RESILIENCE, EQUITY AND NATURE-BASED CLIMATE SOLUTIONS IN NYC

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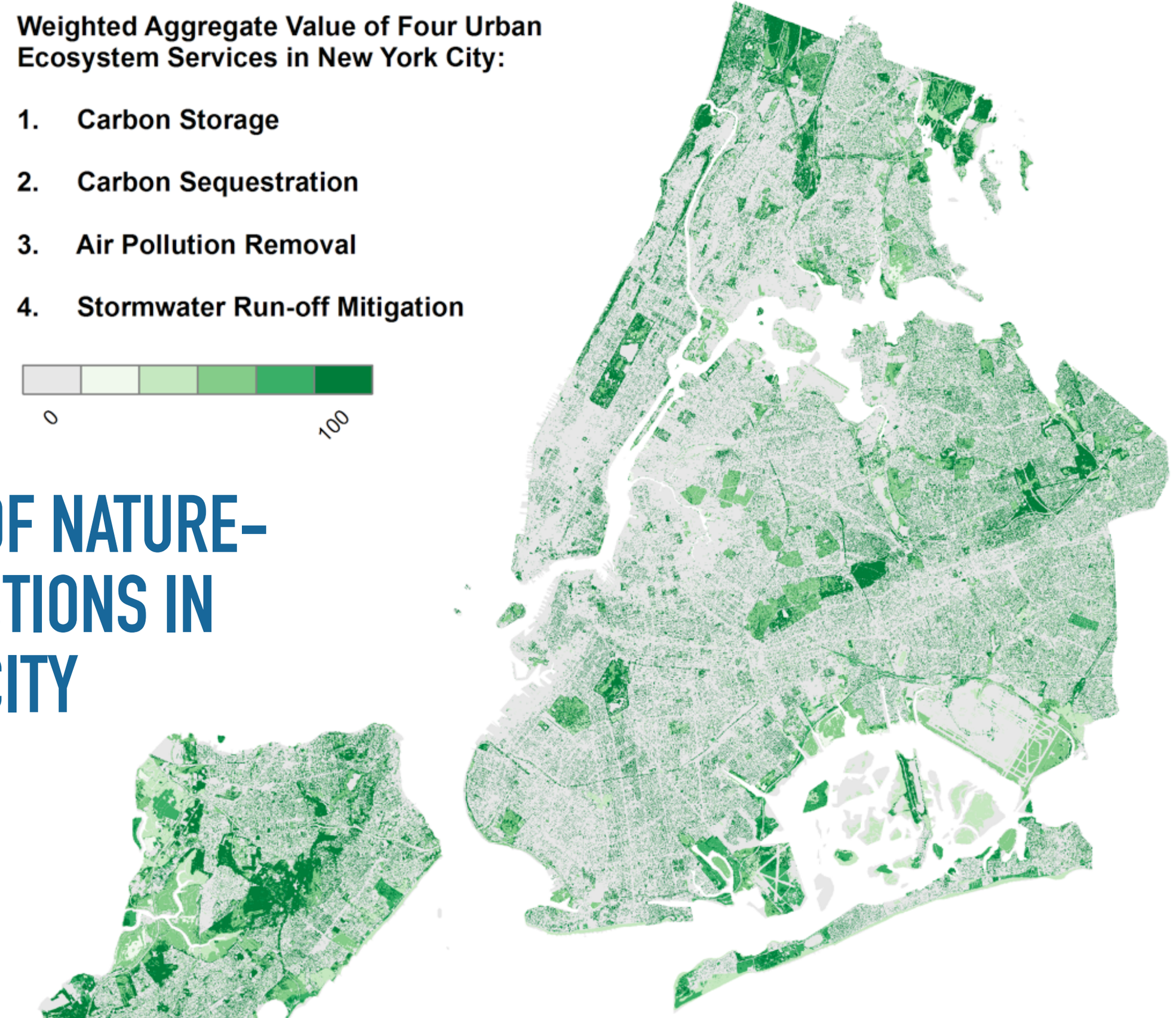
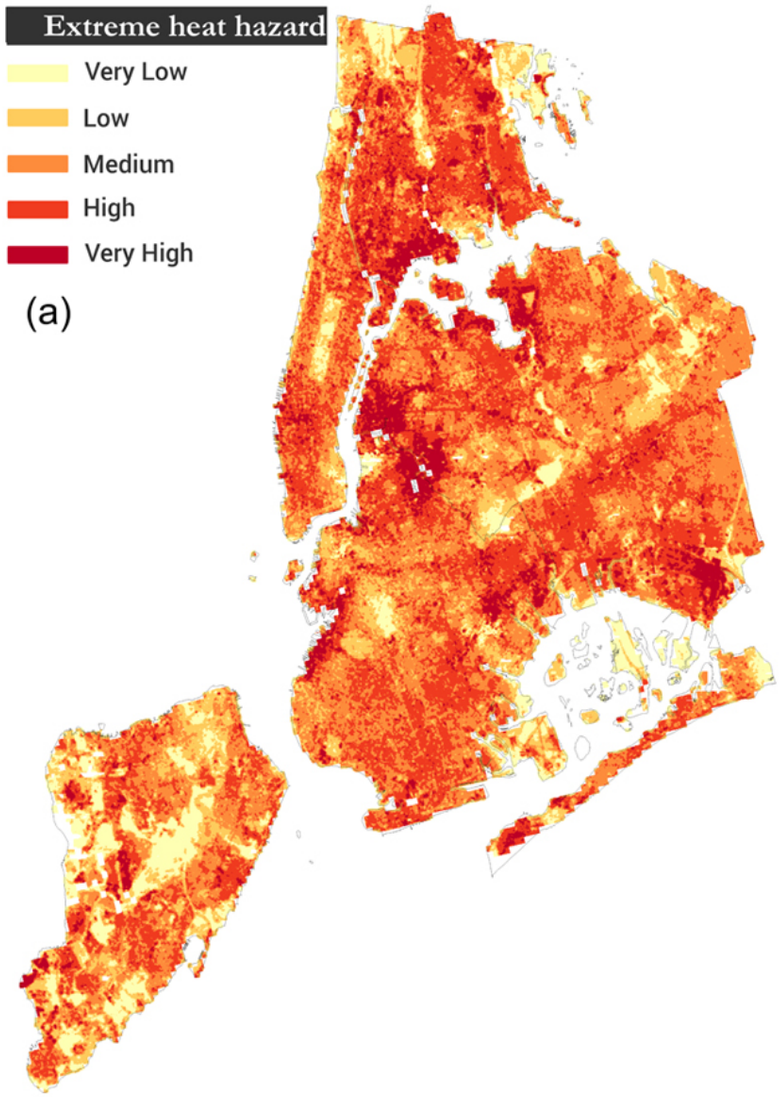
THE VALUE OF NATURE-BASED SOLUTIONS IN NEW YORK CITY



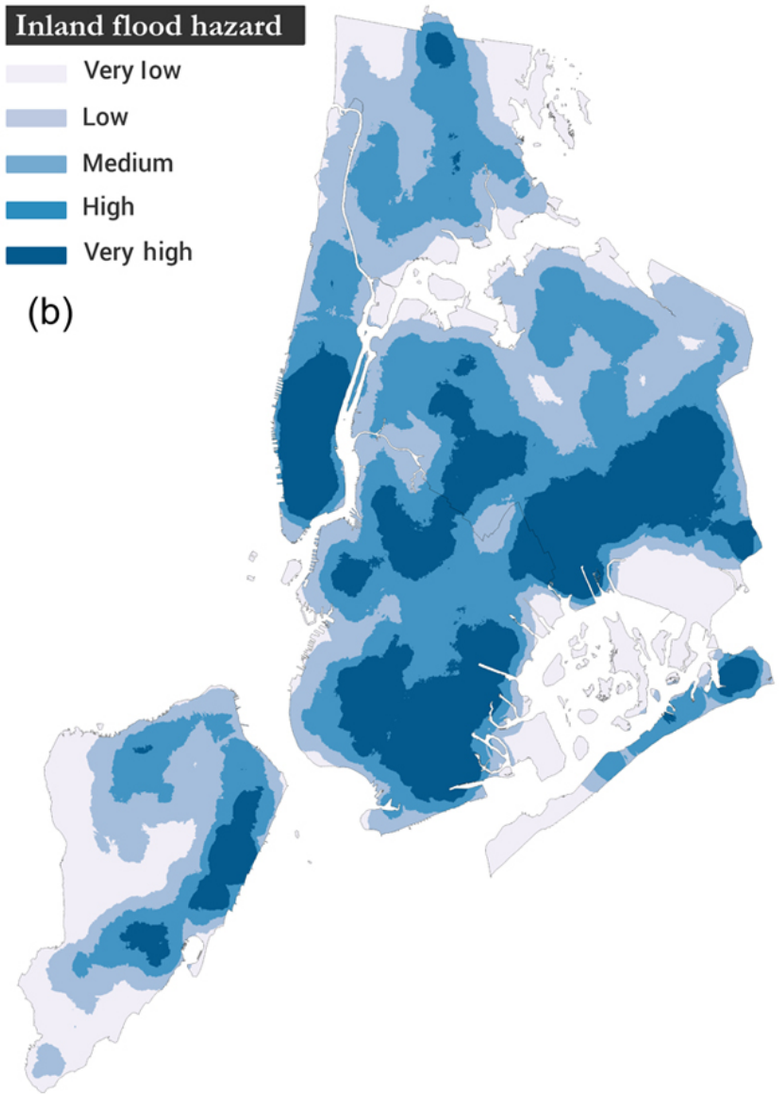
(Kremer, Hamstead & McPhearson, *Environmental Science & Policy*, 2016)

