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Flash Talk and Poster Session*

Tree cover, air pollution and heat in New York: a rural-urban narrative

S. B. Adamo and J. Squires, CIESIN, Columbia Climate School, Columbia University, sadamo@ciesin.columbia.edu

A continuum or gradient from completely rural to completely urban that is mediated, enabled and constrained by distance, accessibility, and macroeconomic and social process at different scales (Adamo 2012:1)

Motivation

- Satellite data for tree canopy
- Environmental justice and rural-urban status
- Non random uncertainties across space
- Canada's fires in June 2023



<https://earthobservatory.nasa.gov/images/151433/smoke-smothers-the-northeast>

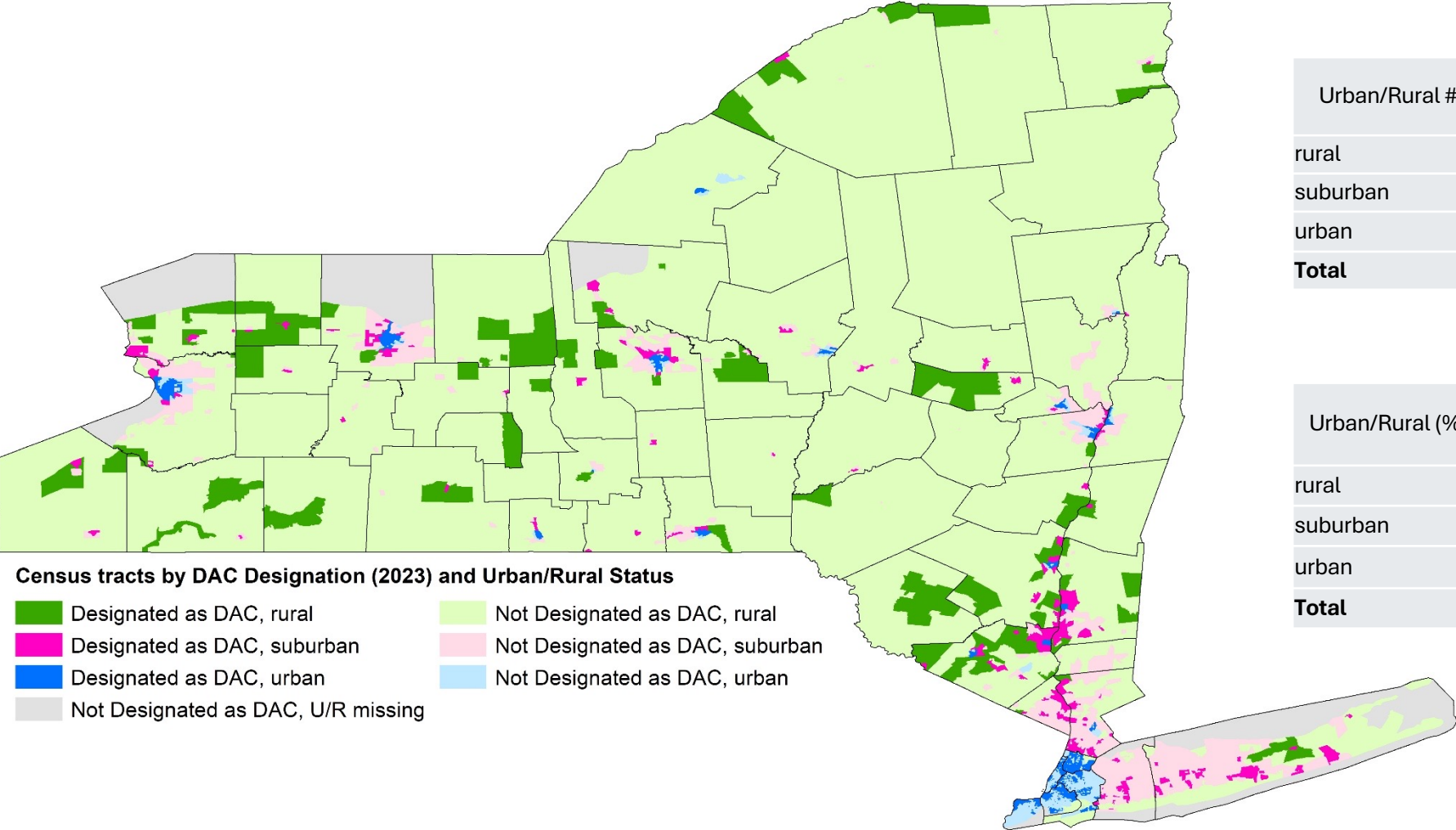
“Previous studies have linked green space to improved physical, social, and mental health outcomes, a heightened sense of overall well-being, reductions in morbidity and mortality risks, mitigation of urban heat, and reduced air and noise pollution (Sayyed et al. 2024:6)

