



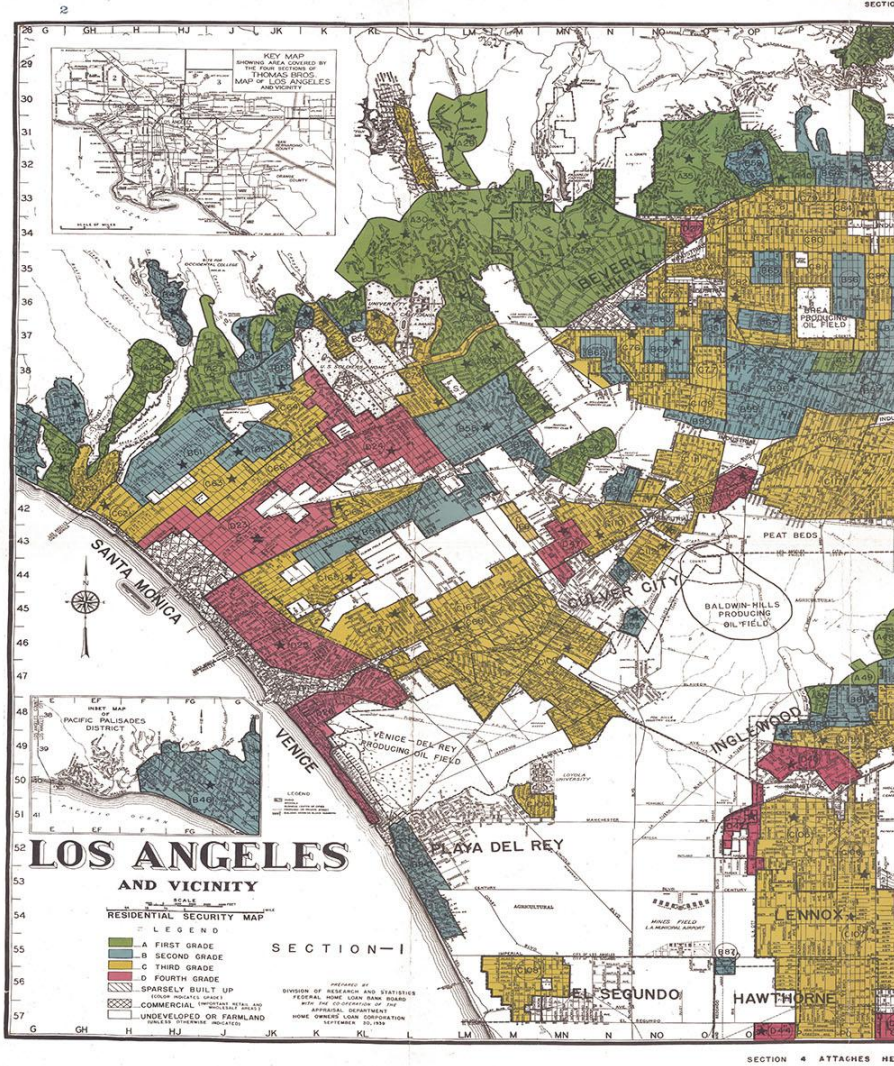
An aerial photograph of a dense, lush green forest. The canopy is thick with various shades of green. In the lower right quadrant, a large tree stands out with vibrant red flowers or foliage. The overall scene is a top-down view of a healthy, mature forest.

Plant A Tree, Save A Life?

The Effects of Historical Redlining on Urban Tree Canopy Coverage & Community Health in Los Angeles County

DS4A Team 101

Anakaren Cervantes, Dana Kraus, Erika Wingfield, Oritseweyinmi "Henry" Ajagbawa, Yiu Ho Au



