

# Add super poison ivy to the rash of likely global warming woes

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WOODS HOLE - The adage "leaves of three; let it be" might become increasingly harder to live by if, as one scientist suggests, global warming produces more abundant and more potent poison ivy.



■ Add super poison ivy to the rash of likely global warming woes  
(Staff photo by Steve Heaslip)

A study published last month by Jacqueline E. Mohan, a postdoctoral scientist at the Marine Biological Laboratory Ecosystems Center, found that plants exposed to increased levels of carbon dioxide grew 149 percent faster than plants exposed to current atmospheric CO<sub>2</sub> levels.

Furthermore, the plants exposed to increased CO<sub>2</sub> produced a more powerful form of urushiol, the oily substance in poison ivy that causes irritation.

Mohan's findings were published in the Proceedings of the National Academy of Sciences, the academy's scholarly journal.

Poison ivy ranks among the most medically

problematic plants in the United States. Approximately 80 percent of people develop blisters, rashes and bubbles on their skin after coming in contact with the plant. In extreme cases, excessive fluid that can develop with a rash may need to be drained by a doctor.

Urushiol can also cause serious internal irritation if smoke from a burning plant is inhaled.

## A forest laboratory

Mohan's study was part of the Duke University Free-Air CO<sub>2</sub> Enrichment Experiment. Her portion of the study took place over six years and is unique because the experiments were conducted in a North Carolina forest instead of a laboratory, she said.

She set up six circular plots, each about 100 feet in diameter. Three plots served as the control areas, receiving the average level of carbon dioxide, which was 370 parts per million (ppm) in 1996, when the experiment began.

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**Approximately 80 percent of humans develop irritation after exposure to poison ivy.**

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■ Urushiol, the chemical in poison ivy that causes irritation, can stay active on any surface from one to five years.

■ Direct contact with urushiol is necessary to contract a rash, so stay away from the plant itself, forest fires, direct burning and items that can cause the oil to become airborne such as a lawn mower or trimmer, which can cause internal irritation.

■ While poison ivy and poison oak have three leaves per cluster, poison sumac can have up to 13 leaves on a branch

■ Although many people think rubbing the rashes spreads the poison ivy to other parts of the body, it is spread only if the urushiol oil is still on your hands.

■ If you contract poison ivy, immediately wash your hands thoroughly with soap and set aside anything you have touched since contracting the rash. Wash all

For the remaining plots, Mohan set up large PVC pipes that blew air containing 570 ppm of carbon dioxide on the plants there. That level, she said, represents what the level of carbon dioxide will be in approximately 50 years if global warming continues on its current pace.

clothes that may be affected. If the rash continues, try one of hundreds of lotions or medicines at drugstores.

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After six years of monitoring, Mohan said, the control plots showed a 31 percent increase in growth, while the plots subjected to the increased carbon dioxide had an unprecedented 149 percent increase.

Although both sets of plants produced the same amount of urushiol, the increase in carbon dioxide created a more noxious form of the irritant, Mohan said.

"The poison ivy is not only becoming more abundant, it's getting more poisonous," she said.

Dr. Daniel W. Shaw, associate clinical professor of Dermatology at the University of California at San Diego, said the combination of more plants and more potent oil makes for increased discomfort among those exposed.

"Even with the same amount of poison ivy contact, this will likely cause more intense skin reactions from poison ivy than are currently seen," Shaw said.

Shaw expressed confidence in Mohan's findings, but admitted absolute proof can come only after human test subjects receive poison ivy extracts from both current and elevated carbon dioxide conditions.

### **Stranglehold on saplings**

Natural global warming occurs when carbon dioxide and other gases produced in biological processes such as photosynthesis warm the planet by trapping solar heat in the Earth's atmosphere. However, when fossil fuels such as coal, gas and oil are burned, the carbon dioxide level increases and temperatures begin rising too rapidly.

Although Mohan is concerned about a more toxic breed of poison ivy under increased CO2 conditions, she is more worried about the negative effect poison ivy, and vines similar to it, will have on the forest as a whole.

Poison ivy is considered a woody vine and is part of a family of plants that can grow up trees and eventually suffocate them. Although fully grown trees are in danger, the real problem occurs when vines put a stranglehold on young trees.

Juvenile trees, or "forests of the future," as Mohan calls them, are being taken over by vines like poison ivy. With tree regeneration stymied, entire ecosystems could be adversely affected.

### **Everyday changes**

Dr. David L. Katz, an associate professor of public health at Yale University, said several aspects of Mohan's findings are troubling. Although he is not an ecologist nor an expert on poison ivy, he said the research conclusions hint at vast environmental changes on the horizon.

Most people he has spoken with think of receding glaciers, not the effects on everyday life, when global warming is mentioned.

In addition to a more potent breed of poison ivy becoming a public health nuisance, Katz said a change in plants could affect the animals that feed on the vegetation, either accelerating extinction rates or causing overpopulation.

"Suddenly you find yourself colliding headlong into issues of the balance of complex ecological issues, and we're a part of that," Katz said. "This study is a testimony to the scope of changes we're going to start seeing very soon."

Even after publishing her results, Mohan knows not all scientists believe global warming is a crisis deserving immediate attention. She notes that some studies aiming to downplay human responsibility for global warming are funded by fossil fuel companies or lobbyist groups rather than competitive grants.

### **Addicted to oil**

The Bush administration has maintained the threat from global warming is not severe enough to warrant new pollution controls that would put millions of Americans out of work. But President Bush also says the country is addicted to oil and must develop alternative energy sources.

Mohan's study was funded in part by the U.S. Department of Energy and the National Science Foundation, but she said she and her husband also spent their own money to complete the experiment.

"Good science takes a long time, because it's like building a pyramid in that you have to make sure every brick does not have a crack." Mohan said. "The guys getting money from the fossil fuel agencies have a very different outlook than the scientist who is simply trying to get us all closer to the truth."

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