

Snakebite study in Costa Rica raises new worries about climate change

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Biologist Rodrigo Aymerich prepares a Velvet Killer (*Bothrops asper*) to extract its venom at the Clodomiro Picado Institute in San Jose, Costa Rica, June 6, 2003. Photo: AP Photo/Mariano Matamoros

Climate change might have a nasty bite. A new study on snakebites in Costa Rica has found that more people are bitten by snakes during the El Nino weather pattern. There are more snakebites in both the hot and cold parts of El Nino, the study said. It also said that the problem is more likely to affect poor, rural populations.

El Nino is a weather pattern where temperatures change very quickly. It can cause unusually warm weather.

Snakebites And Climate

The findings of the study were reported in the journal *Science Advances*. They reveal another result of the effects of climate change. The study shows both effects on animal populations and the way climate change affects human disease for people with different amounts of money.

Climate change is typically seen as the heating up of the Earth. Some people think that climate change could lead to rising sea levels. And climate change may unexpectedly affect ecology and human health. Research already shows that climate change alters the ways diseases are spread. However, the researchers for this report wanted to focus on another problem: snakebites.

“Snakebites,” said lead author Luis Fernando Chaves, “don’t get the attention they deserve, even though they are a major problem.” Chaves is an ecologist at the Nagasaki University Institute of Tropical Medicine in Japan.

Cold Blooded And Dangerous

Snakebites affect 2.5 million people around the world annually. Of those, 400,000 suffer serious medical problems such as nerve damage or needing to have a body part removed. Around 85,000 of the people bitten will die.

Snakes are ectothermic, or coldblooded. They rely on the environment to regulate their body temperature. This means their behavior might be highly influenced by the changing weather patterns induced by climate change.

The authors said that poisoning from snakebite might be a tropical disease that does not get enough attention.

The scientists focused on Costa Rica for several reasons. One is that the Central American country has a health care system that is run by the government. Snakebites there are more likely to be reported because doctors have to report them. Most snakebites in Costa Rica also come from a particular species of snake, the terciopelo *Bothrops asper*.

The El Nino Effect

Finally, Costa Rica is in just the right spot to experience some serious weather pattern changes thanks to a phenomenon known as El Nino Southern Oscillation. This causes quickly changing weather in the tropical eastern Pacific Ocean.

From 2005 through 2013, 6,424 snakebites were reported in Costa Rica. The scientists found that the rate of snakebites surged during the phase of El Nino where the weather is warm. This is probably because snakes become more active and might wander farther as it gets warmer, perhaps running into humans in the process.

However, scientists were surprised that the rate of snakebites also rose around the phase of El Nino where the weather became colder. The reason could be that snakes have to venture farther out of their comfort zone in search of food.

Poisoning The Poor

This snakebite increase seems more likely to affect people living in poor, rural areas, Chaves said.

“So this raises the question of, OK, what do you do to decrease the risk of the people that are worse off economically,” Chaves said.

“Can it reduce the gap between the rich and the poor?”

In any case, more research needs to be done on the rates of snakebites and their relationship with poverty and climate change, the study authors said.