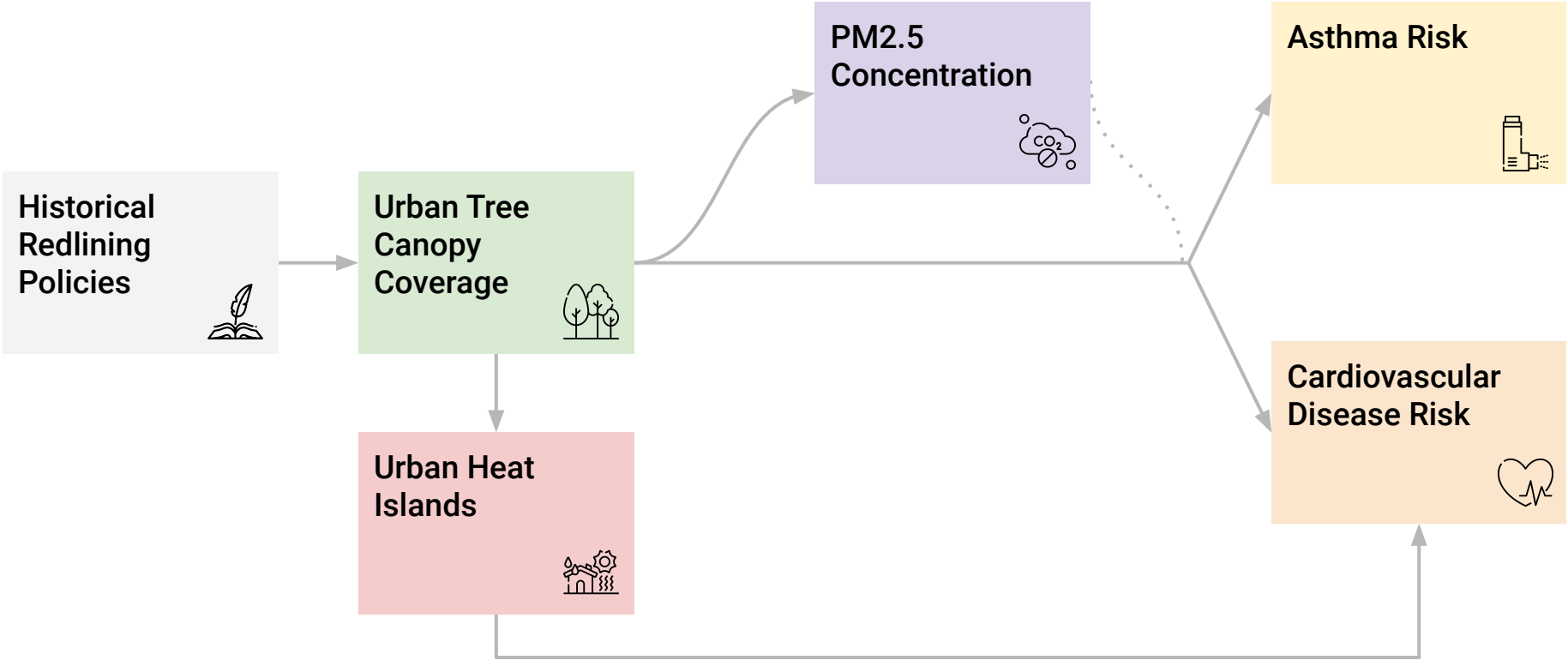
Background

What Was Redlining?

- Practice in the late 1930's by the Home Owner's Loan Corporation (HOLC)
- Graded neighborhoods on a scale of "A" to "D", according to perceived risk for mortgage lenders
- Neighborhoods graded "A" were considered "desirable"
- Neighborhoods graded "D" were considered "hazardous" and were subsequently ineligible for federally-backed mortgages
- **Essentially a tool for segregation and preventing Black Americans and immigrants from accessing homeownership**

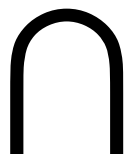
Source: [NPR "Interactive Redlining Map Zooms In On America's History Of Discrimination"](https://dsl.richmond.edu/panorama/redlining)
<https://dsl.richmond.edu/panorama/redlining>

Operational Conceptual Model





CalEnviroScreen 3.0



intersect



Residential Housing Segregation and Urban Tree Canopy in 37 US Cities (Locke et al., 2020)



