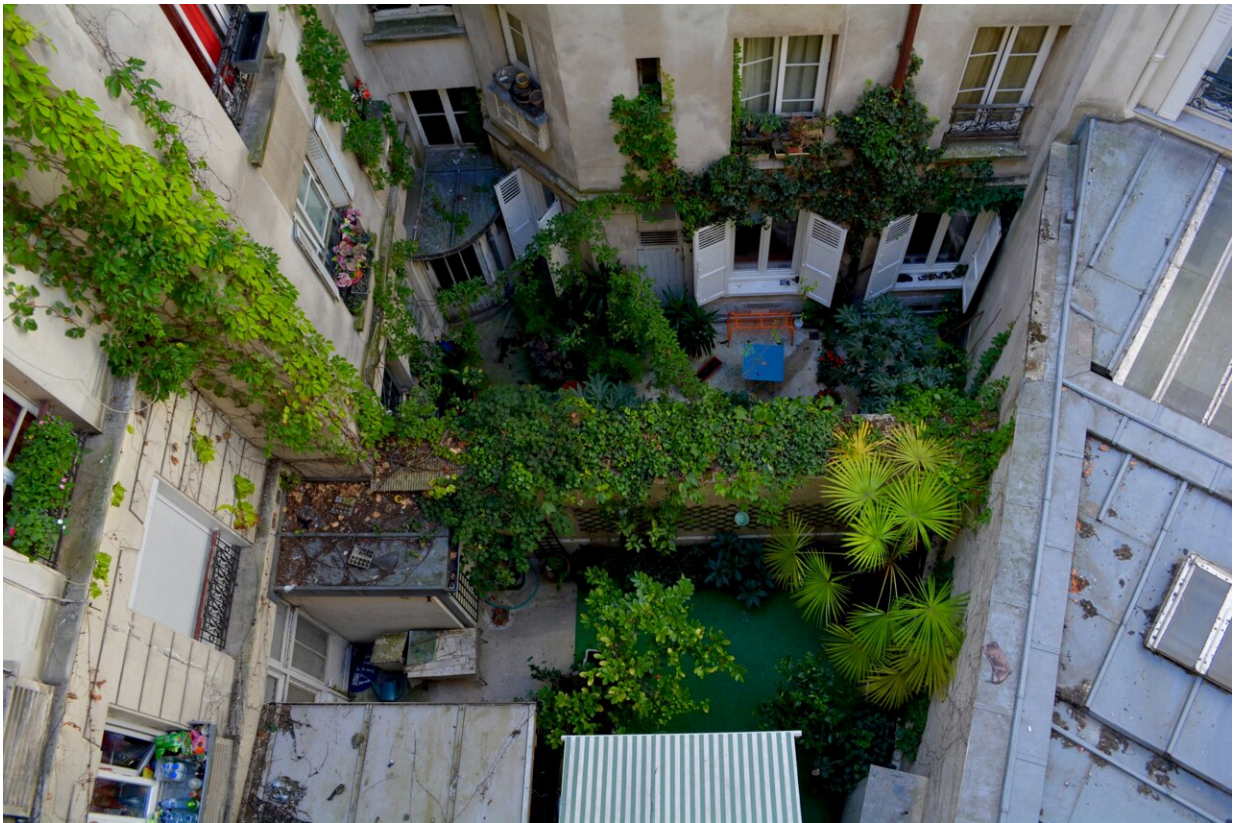


White roofs and rooftop lawns can mitigate urban heat island effect, researchers say

May 25 2022, by Zhang Nannan



Credit: Unsplash/CC0 Public Domain

Alleviating the urban heat-island effect through regulating urban landscape can improve human thermal comfort and living environment in urban residential areas. However, most previous studies focused on

the single environmental factor of temperature, ignoring the actual human feeling of thermal comfort, which is affected not only by temperature, but also by humidity, wind speed, and radiation, etc.

Dr. Li Huidong from the Institute of Applied Ecology of the Chinese Academy of Sciences (CAS), together with Dr. Wang Xun from the Free University of Berlin, has recently conducted a study that integrated multiple environmental elements as an indicator of [urban landscape](#) regulation efficiency.

The researchers evaluated the effectiveness of two schemes for mitigating heat-island effect and improving human thermal comfort, the "[white roofs](#)" (roofs with high albedo) and the "[green roofs](#)" (roofs with lawn), as well as their underlying mechanisms.

They found that both the "white" and "green" roofs can effectively reduce the intensity of heat-island effect by lowering [wind speed](#) and reducing radiation temperature, and thereby improve human thermal comfort.

In addition, the researchers revealed two measures that can effectively enhance the cooling effect of roofs: roof sweeping and greening. The two measures can increase albedo and irrigation, respectively. Therefore, it is important to undertake these measures in urban residential areas to improve the thermal comfort of humans, according to the researchers.

These results will benefit urban planning and the management of urban heat-island effect in particular.

This study has been published in *Building and Environment*.

More information: Xun Wang et al, The effectiveness of cool and green roofs in mitigating urban heat island and improving human

thermal comfort, *Building and Environment* (2022). DOI: [10.1016/j.buildenv.2022.109082](https://doi.org/10.1016/j.buildenv.2022.109082)

Provided by Chinese Academy of Sciences

Citation: White roofs and rooftop lawns can mitigate urban heat island effect, researchers say (2022, May 25) retrieved 15 June 2024 from <https://phys.org/news/2022-05-white-roofs-rooftop-lawns-mitigate.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.