NEW YORK CITY FACES MULTIPLE CLIMATE RISKS

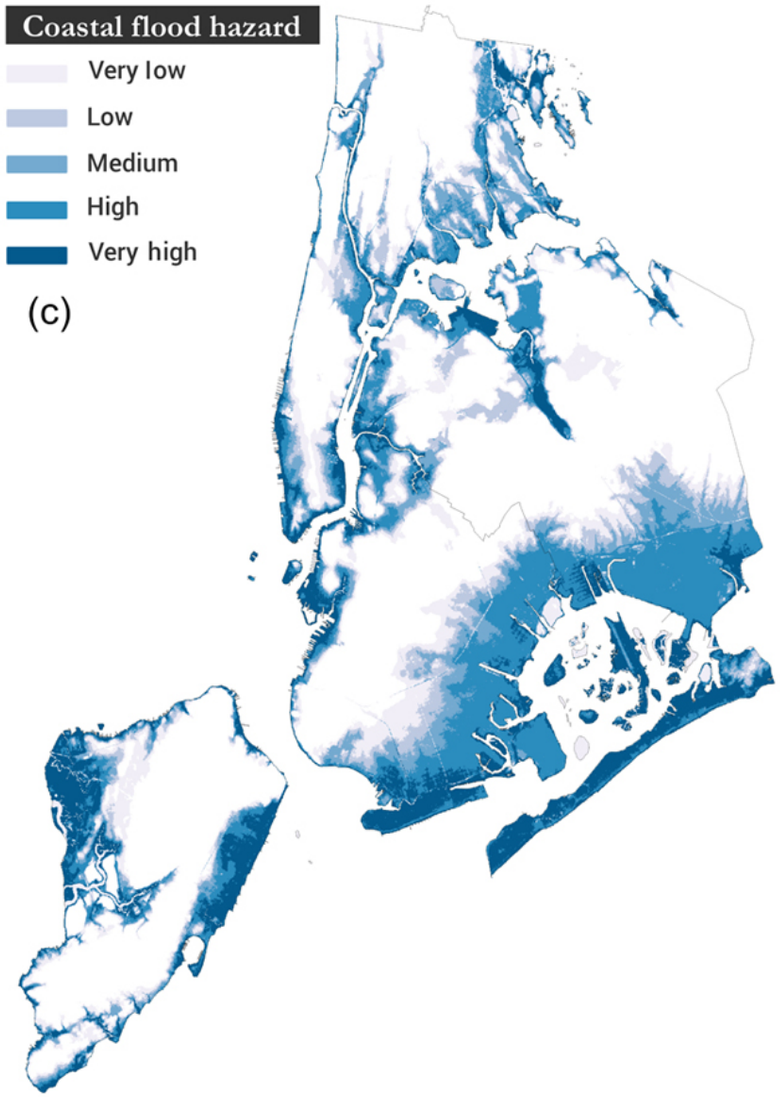
Heat



Inland Flooding

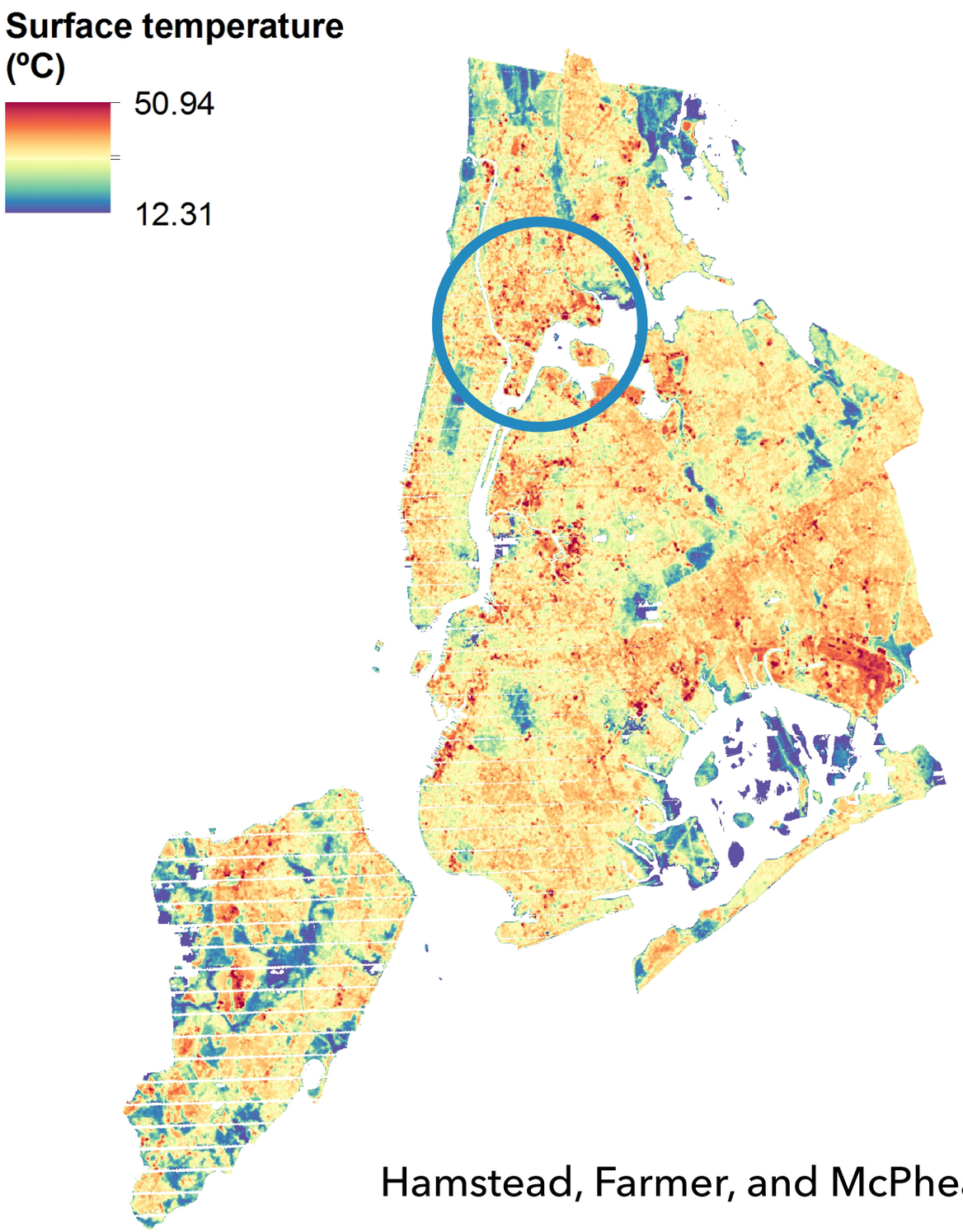


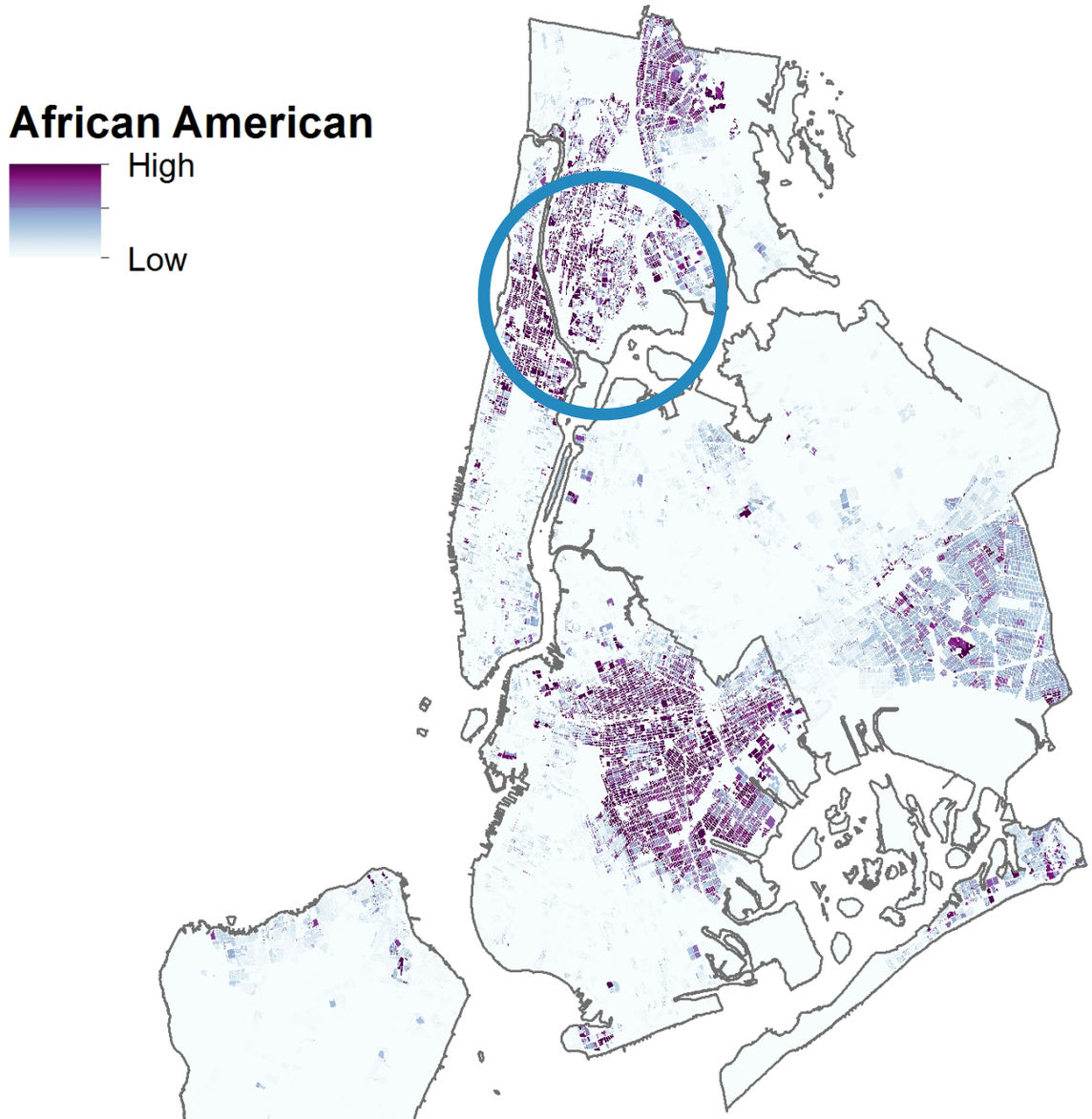
Coastal Flooding



Depietri, Dahal, and McPhearson 2018, *NHESS*

HEAT VULNERABILITY IN NEW YORK CITY