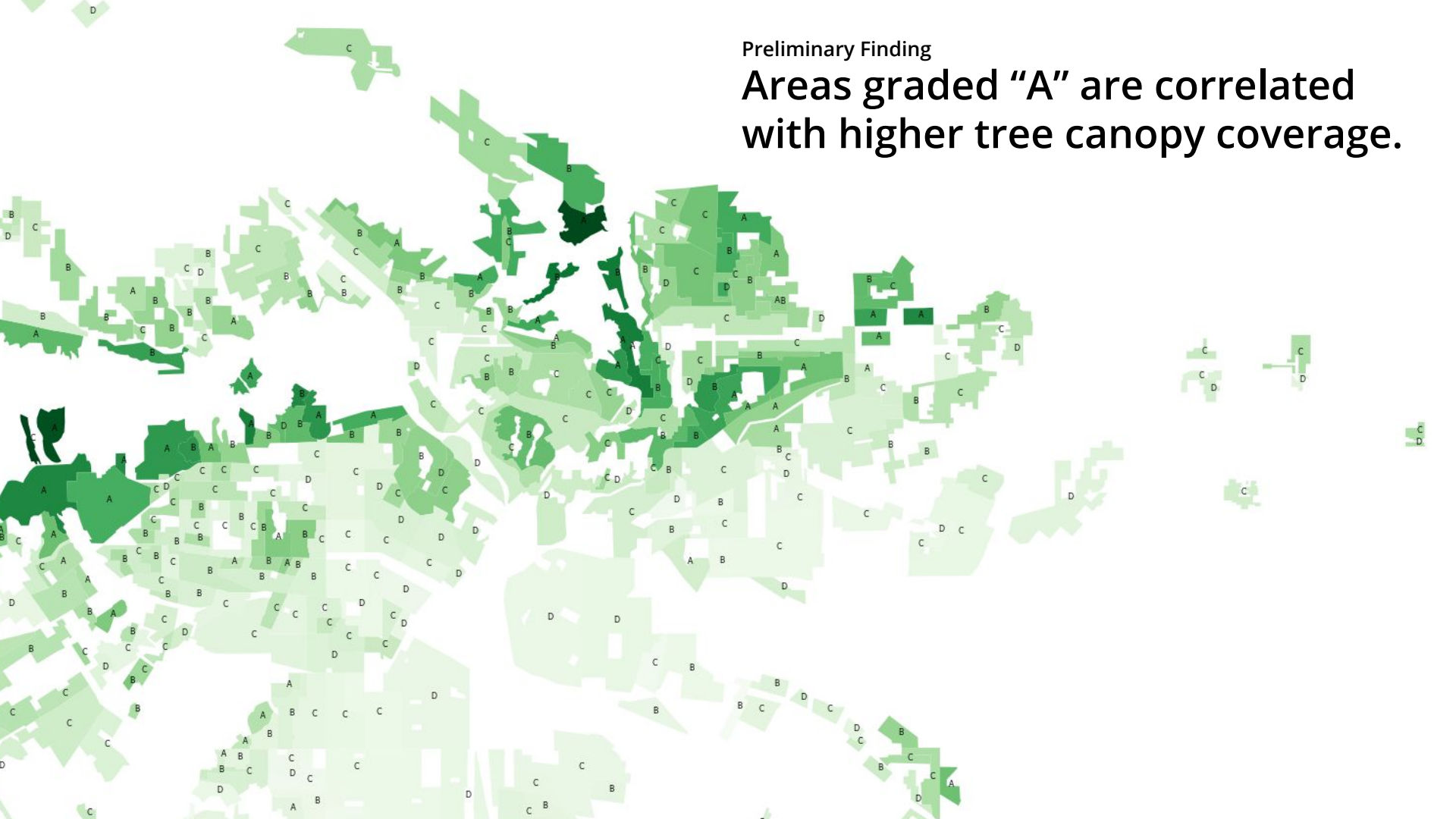
result



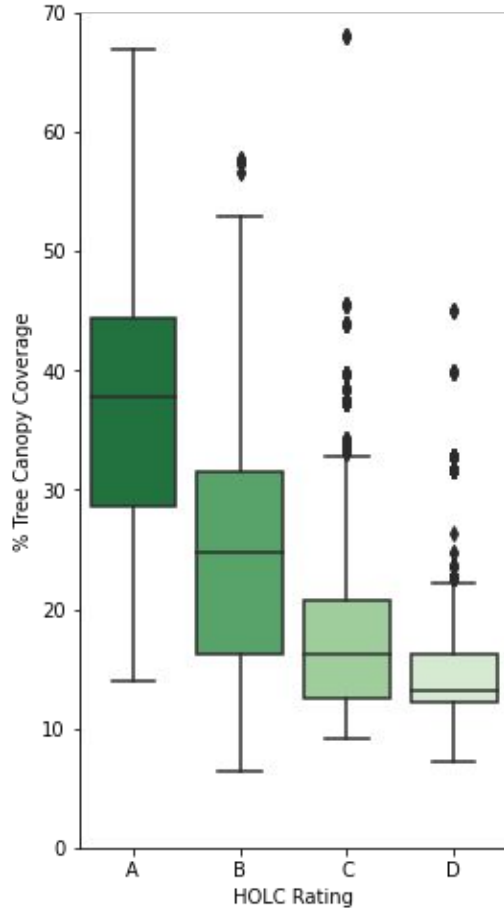
Resulting GeoPandas Dataframe

Preliminary Finding

