The New York Times | https://nyti.ms/2VgKxhz

Animal Viruses Are Jumping to Humans. Forest Loss Makes It Easier.

By Catrin Einhorn

April 9, 2020 Updated 11:49 a.m. ET

The destruction of forests into fragmented patches is increasing the likelihood that viruses and other pathogens will jump from wild animals to humans, according to a study from Stanford University published this month.

The research, which focused on contact between humans and primates in western Uganda, holds lessons for a world reeling from the coronavirus outbreak and searching for strategies to prevent the next global pandemic.

“Covid has taught us that once a pandemic starts, it’s very hard to control,” said Laura Bloomfield, a doctoral candidate at Stanford and the study’s lead author. “If we can decrease the potential for people to come into contact with wild animals, that is one way to decrease the likelihood of having recurrent pandemics.”

In Uganda, a rapidly growing population means more people are carving out patches of forest land to feed their families.

Humans have already claimed more than a third of the Earth's land for agricultural use. Tropical forests are being destroyed at record or near-record rates every year. In places like the Amazon and Indonesia, for instance, virgin rain forest is being burned to farm commodities like soy, palm oil and cattle. Recently, deforestation in the Brazilian Amazon has risen sharply under the government of President Jair Bolsonaro.

Eric Lambin, a professor of Earth system science at Stanford and one of the study's co-authors, said that the United States has its own example of an animal-borne disease linked to patchwork woodlands close to suburban and rural communities: Lyme disease, which spreads from wildlife to humans by ticks.

"We see the animals as infecting us, but the picture that's coming from the study and other studies is we really go to the animals," said Dr. Lambin. "We intrude on their habitats."

In Uganda, researchers combined satellite data with face-to-face surveys of more than 900 people near Kibale National Park, analyzing the geographic factors and behavioral traits that led to increased physical interactions between humans and wild primates.

Among the human-primate contacts recorded: A boy digging in his family's garden was bitten by a black-and-white colobus monkey. A young man foraging for timber in the forest tried to free a l'Hoest's monkey from his dog's jaws. A woman found a dead vervet monkey in her corn crops and cleared its body away.

Each of these interactions offered viruses an invitation to jump from wild primates to humans.

While the researchers expected to see the highest contact near the most robust habitat and densest primate populations, they found the opposite: Dwindling islands of forest, left as people moved in around wild primates, led to more interactions between humans and primates. People ventured into the forest in search of wood for construction or food, and monkeys and chimpanzees ventured out to feast on crops.

"They were able to measure it explicitly, which was great," said Sadie J. Ryan, an associate professor of medical geography at the University of Florida who did not participate in the Stanford study.

Large, healthy and diverse habitats with fewer borders on human populations would help, the researchers said, coupled with economic development so that families would not have to take over forest land for subsistence farming.

Another study this month, published in Proceedings of the Royal Society B, took a broader look at zoonotic diseases and supported the idea that disease spillover was connected to the likelihood of human-animal interactions.

Infectious diseases have been plaguing poor and marginalized people for a long time, Ms. Bloomfield said. “It is a shame it took such a devastating disease for the public to finally take notice.”