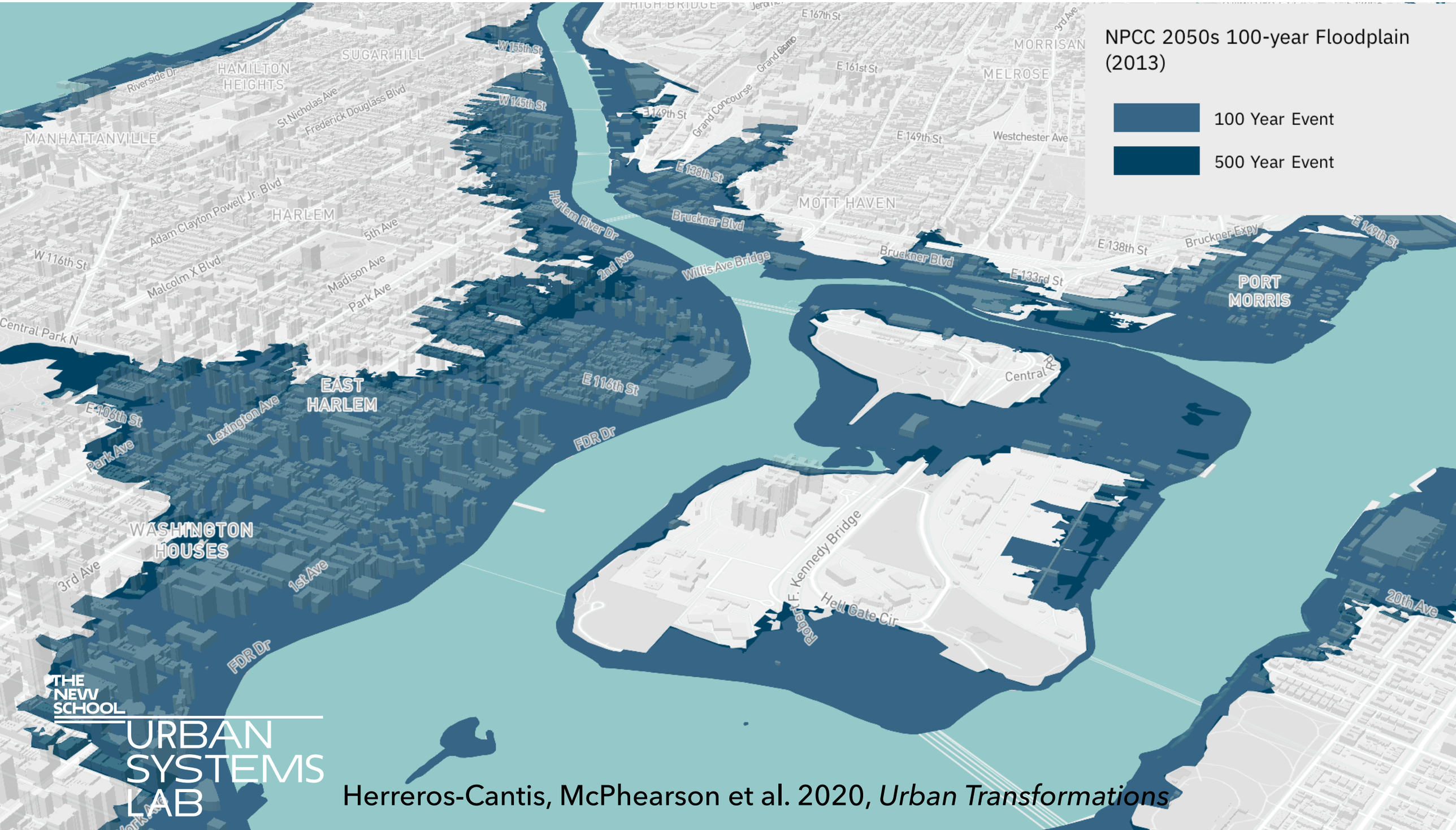




Hamstead, Farmer, and McPhearson, 2018, *J. Extreme Events*

800,000 PEOPLE LIVING IN EJ AREAS ARE BELOW THE 100YR FLOOD PLAIN

ENVIRONMENTAL JUSTICE AND COASTAL FLOOD RISK



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Herreros-Cantis, McPhearson et al. 2020, *Urban Transformations*