Areas graded "A" are correlated
with higher tree canopy coverage.



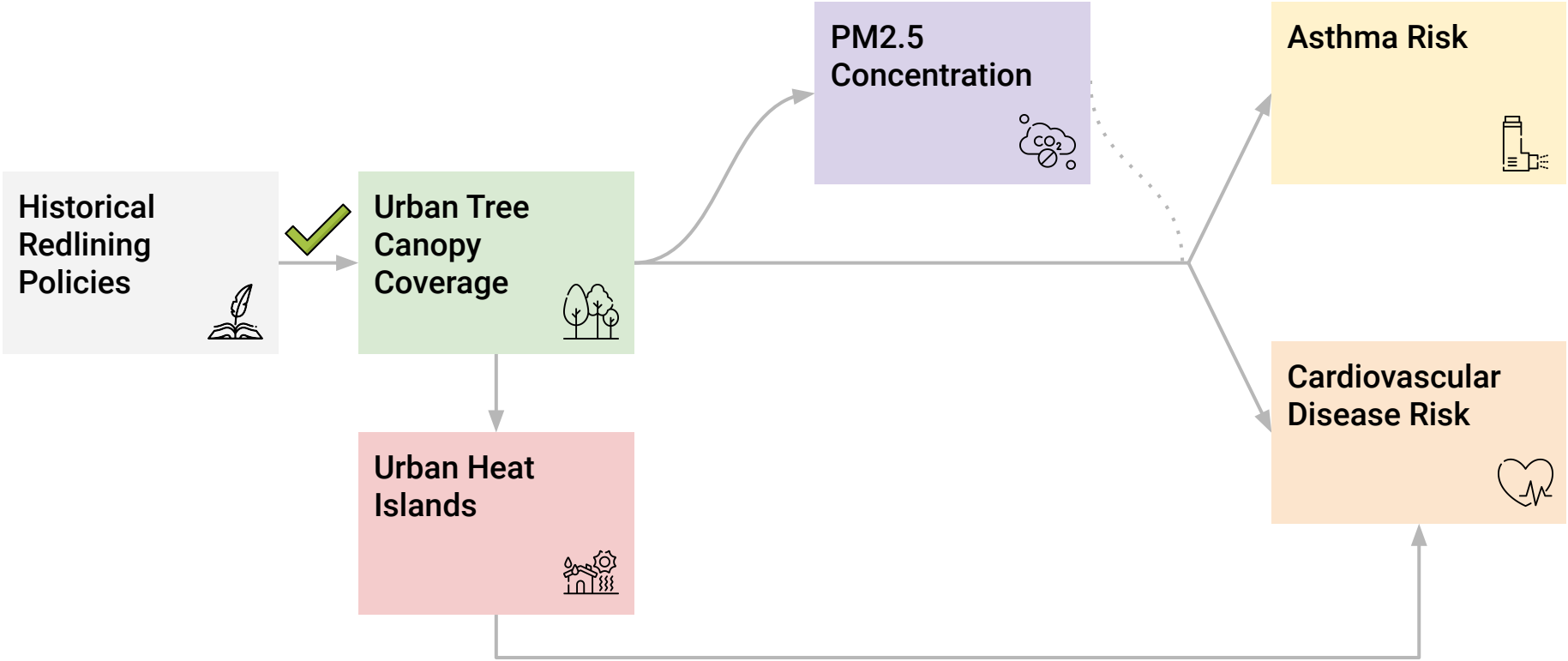
Urban Tree Canopy Coverage in Los Angeles, by HOLC Ratings

