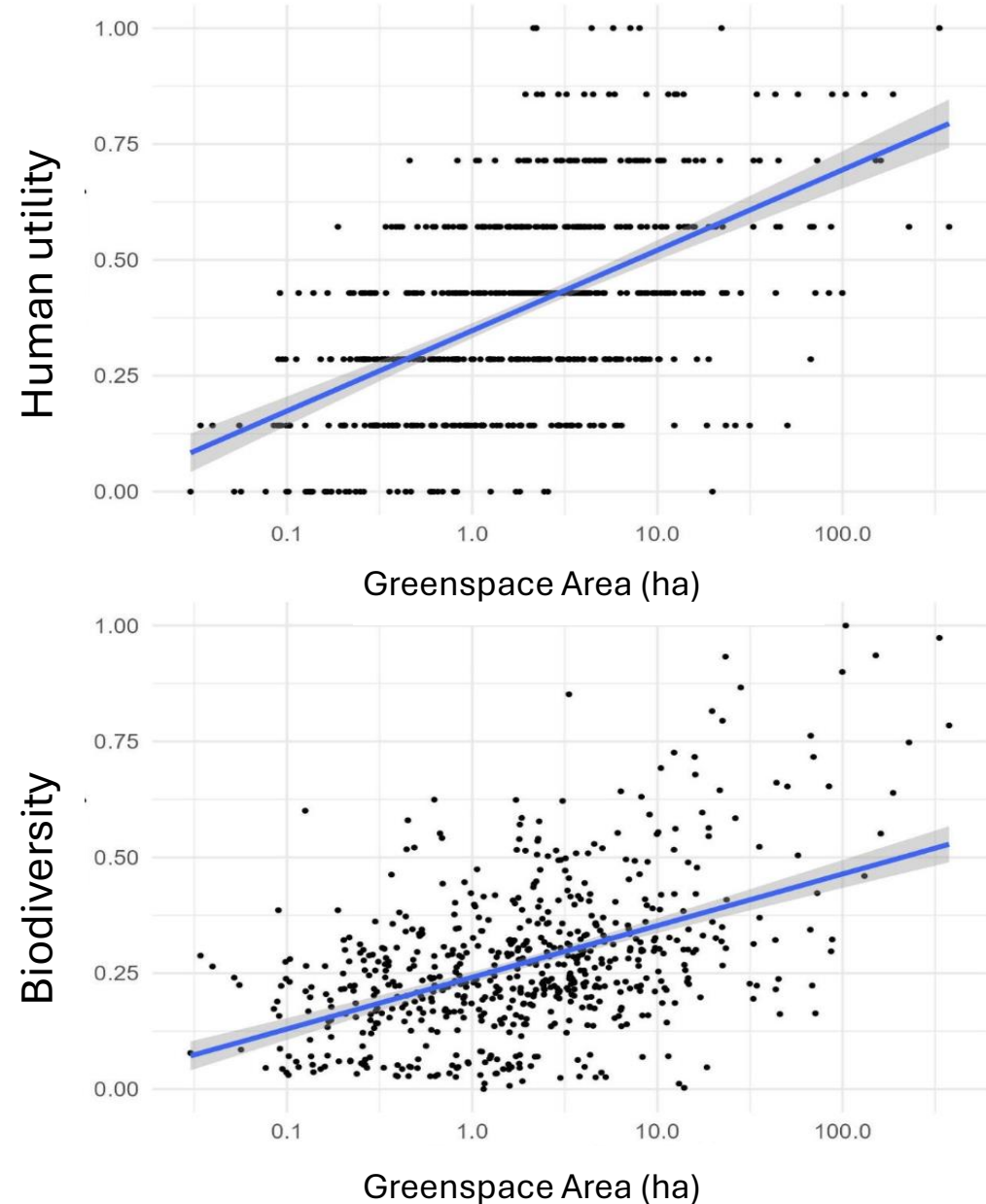


# Human Utility and Biodiversity

- Bodies of water, kid's playground, nature preserves showed evidence of a **positive** relationship
- Picnic areas, athletic facilities showed evidence of a **negative** relationship