NEW YORK CITY STORMWATER RESILIENCY

STORMWATER AND INLAND FLOODING IN NEW YORK CITY:
MODELING RAINFALL AND COMBINED SLR FLOODING SCENARIOS

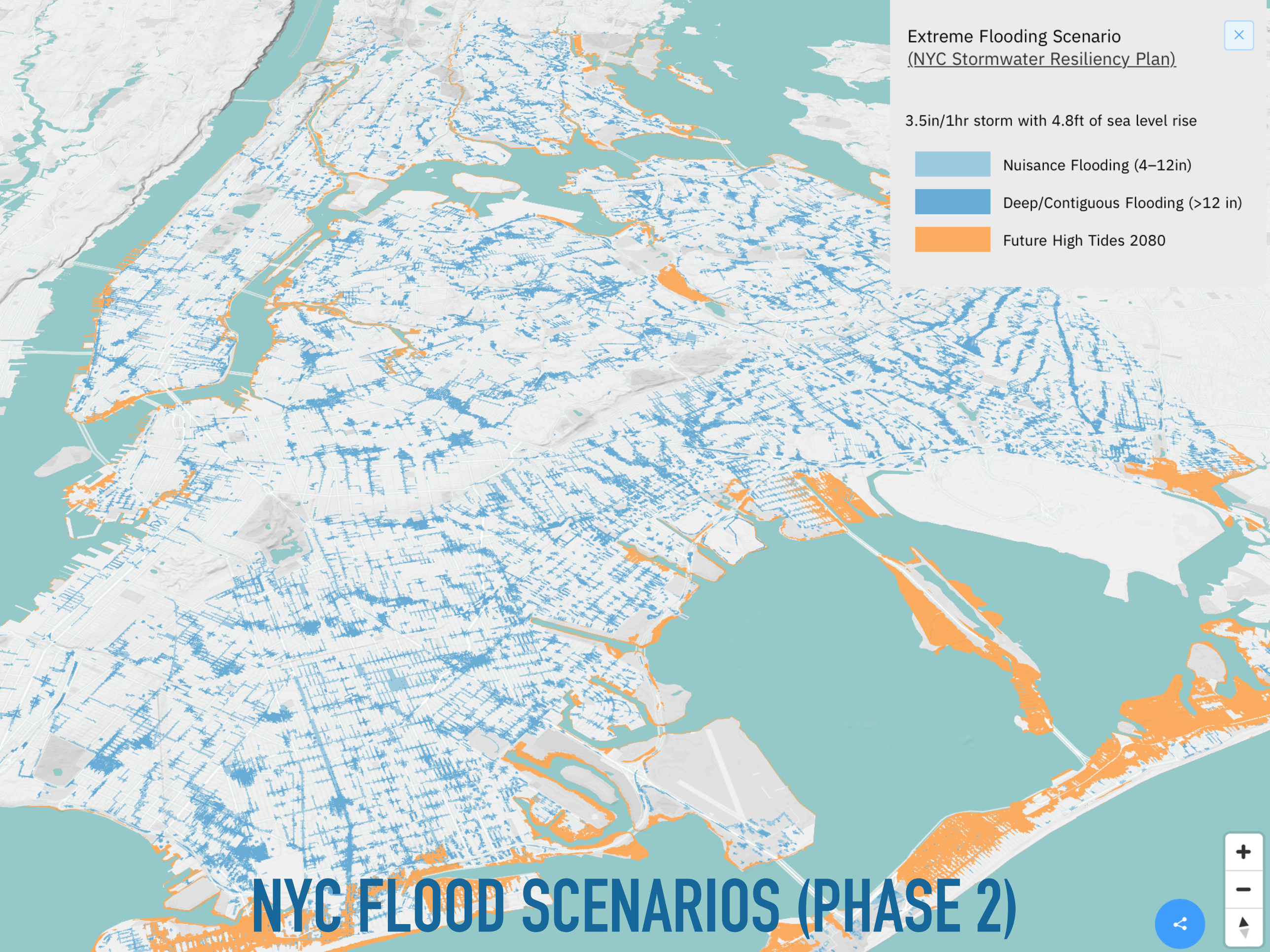
http://stormwater.nyc

NEW YORK CITY STORMWATER RESILIENCY PLAN

Helping New Yorkers understand and manage vulnerabilities from extreme rain

MAY 2021

NYC Mayor's Office of Resiliency

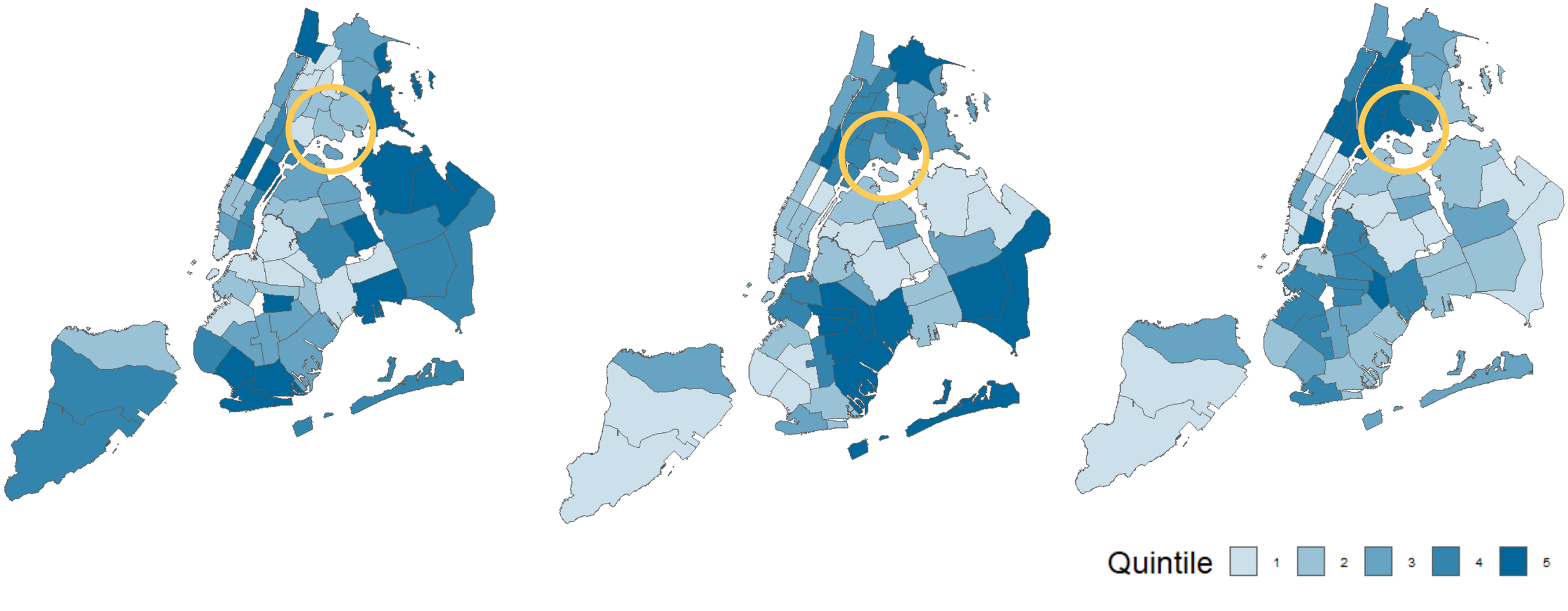

Extreme Flooding Scenario
(NYC Stormwater Resiliency Plan)
3.5in/1hr storm with 4.8ft of sea level rise
Nuisance Flooding (4–12in)
Deep/Contiguous Flooding (>12 in)
Future High Tides 2080
NYC FLOOD SCENARIOS (PHASE 2)

FLOOD VULNERABILITY IN NEW YORK CITY

% Above 65yrs

% Below Poverty

% Black/African American



Herreros-Cantis, McPhearson et al. in prep

MULTI-HAZARD RISK IN NEW YORK CITY

Depietri, Dahal, and McPhearson 2018, *Natural Hazards and Earth System Sciences*

Benefits of Urban Trees

Research has linked the presence of urban trees to...