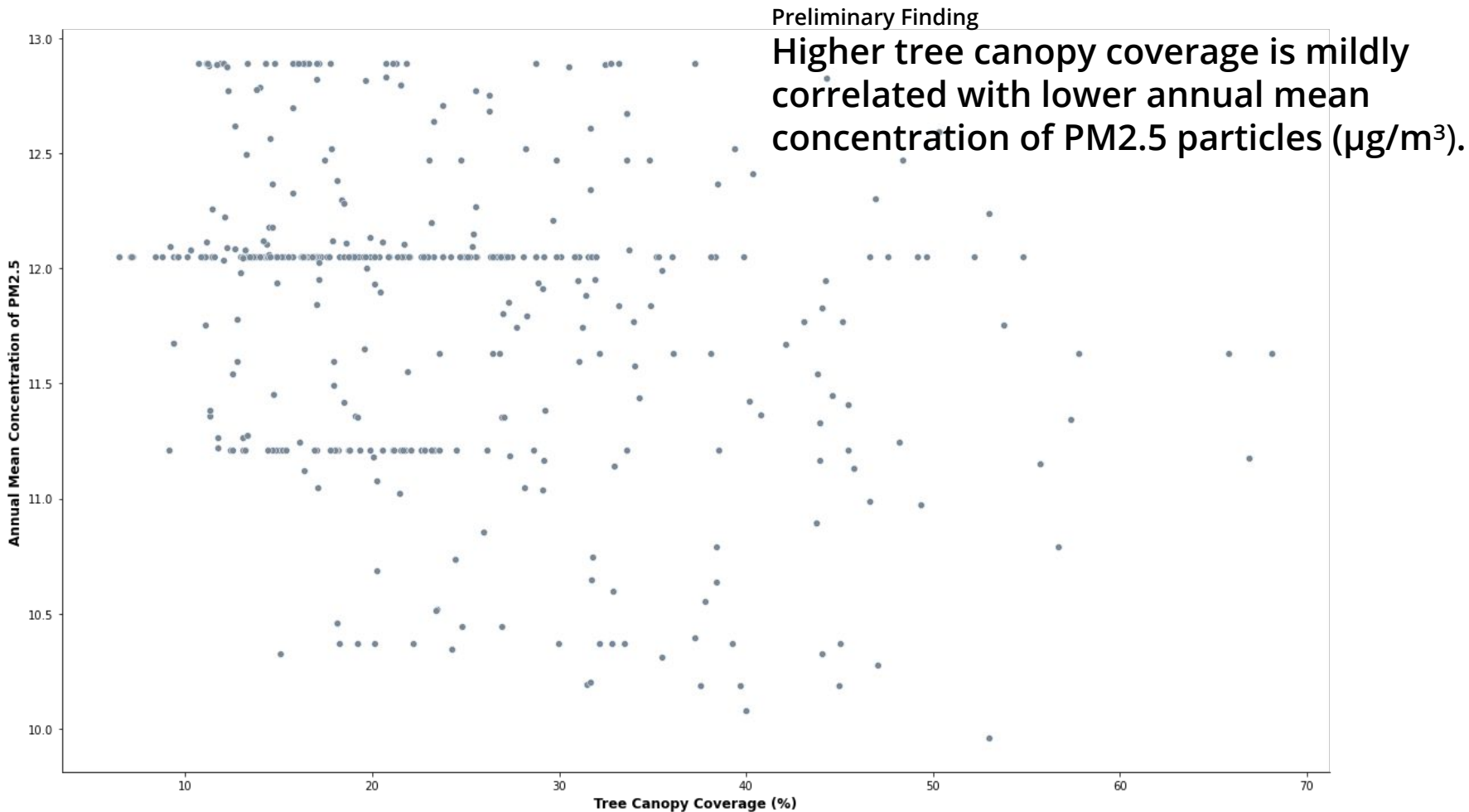


Simple Model

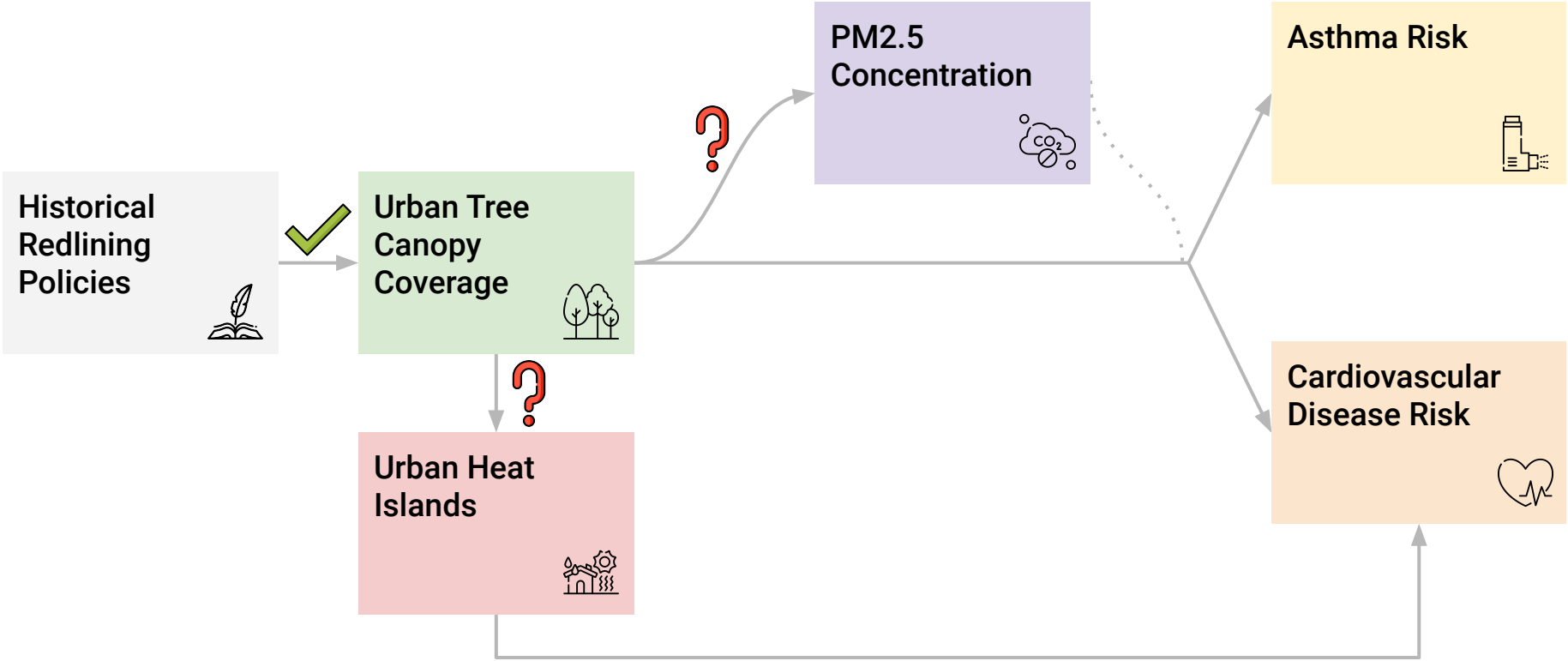
A **D-graded** neighborhood is expected to have **20% less** urban tree canopy coverage, compared to an **A-graded** neighborhood.

