Zachary Cramton

Ryan Campbell

CO301B

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Advance Article on Schell et al. 2020

Concrete Jungles

Affluence and Environmental Health in American Cities

More than 80% of Americans reside in urban areas, and cities are increasingly at the forefront of the climate crisis. But not all urban spaces are created equal. New research published in *Science* by Schell et al. (2020) shows that the ecological health of a city, including its biodiversity, air quality, and climate resilience, is shaped not just by natural forces but by deeply rooted systems of racial and economic inequality.

Schell and colleagues show that affluence operates in urban ecosystems much like access to healthcare does in human lives: the wealthier a neighborhood, the healthier its environment. Richer areas benefit from cleaner air, cooler temperatures, greater biodiversity, and more robust green infrastructure. But while fixing a person's health might involve months or years of care, healing a city's ecosystem often requires decades or even centuries, especially when the environmental "patient" has already been systematically deprived of resources through racist and classist policies like redlining and urban disinvestment. As a result, low-income neighborhoods aren't just behind; they're aging prematurely, suffering chronic environmental illness, and increasingly vulnerable to climate-related emergencies.

This pattern is known as the "luxury effect" — a term urban ecologists use to describe the positive correlation between neighborhood wealth and environmental quality. High-income communities tend to have more vegetation, which lowers temperatures and supports a wider range of species. Even wildlife responds. Studies have found that bird and insect diversity increase in wealthier neighborhoods, while low-income areas, often stripped of green space, serve as ecological dead zones or sinks.

But wealth alone doesn't explain the full picture. Schell et al. argue that systemic racism, especially in the form of historical housing segregation and discriminatory policies like redlining, plays an even more profound role. Between the 1930s and 1960s, redlined neighborhoods, housing communities of color, were labeled "hazardous" and denied

investment. Today, those same neighborhoods average 21% less tree canopy, face higher temperatures, and suffer greater exposure to air and water pollutants.

The biological consequences are real. Fragmented habitat and pollution don't just reduce species diversity — they can alter genetic drift, disrupt evolutionary pathways, and increase the spread of zoonotic diseases. In cities like Flint, systemic neglect of environmental infrastructure has triggered both ecological collapse and humanitarian crises.

Cities aren't just collections of buildings and parks — they're living, evolving systems, shaped by the same social structures that affect human health. To care for the environment, we must also care for the people in it. Without confronting the systems that created such unequal landscapes in the first place.

So, what can we do?

Schell and his co-authors call for a justice-centered approach to conservation and urban planning. That means not just planting more trees but doing so with and for the communities who have been historically excluded from decision-making. It means preventing green gentrification by pairing environmental improvements with housing protections. And it means recognizing that social policies — like investments in public health, education, transportation, and housing — are also environmental policies.

What can you do to help?

You can advocate for equitable development, support local green initiatives, and push for city budgets that prioritize environmental justice. Even if you live in an ecologically healthy area, planting native plants and improving the diversity of your yard landscaping can further improve your space. Small changes, when rooted in equity, can scale up to reshape the very structure of our cities.

Environmental restoration can no longer be treated separately from social restoration. Cities, like people, heal best when they have access to case-specific, long-term, holistic care. Urban restoration begins not just with more trees, but with more equitable planning and resource allocation.

References

Schell, C. J., Dyson, K., Fuentes, T. L., Des Roches, S., Harris, N. C., Miller, D. S., Woelfle-Erskine, C. A., & Lambert, M. R. (2020). The ecological and evolutionary consequences of systemic racism in urban environments. *Science (New York, N.Y.)*, *369*(6510), eaay4497. https://doi.org/10.1126/science.aay4497