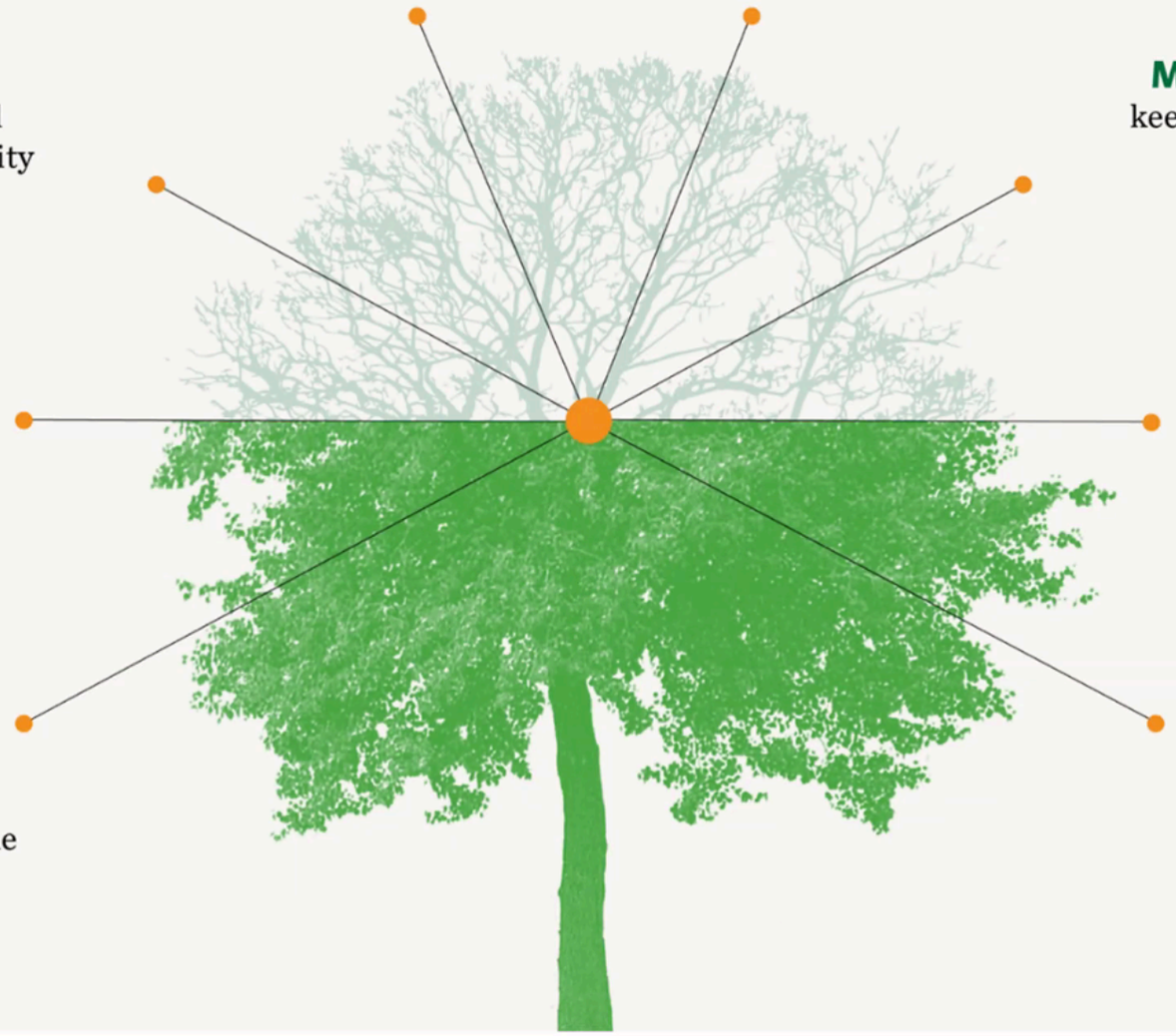
The Nature Conservancy

PROTECTING BIODIVERSITY
including habitat for migrating birds and pollinators

REDUCING OBESITY LEVELS
by increasing physical activity including walking and cycling

REDUCING RATES
of cardiac disease, strokes, and asthma due to improved air quality

MANAGING STORMWATER,
keeping pollutants out of waterways, and reducing urban flooding



COOLING city streets by 2-4° F, reducing deaths from heat and cutting energy use

INCREASING
neighborhood property values

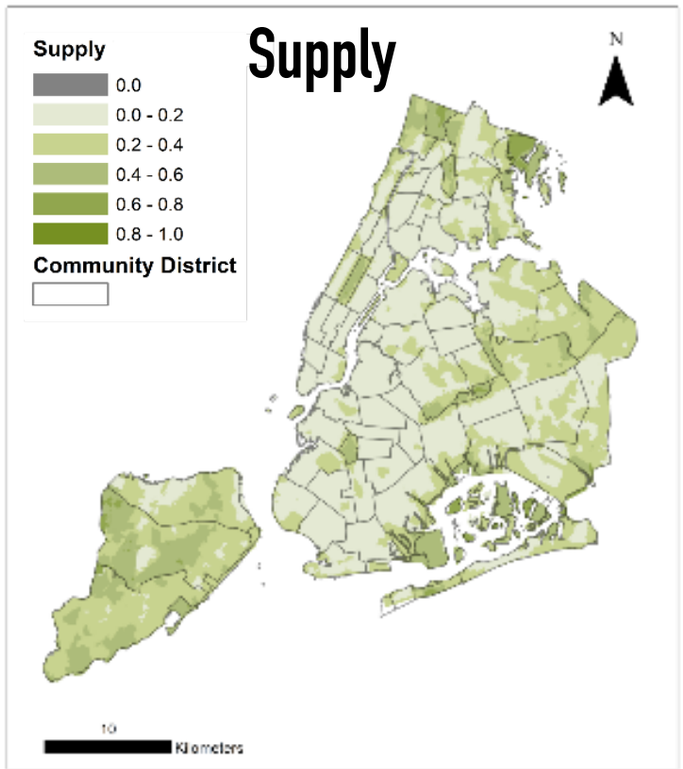
FILTERING up to a third of fine particle pollutants within 300 yards of a tree

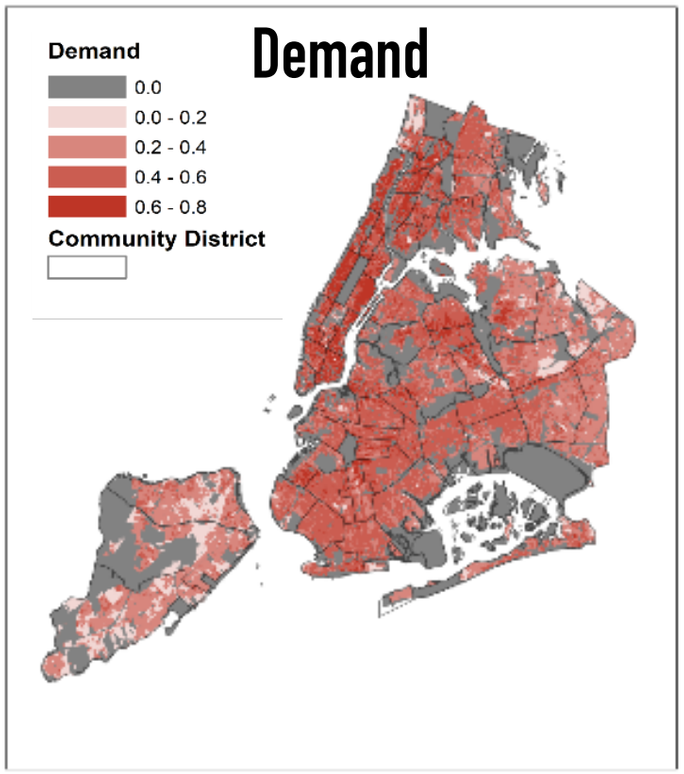
REDUCING STRESS by helping interrupt thought patterns that lead to anxiety and depression

