'Cool islands' could be solution to urban heat islands, say researchers

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Credit: NSF Central-Arizona Phoenix LTER site

(Phys.org) —In a recent National Science Foundation article, several sustainability scientists from the Global Institute of Sustainability and ASU's Central Arizona-Phoenix Long-Term Ecological Research (CAP LTER) highlight their research on Phoenix's urban heat island effects.

Urban heat islands, or areas where temperatures are significantly higher than surrounding rural communities, tend to happen in cities where concrete, buildings and black asphalt replace cool-inducing vegetation. These higher temperatures have deadly effects on vulnerable populations like the elderly, poor and homeless, who may not have easy access to air conditioning and the cooler indoors.

Sustainability scientist Sharon Harlan is a sociologist who studies the

human-environment interactions behind class, gender and ethnic inequalities. She believes we are the cause of urban heat islands.

"It's all due to the effects of humans," says Harlan, also an associate professor in the School of Human Evolution and Social Change. "We've modified the surface of the land in ways that retain heat."

Researchers from CAP LTER say we can positively modify our urban environment by incorporating cool, green parks within urban areas. Their studies have found that temperatures are significantly cooler in green parks. Large trees absorb and reflect sun rays, thus causing cooler temperatures. Harlan says these "cool islands" can mitigate negative urban heat island effects.

"If targeted to low-income neighborhoods where vulnerability to heat is greater," says Harlan, "it would address an environmental inequity and provide better ecosystem services for these neighborhoods."

More information: www.nsf.gov/discoveries/disc_summ.jsp

Provided by Arizona State University

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