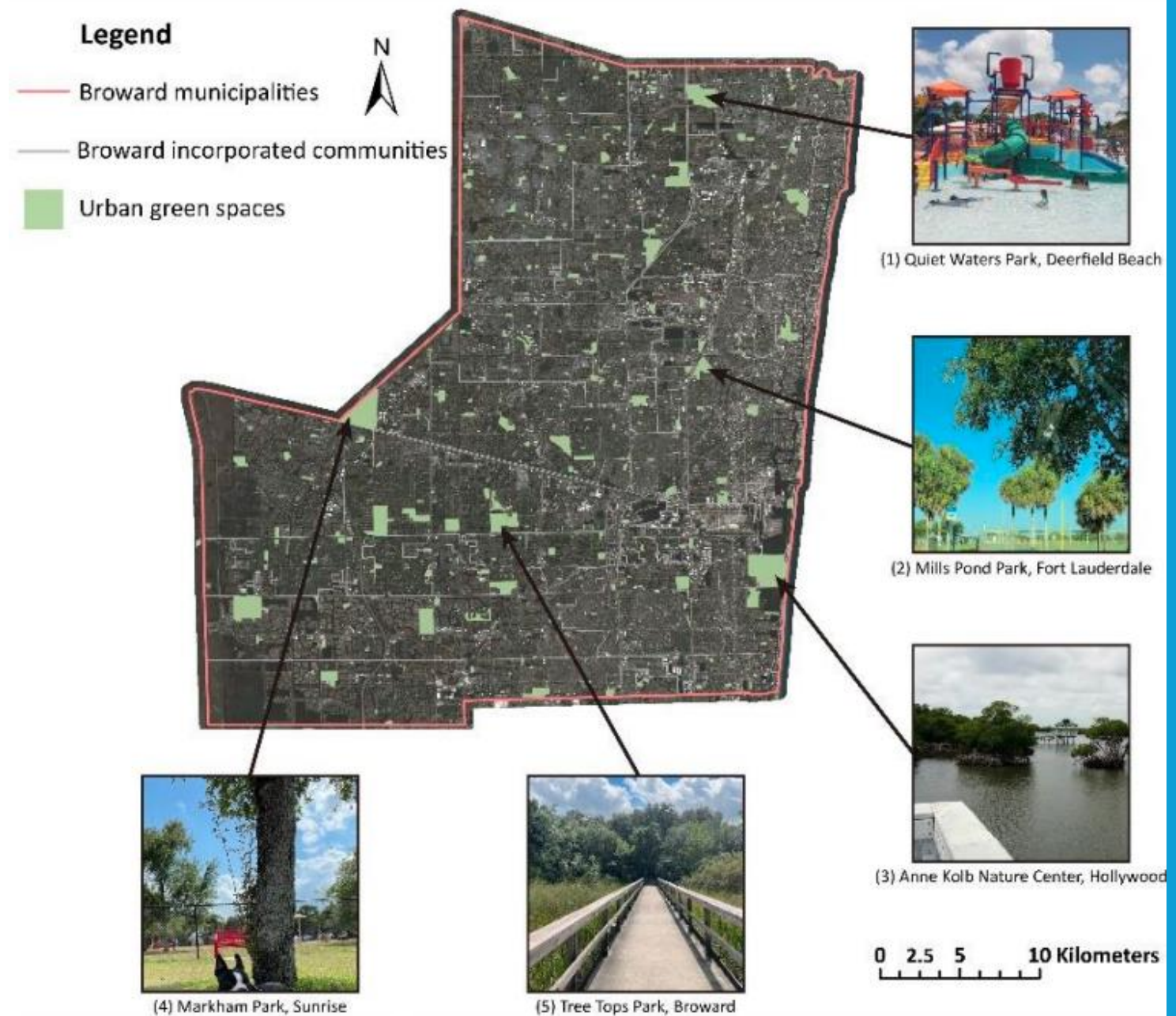


Larger greenspaces  
can accommodate  
diverse values








# Case Studies



# Markham Park: Sunrise, FL

## Park Amenities

-  Athletic facility
-  Playground
-  Nature preserve
-  Walking path
-  Fitness center

-  Dog park
-  Body of water
-  Picnic area

## Park Area

333 HECTARES

## Biodiversity

LOW  HIGH

- Over 333 hectares
- Contains wooded trails, butterfly gardens, lakes
- Nearly all human utility variables, and high biodiversity



# Welleby Park: Sunrise, FL

- Nearly 3.2 hectares
- Busy community park
- Contains paved walking trails, kid sized town, splash pad
- Large fields of grass with few trees