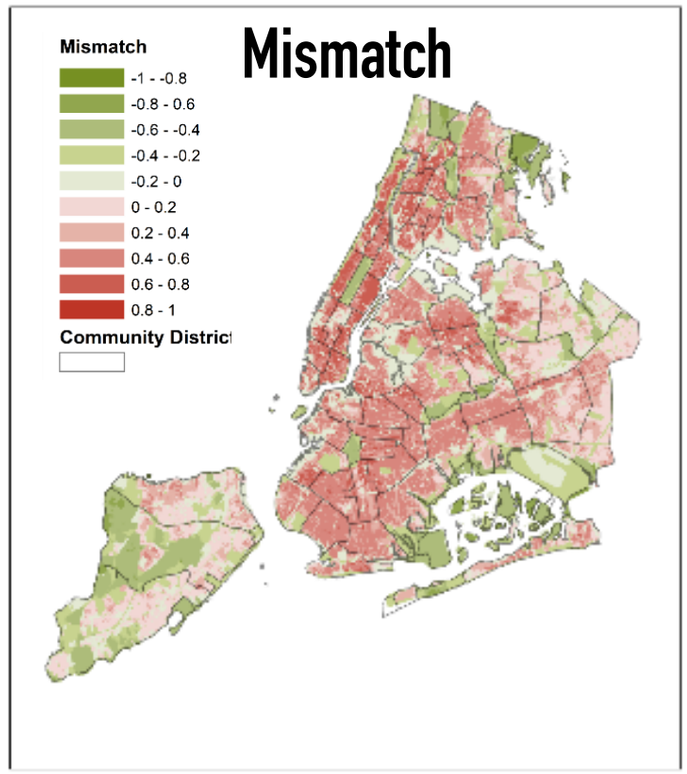
NBS FOR WHOM? SUPPLY AND DEMAND FOR NATURE-BASED SOLUTIONS

Local Temperature Regulation

Runoff Mitigation

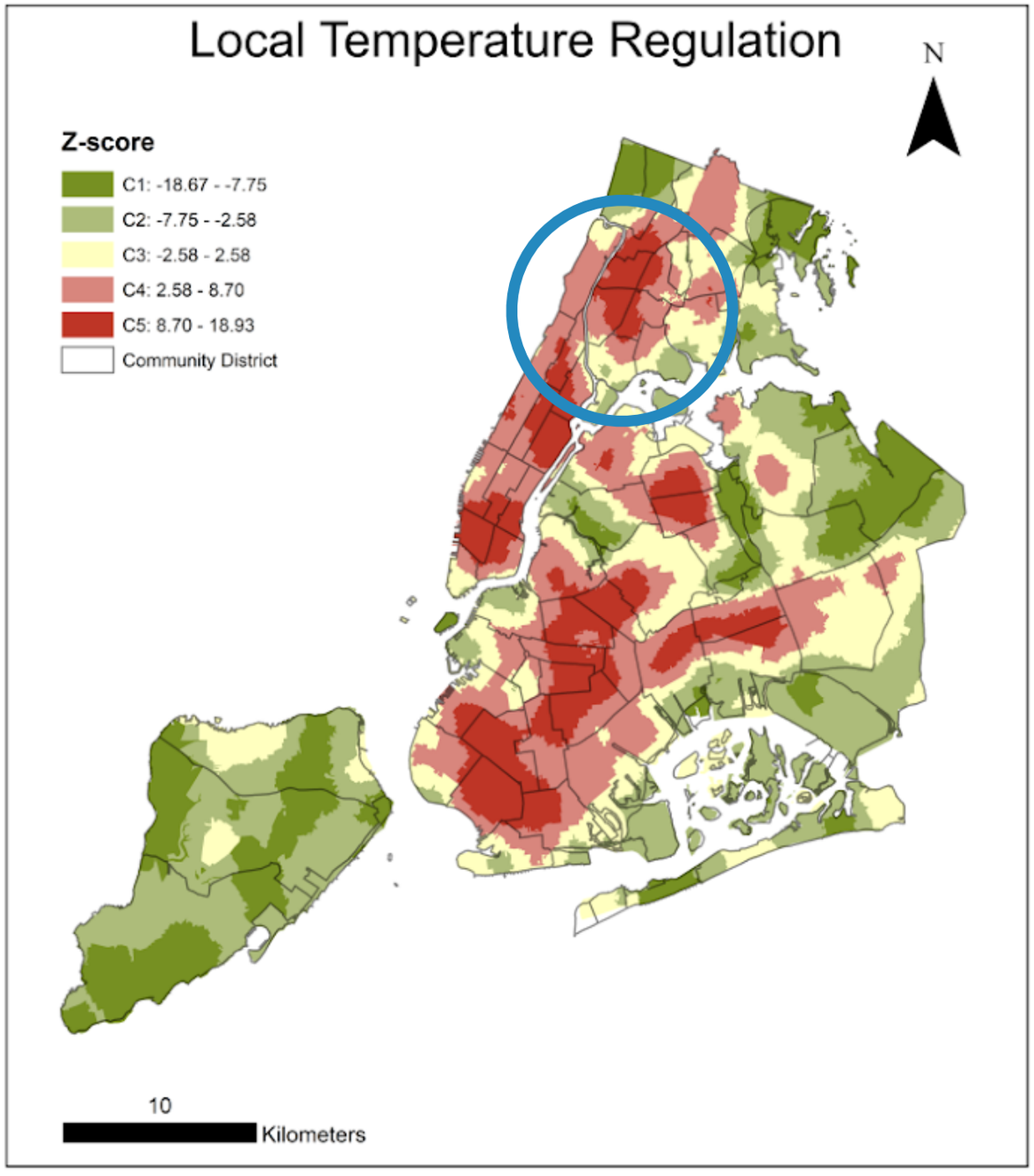


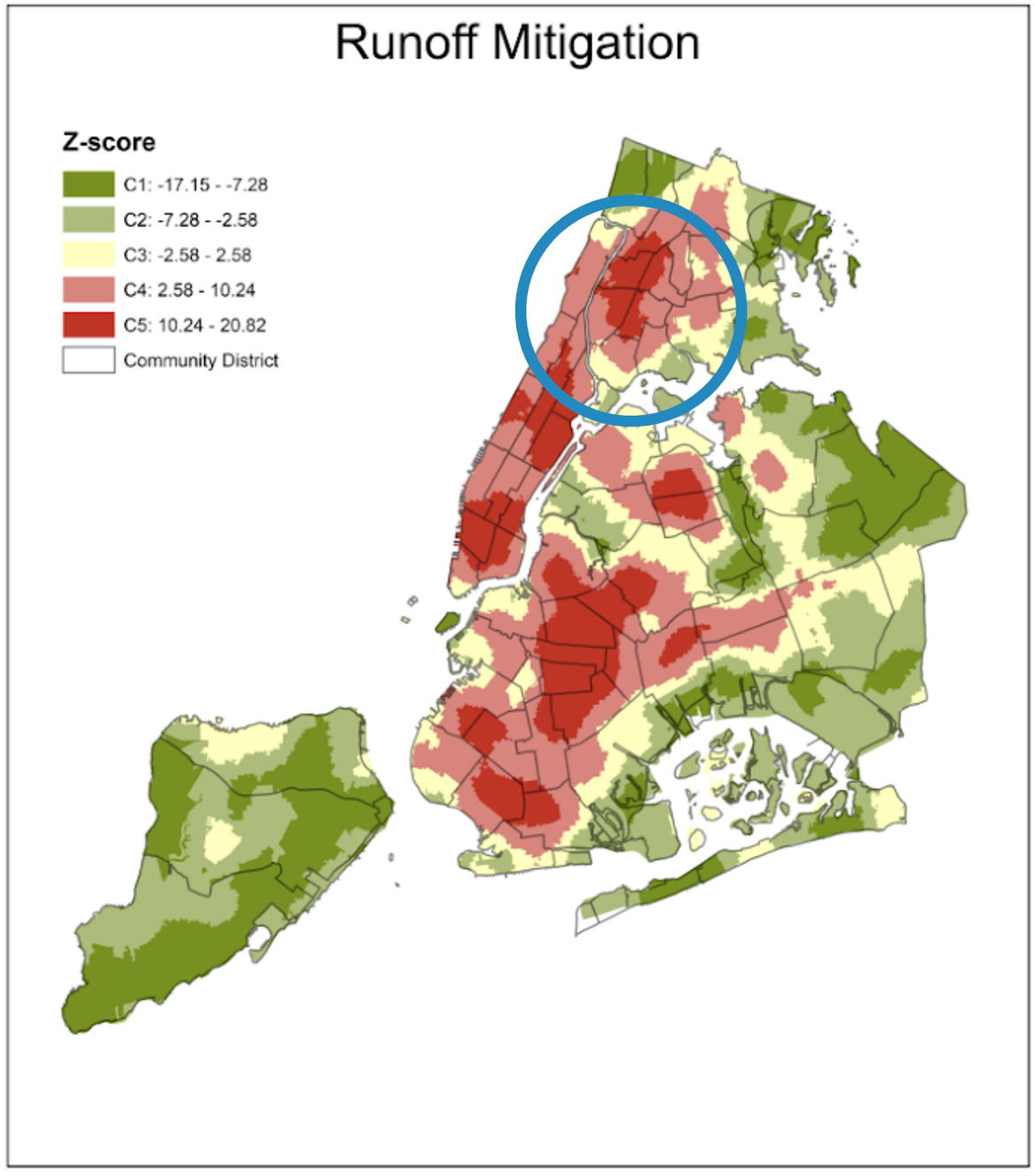




Herreros-Cantis and McPhearson, *Ecological Applications* (2021)