Outcome

- Teaching/learning modules: use of satellite data for informing environmental justice issues along the urban rural continuum
- To be incorporated into an undergraduate course syllabus (Fall 2024)

HAQAST Member: Investigating spatiotemporal patterns at the nexus of air pollution, climate and public health over the Northeast U.S.A. (PI: Arlene Fiore). **Tiger Team:** Satellite Data for Environmental Justice (SD4EJ), Team Lead: HAQAST Investigator Qian Xiao

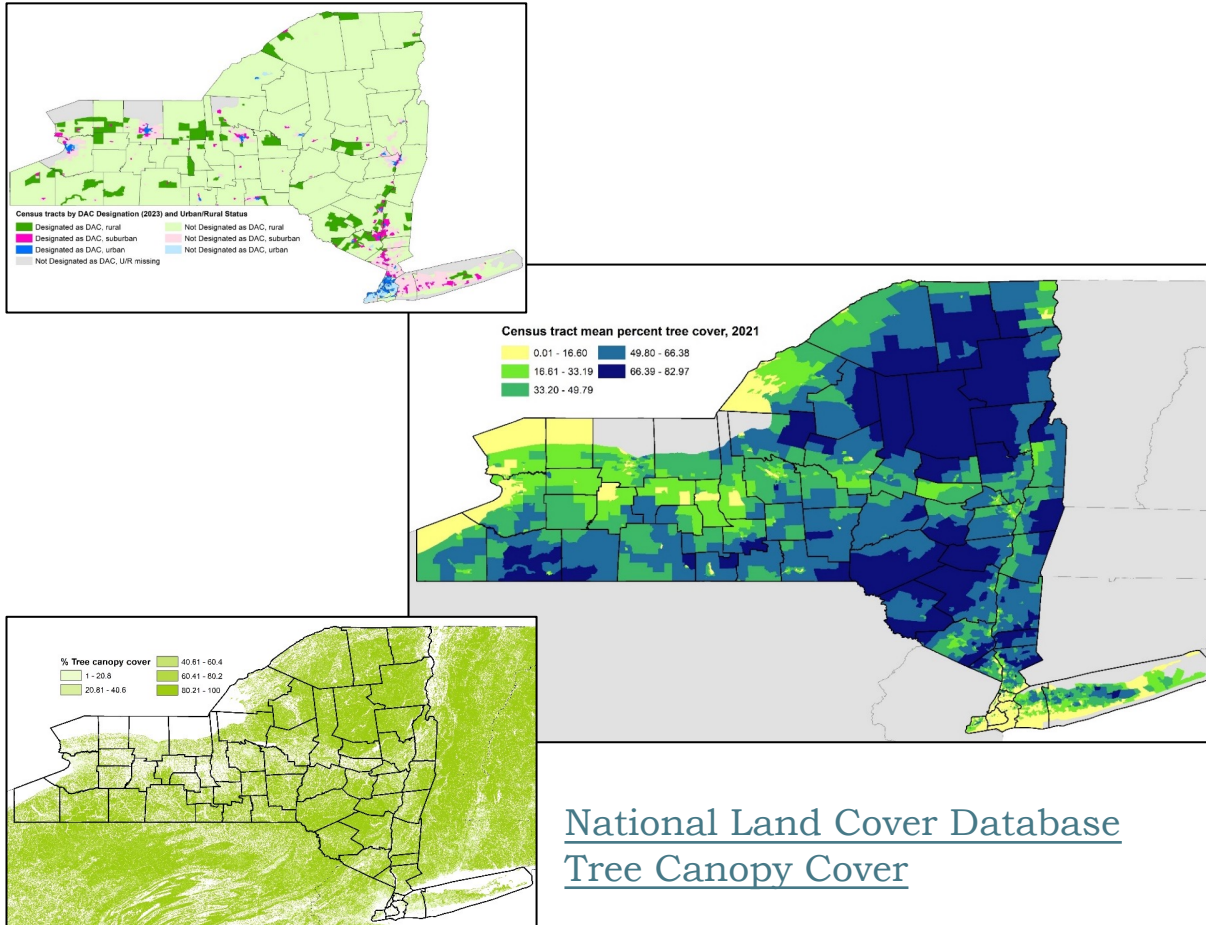
Census tracts in New York State by urban/rural status and DAC (Disadvantaged Community) Designation (2023 version)