## Park Amenities



Athletic facility



Playground



Nature preserve



Walking path



Fitness center



Dog park



Body of water



Picnic area

## Biodiversity

LOW



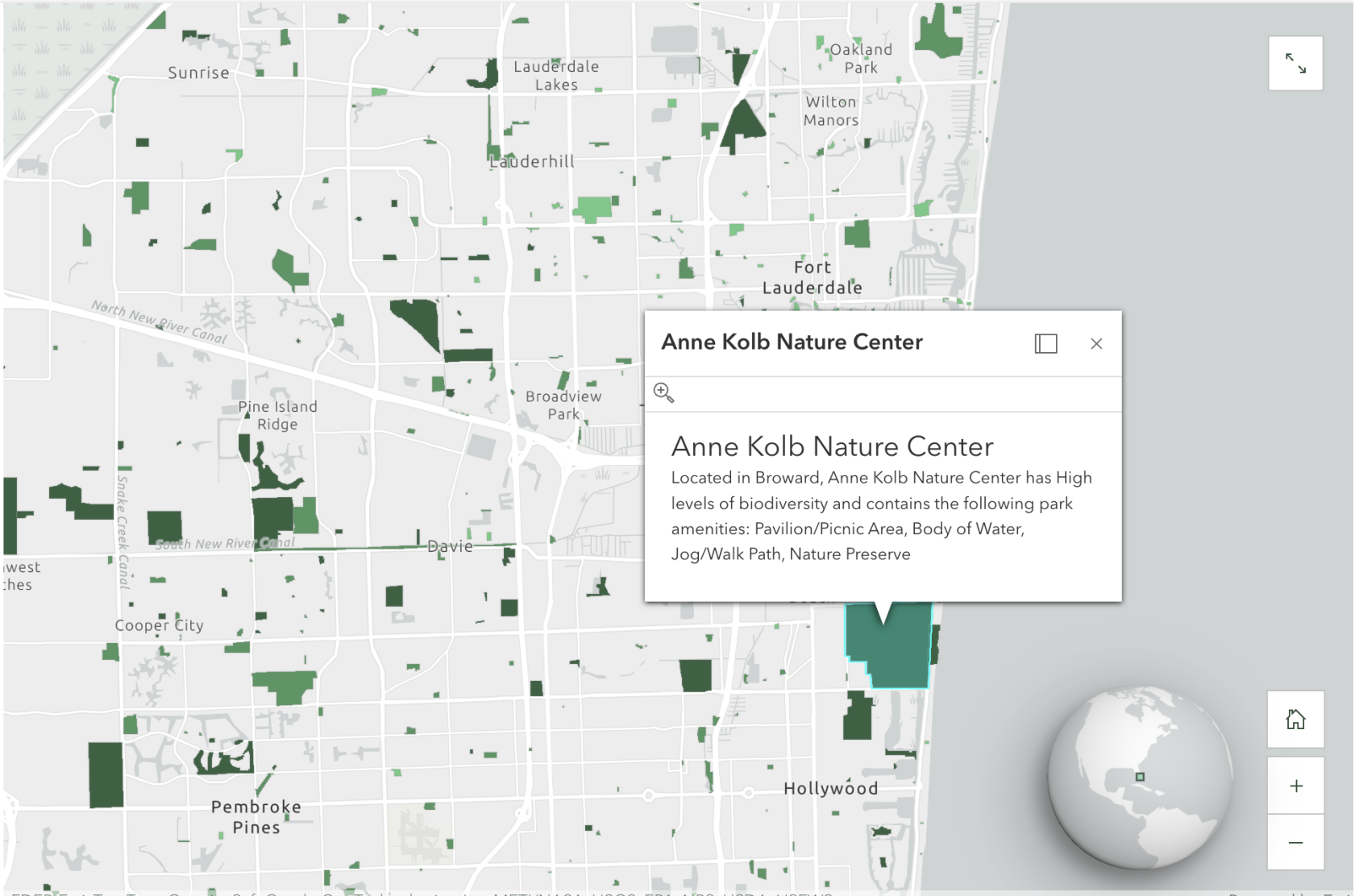
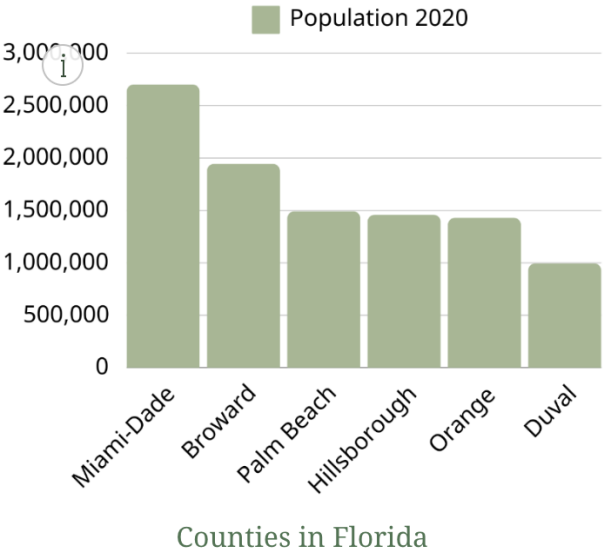
HIGH

## Park Area

3.2 HECTARES

# Broward County

Nestled between the Atlantic Ocean and the Everglades, Broward County boasts hundreds of urban green spaces. Each city contains roughly 20 parks, ranging in size and function.







# When Park Design Aligns

GREENSPACES CAN  
SUPPORT BOTH  
BIODIVERSITY AND  
HUMAN AMENITIES  
WITHOUT CLEAR  
TRADE-OFFS

URBAN  
GREENSPACES CAN  
BE OPTIMIZED TO  
SERVE DUAL  
PURPOSES  
EFFECTIVELY

# Balancing Social and Ecological Wellbeing

1. Thoughtful management and design of greenspaces
2. Signage and educational programs
3. Become stewards of your environment – use iNaturalist!





# Thank You!

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