NBS FOR WHOM? HOTSPOTS OF HIGH DEMAND AND LOW SUPPLY





Herreros-Cantis and McPhearson, *Ecological Applications* (2021)

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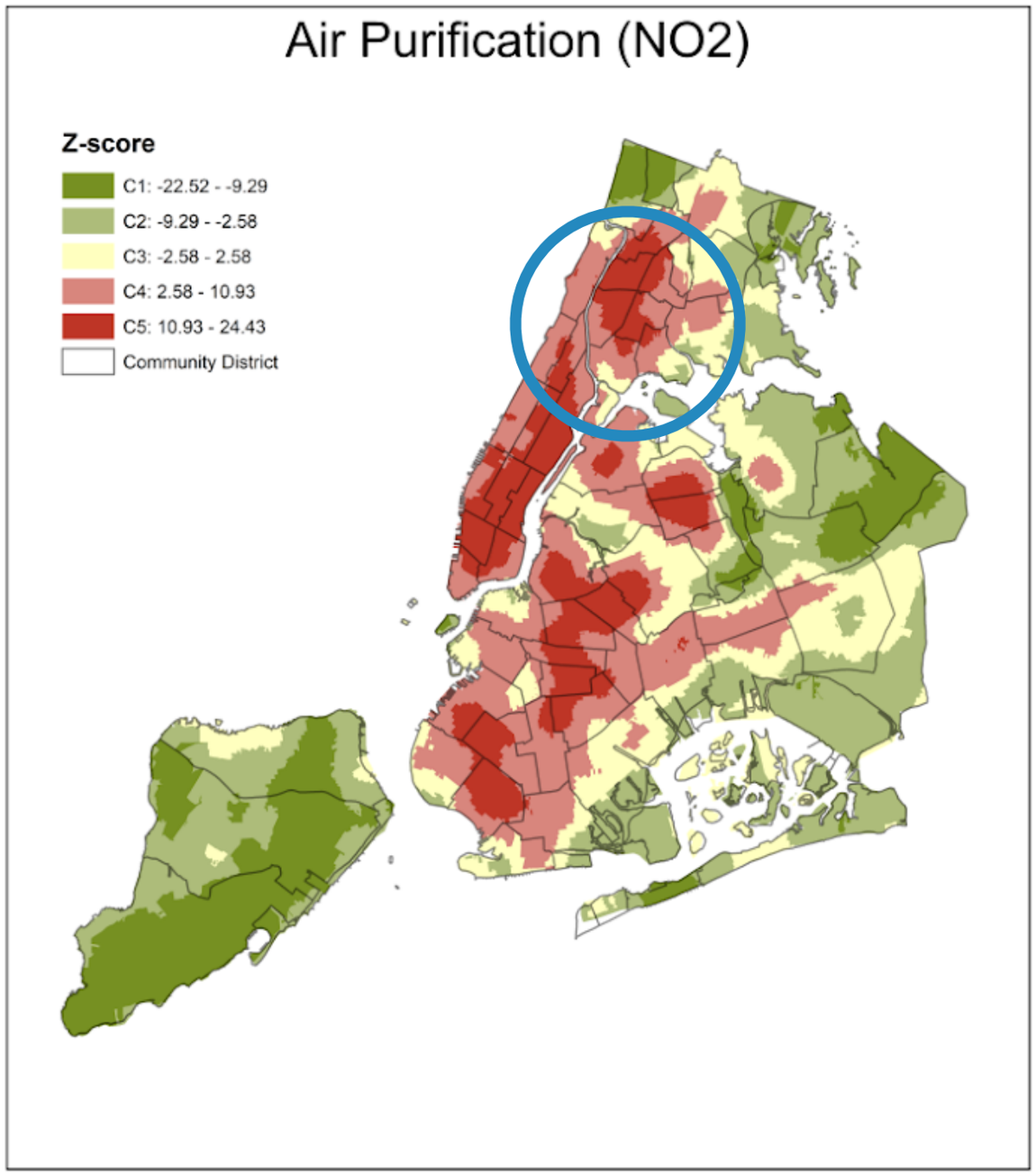
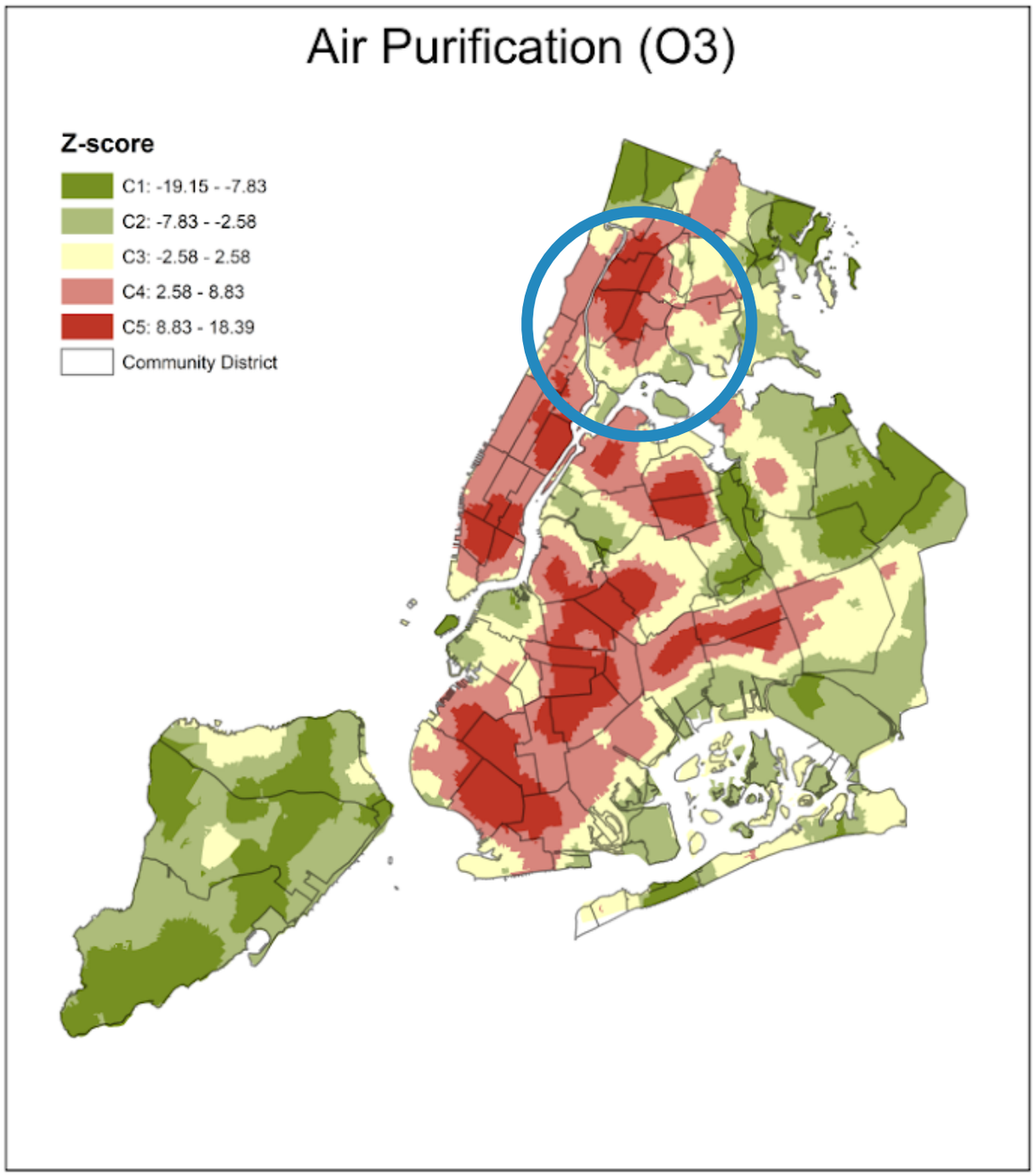


