

# Connecting global warming and health

Before polar bears became global warming poster children, before almost anyone believed Venice could be submerged, before heat waves began taking regular human tolls, University of Wisconsin-Madison Professor Jonathan Patz, MD, MPH, saw that climate change wrapped major threats to human existence in one, very big package.

In the early 1990s, Patz saw that climate change would be a linchpin public health issue, encompassing the population explosion, per capita consumption of resources, pollution, environmental degradation and increasing ecosystem instability. "Each has diverse and broad-reaching human health implications," Patz said. "I, therefore, intentionally dove into this issue suspecting it to be one of the greatest health issues of our time."

Time, it turns out, is proving Patz right, and, in 2007, he shared the Nobel Peace Prize with the Intergovernmental Panel on Climate Change and former Vice President Al Gore. His work continues at the University, where he holds dual appointments in the Center for Sustainability and the Global Environment (SAGE), a part of the Nelson Institute for Environmental Studies, and the School of Medicine and Public Health's Department of Population Health Sciences. He also is an adjunct professor in the Johns Hopkins Bloomberg School of Public Health and an affiliate scientist of the National Center for Atmospheric Research.

Health is more than the absence of disease or infirmity, Patz said, so energy, transportation and agricultural policy are all health policy. Human well being, including mental health and a love of life, depends on the health of the planet. The conditions that lead to disease often are linked to changes in watersheds, forests, biodiversity or climate.



Jonathan Patz

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Identifying those factors can lead to true prevention, he said.

"There's a gap between environmental work and health effects," he said. "There's a lot of work to be done."

Patz works in the gap, always looking for sustainability. "Sustainable health means health for today's generation without sacrificing the resources for future generations to achieve the same levels of health," he said. "If we are using up natural resources at an unsustainable rate, that's not going to bode well for the health of future generations, and it's not ethical."

Patz's work began outdoors. When he was a wildlife biology undergraduate, Patz spent time working with pesticides and thinning egg shells and climbing Colorado cliffs to save peregrine falcons from extinction. He went to medical school (and trained in family medicine) because he loved biology. He was finishing a master's degree in public health at Johns Hopkins University when he realized the importance of looking further "upstream" to

prevent diseases and wrote one of the first review papers on the then obscure topic of the health effects of climate change.

A second residency in occupational and environmental medicine at Johns Hopkins gave him the chance to arrange strategic rotations at the World Health Organization, followed by the U.S. Environmental Protection Agency (EPA). “Health was not on the table in the climate change story,” he said. Making his concern known to the EPA, Patz landed a career-changing grant and the opportunity to develop a new research area specifically dealing with the human health implications of global climate change.

While Patz maintains his medical board certification, he devotes all of his time to population health. He’s served as a co-editor of the first textbook on ecosystem change and public health, convening lead author for the United Nations/World Bank Millennium Ecosystem Assessment and lead author on several United Nations Intergovernmental Panel on Climate Change reports.

Patz connects land use, wildlife, water availability, energy use and global warming to health, SAGE Director Tracey Holloway said. He’s an important link on campus as director of the University-wide initiative on Global Environmental Health. “And he’s the nicest guy,” she said. “Maybe one of his secrets to success is everybody enjoys working with him.”

This is a man who rides his bike to work, even in the coldest weather, because he figures no one would let him get away with less – and he truly believes there’s a three-fold benefit in less local pollution, no carbon dioxide production and personal fitness. The surprise may be the lack of panic. This unassuming, friendly guy in a thick, wooly sweater offers a cup of steaming mango tea to a visitor in his dated Enzyme Building office. Piles of paper cover every horizontal surface. An original oil painting of the once endangered peregrine falcon by Seattle artist Ed Newbold hangs behind the desk, another reminder of the link between ecology and human health.

Looking beyond melting ice caps, increasing temperatures and shrinking rain forests, Patz also sees ethical questions about first-world consumption. “Those most

vulnerable to the risks are also the least responsible for causing the problem,” he said.

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A recent \$240,000 gift from a donor who wishes to remain anonymous will help Patz delve further into healthy urban design and the health tradeoffs from alternative energy. Philanthropy allows Patz to initiate new research immediately, Holloway said. Often, researchers wait two years from the time they have an idea and submit a proposal until they can start work funded by a government grant. “Two years might be too long to wait,” she said.

How cities are built is extremely important to health, especially obesity and diabetes, Patz said. He would like to look at health impact assessments and benefit analyses of changing urban design. He also would like to build on his work about climate change and health and look more closely at the link between health and energy policy.

“The world has woken up to the fact that global warming is both real and potentially dangerous ... and we recognize the urgent need to end our addiction to fossil fuels,” he said. “What are the potential tradeoffs of changing our energy system?” Corn ethanol carries a steep price in energy, fertilizer and particulate pollution. If rainforests are cut to grow biofuels, the land is degraded and centuries of carbon are lost. Acres dedicated to ethanol also do not produce food.

One of his recent students, a Native American, taught Patz the traditional philosophy in which all policy is planned for seven generations. “We need to do that,” Patz said. “We may be living high on the hog right now, but at what expense to those who follow us?” The new gift specifically targets sustainable public health, he said. “It is a timely infusion of resources that will help us meet this challenge.”

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FOR YOUR INFORMATION

To learn more about Dr. Patz’s work on climate change and its implications, visit [www.sage.wisc.edu/people/patz/patz.html](http://www.sage.wisc.edu/people/patz/patz.html).