Urban/Rural #	DAC designation #		Total
	DAC	No DAC	
rural	113	744	857
suburban	384	1,095	1,479
urban	1,239	1,331	2,570
Total	1,736	3,170	4,906

Urban/Rural (%)	DAC designation (%)		Total
	DAC (%)	No DAC	
rural	2.3	15.2	17.5
suburban	7.8	22.3	30.2
urban	25.3	27.1	52.4
Total	35.4	64.6	100.0

Example: tree cover satellite data at the census tract level

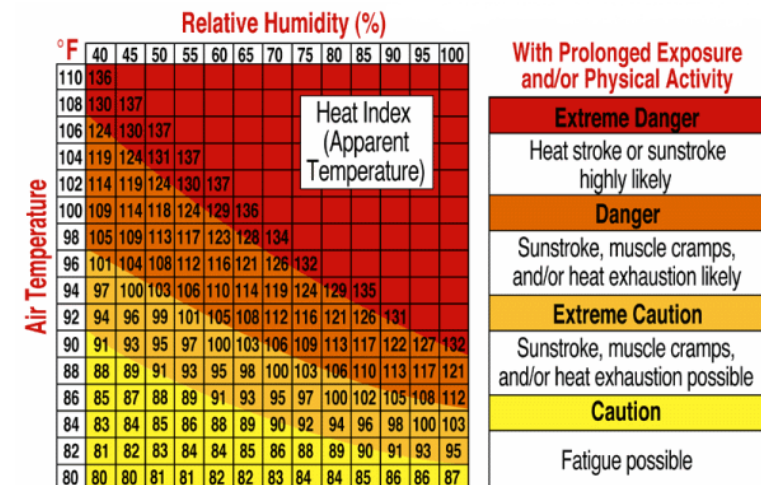


[National Land Cover Database](#)
[Tree Canopy Cover](#)

* Temperature data will also be added, the DAC dataset already includes air pollution and health variables

Example: Outdoor workers and the “right to shade”

- Assessing exposure and intersectional vulnerability to heat, air pollution, and the protection of tree canopy cover;
 - Outdoor workers: farm laborers, construction workers, street vendors
 - Working with temperature and air pollution data in summer months



Thank you

Cited references

Adamo, Susana B. (2012). The growing importance of urban-rural interfaces: current demographics and their future implications. In Laband, D., B. G. Lockaby and W. Zipperer (eds.) *Urban-Rural Interfaces: Linking people and nature*. Madison, WI, American Society of Agronomy, Soil Science Society of America, Crop Science Society of America. Chapter 1, 1-13

Sayyed, Tanya K. *et al* (2024) Satellite data for environmental justice: a scoping review of the literature in the United States. *Environmental Research Letters*. 19: 033001. DOI 10.1088/1748-9326/ad1fa4