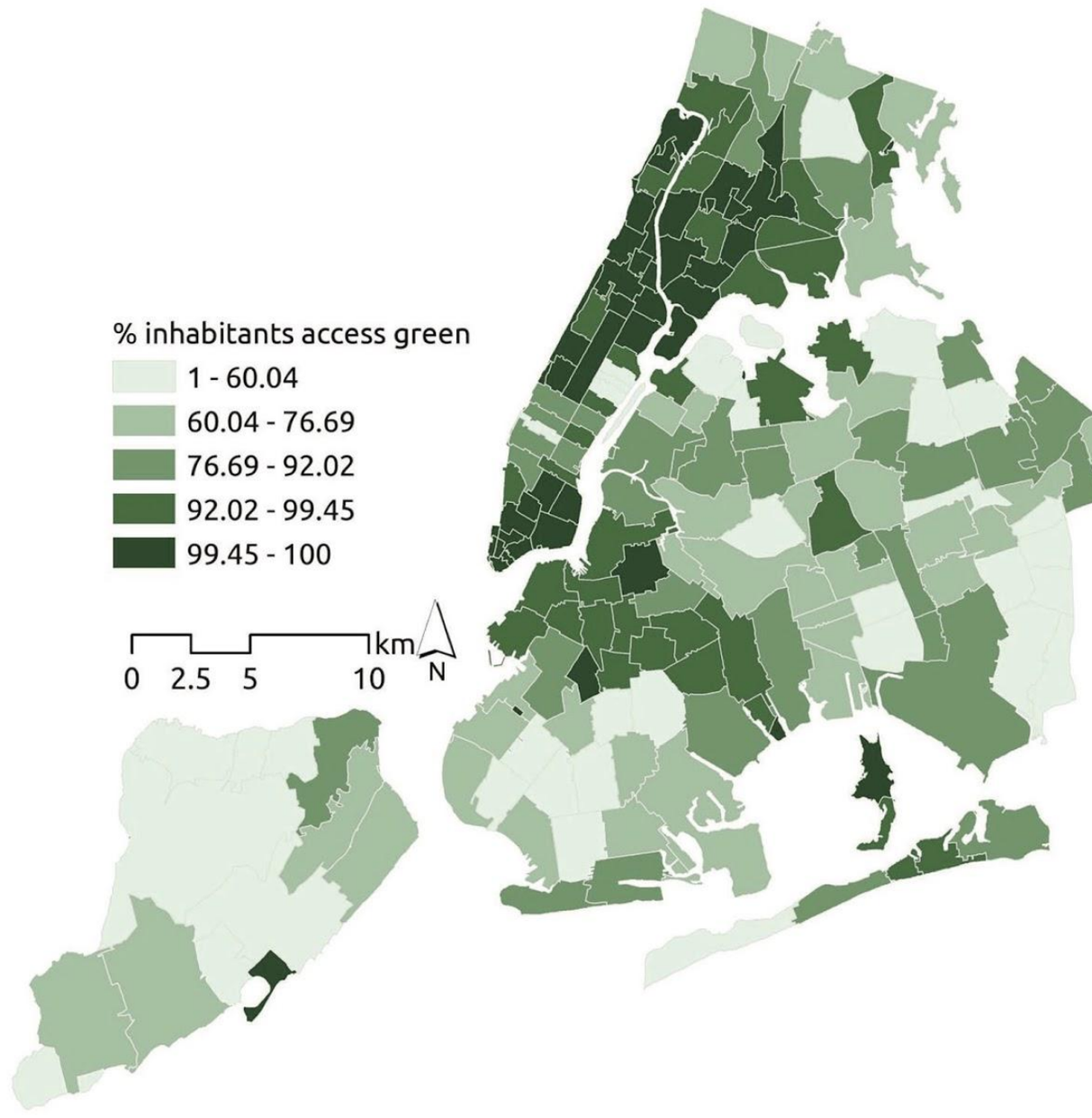


Herreros-Cantis and McPhearson, *Ecological Applications* (2021)

DISPROPORTIONATE ACCESS TO PARKS AND OPEN SPACE

Perceived and spatial access is uneven

- **Access to a public parks and open spaces was highest among respondents from Staten Island (93%) and Manhattan (83%) and significantly lower among respondents from Brooklyn (76%) and Queens (63%).**



Lopez, Kennedy, Field and McPhearson, 2021, *Urban Forestry and Urban Greening*

nature sustainability

ANALYSIS

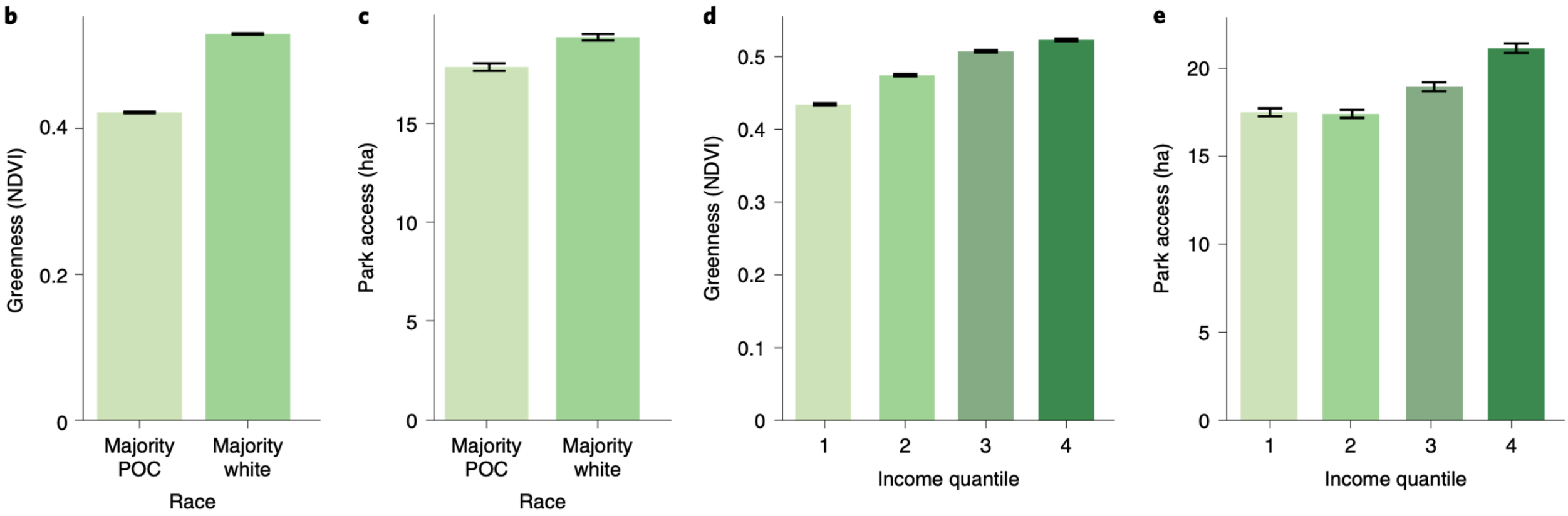
https://doi.org/10.1038/s41893-021-00781-9

Check for updates

OPEN

Nature inequity and higher COVID-19 case rates in less-green neighbourhoods in the United States

Erica N. Spotswood[1]✉, Matthew Benjamin[1], Lauren Stoneburner[1], Megan M. Wheeler[1], Erin E. Beller[2], Deborah Balk[3,4], Timon McPhearson[5,6,7], Ming Kuo[8] and Robert I. McDonald[3,9]



APRIL 22, 2022

FACT SHEET: President Biden Signs Executive Order to Strengthen America's Forests, Boost Wildfire Resilience, and Combat Global Deforestation

THE WHITE HOUSE

- Launched a **National Capital Accounting** initiative to track the economic benefits that investments in nature-based solutions provide

- Developed the US Roadmap on **Nature-based Solutions** for climate change adaptation and mitigation

- Initiated the first **National Nature Assessment**

3-30-300 Rule for Urban Forests?

Konijnendijk 2022, *J. Forestry Research*

NATURE-BASED URBAN CLIMATE SOLUTIONS