

Rutgers professor uses lichen to help cities go green

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In this era of environmental consciousness, many buildings are being outfitted to "go green." A Rutgers-Camden professor is taking the term quite literally.

Elizabeth Demaray, an associate professor of fine arts, is cultivating [lichen](#) on the sides of New York City skyscrapers to counteract the lack of native vegetation found in the city. Her "Lichen for Skyscrapers Project" was featured as part of New York's Art in Odd Places Festival from Oct. 1-10 and is currently on view as a site-specific installation on 14th Street between Union Square Park and the Hudson River.

"Metropolitan centers figure into local temperatures in an interesting way," Demaray says. "They are sometimes referred to as 'urban heat islands' because they create heat and they trap heat. A large part of this process is due to the materials that we build with and the actual architecture of the buildings that we create."

Demaray says one of the ways to reduce heat in these cities is to cultivate lichen, which forms a protective barrier, insulating its supporting building from harmful elements. It can lower cumulative temperatures by absorbing sunlight and reflecting heat due to its light color palette while making oxygen and creating green space on the sides of buildings.

A versatile combination of fungi and algae, lichen does not have roots and grows vertically on porous surfaces. It thrives at high altitudes, where it is often the only form of vegetation and can withstand extreme periods of draught by absorbing water out of the air.

Demaray "plants" the lichen by painting lichen slurry, a watery mixture, on the sides of the buildings in patterned, geometric shapes. These plantings allow viewers to watch the organic lines of the lichen slowly outgrow the manmade lines of

the patterns.

"A lot of my work sort of deals with American culture in one way or another and a number of the pieces often end up in the category of art and science collaboration," Demaray says. "I had actually worked with lichen before, covering unusual objects with it because I was interested in the idea that grown lichen, as a material, indicates long periods of time. Many high rises are beautiful granite and sandstone buildings and with this project, I like the idea that people who work in them can create their own lichen gardens."

One of Demaray's students actually began calling this process "lichaffiti," like graffiti, because all one needs to cultivate it is open a high rise window a few inches and apply lichen slurry on the building's exterior surface.

"If the lichen doesn't take, it will simply dry up and blow away to propagate itself in other more favorable conditions," says Demaray, who is quick to point out that the project in no way condones the planting of lichen without a building's permission.

For the Art in Odd Places Festival, Demaray planted small plots of lichen slurry and also installed mature lichen-covered plaques with the permission of several buildings in New York City. Once the slurry is spread into place, it takes about three months for the lichen to propagate.

"People of the community can now watch lichen slowly grow on these buildings," Demaray says. "A number of different buildings invited me to do larger installations of lichen and, as it stands now, there is one building on 14th Street that may have me culture lichen over its entire surface starting from the top and then slowly growing it all the way down to the ground."

Natalie Howe, a graduate student studying ecology and evolution at Rutgers - New Brunswick who is

also taking courses at Rutgers - Camden, is working with Demaray to identify lichen thriving in urban environments.

"A lot of times when people think of nature in the city, they think of lovely but very carefully managed and maintained landscapes," says Howe, a Highland Park resident. "But I think Elizabeth's project is different in that it encourages people to make their own natural areas that they can enjoy right on the windowsills and curbs of their homes and workplaces."

Provided by Rutgers University

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