Operational Conceptual Model



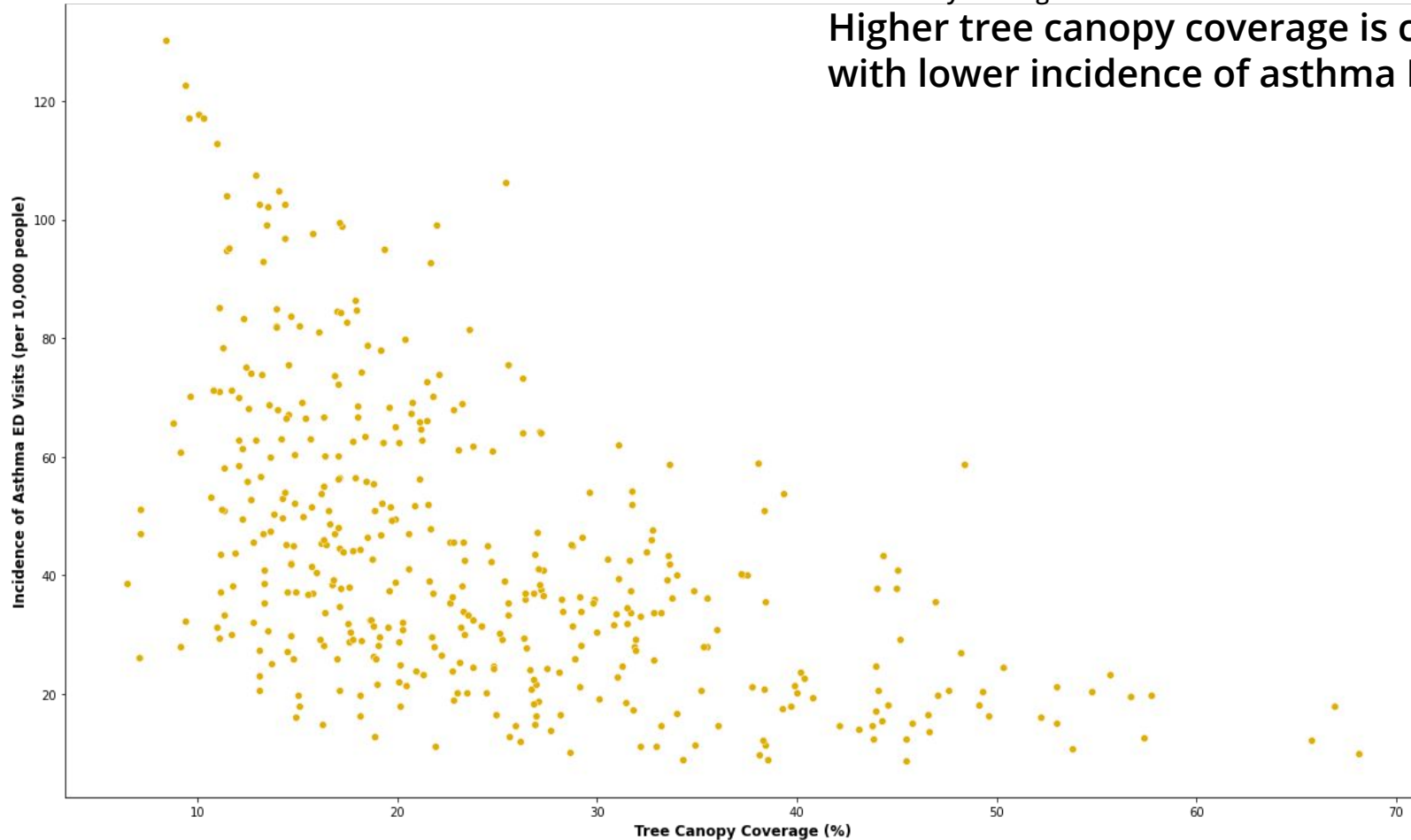


Operational Conceptual Model



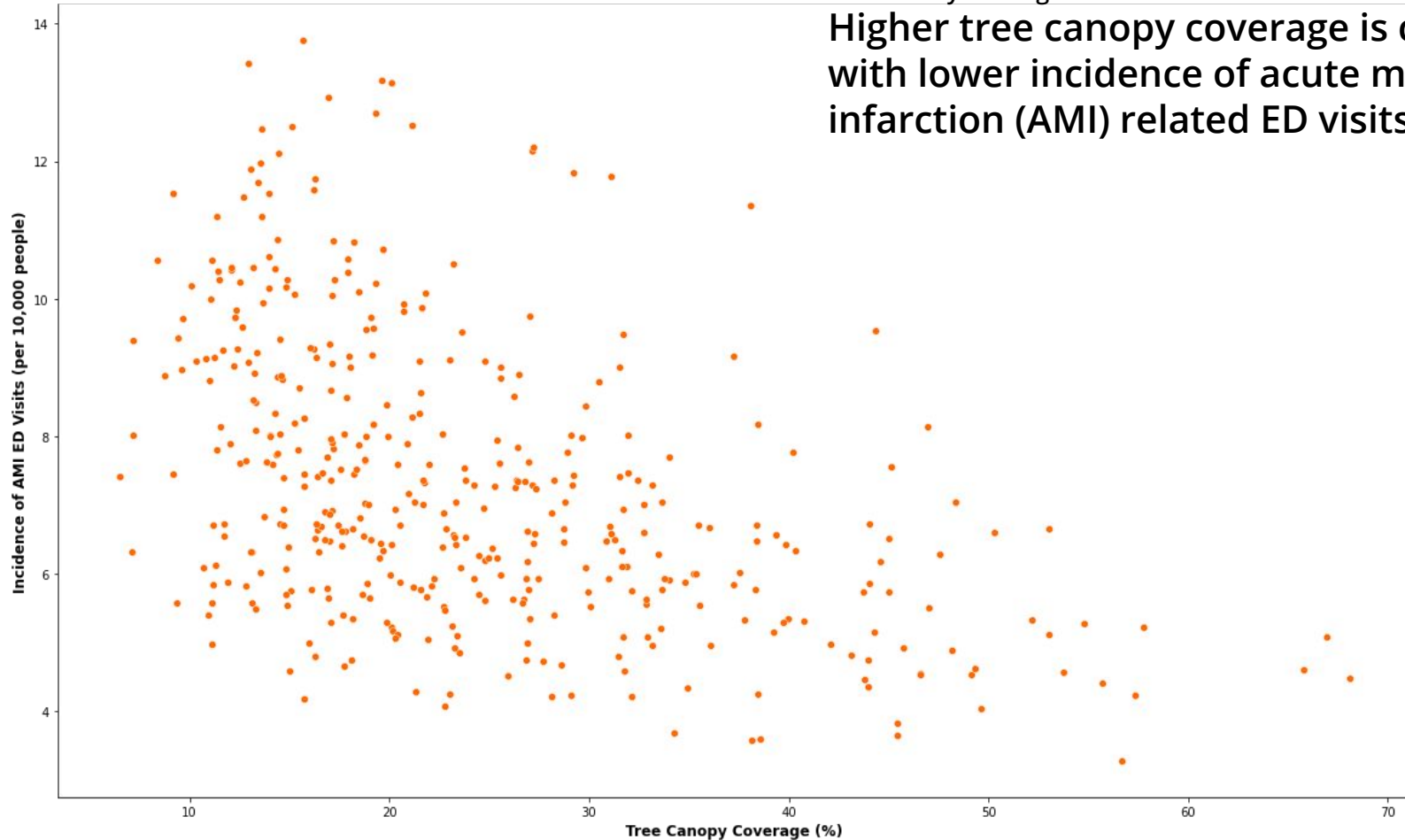
Preliminary Finding


Higher tree canopy coverage is correlated
with lower incidence of asthma ED visits.



Preliminary Finding

Higher tree canopy coverage is correlated with lower incidence of acute myocardial infarction (AMI) related ED visits.



An aerial photograph of a dense, lush green forest. The canopy is thick with various shades of green. A single tree with bright red flowers stands out prominently on the right side of the image. The text is overlaid on the left side of the image.

Takeaway

Incidence of **asthma** & **cardiovascular** related emergencies are expected to be **lowered** with **higher tree canopy coverage**.

REDLINING

Photo
for KQED.org

"... threat of infiltration
of foreign-born, negro,
or lower grade
population."



1930s

... threat of infiltration
of respiratory & other
health problems from
racist, lower grade
policies.




NOW

Takeaways

Historical redlining policies affected contemporary urban tree canopy coverage. **Areas graded worse have lower tree canopy coverage.**

Since **higher tree canopy coverage** is associated with **lower incidence of asthma and cardiovascular emergency department visits**, it suggests that areas with low tree canopy coverage would not have the same buffering effects that tree canopy cover provides.

This implies that persons living in **neighbourhoods with low tree canopy cover** are at **greater risk for asthma-related and cardiovascular-related incidents.**



"The best time to plant a tree was 20 years ago.
The second best time is now."

— proverb

Thank You!

Expressed Appreciation for:

Alex Aronov, PhD | Mentor, Thought-Leader

Peyton Runyan | Spiritual Pillar, ASMR Influencer

Lai Jiang | Economics Wunderkind 天才/天菜

An aerial photograph of a dense, lush green forest. The canopy is thick with various shades of green. In the lower right quadrant, a large tree stands out with bright red flowers or foliage. The overall scene is a top-down view of a natural, wooded area.

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Volunteer



Donate



Adopt A Tree



Organize

Revised Conceptual Model

