

EVOTIS DISPATCHES - Volume 1 'Wings'

The Fruit Bats of Kathmandu.

By Nigel Walker

<http://www.evotis.org/fruit-bats-kathmandu>

For thousands of Kathmandu residents, navigating rush hour traffic is a daily headache. For research scientist Priya Joshi, it's just another day at the office.

Joshi leads a team of Nepalese field scientists who have been tasked with sampling bat droppings from overcrowded Kathmandu's busiest intersection in the Lazimpat neighborhood. Joshi and her team recently identified the site after scouting the entire city for an ideal location.

"The fruit bats have been hanging out in the trees in Lazimpat for as long as I can remember," said Joshi, who has lived in Kathmandu her entire life. "There are other bat sites around the city, but the challenge is to find one where we can get good samples. On these streets you have people walking directly under the bats exposing them to the droppings."

Joshi's field team installs tarps directly under the trees to collect the bat droppings for a 6-hour period. The droppings will be processed and analyzed for a variety of diseases.

The work is part of the Emerging Pandemic Threat Program's **PREDICT** project, a U.S. Agency for International Development (USAID) funded effort that seeks to identify and respond to new zoonotic diseases before they spill over to humans.

Zoonotic diseases – those that can be transmitted between animals and humans – represent approximately 75 percent of the newly emerging diseases currently affecting people. With globalization and increased trade and travel, these diseases can travel very quickly.

The EPT program consists of four projects: PREDICT, PREVENT, IDENTIFY, and RESPOND.

The PREDICT project seeks to identify new emerging infectious diseases that could become a threat to human health. All over the world, teams like Joshi's work in geographic 'hotspots' and focus on wildlife that are most likely to carry zoonotic diseases, such as bats, rodents, and nonhuman primates.

After the samples are collected they are analyzed in a lab to look for evidence of disease. The findings are compiled in a database that experts use to create predictive maps of potential disease outbreaks. This approach not only allows researchers to find new diseases, but also helps communities prepare for, and respond to, the threat of an outbreak.

In August health officials confirmed that bats in Saudi Arabia were the source of a virus that killed 47 people. The outbreak of Middle East Respiratory Syndrome, or MERS, has been going on for more than a year, with most victims falling ill in Saudi Arabia and others growing sick after having traveled to the Middle East.

Researchers in Saudi Arabia found coronavirus in their samples, a virus related to MERS, but this alone doesn't explain how the virus leaps to humans. Bats do not typically bite people, salivate on fruit or do other things that might transmit the disease to people.

Dr. Jonathan H. Epstein, a veterinarian with [EcoHealth Alliance](#) who helped trap the bats, suggests direct exposure to the bat droppings could be the problem. People could breathe in the virus through dried bat droppings similar to the way people contract hantavirus from dried mouse droppings in America, he told the New York Times.

"In just a few years of our studies in only 20 countries, we've already identified over 250 new viruses in wildlife and a large percentage of these are new coronaviruses from bats," added Dr. Jonna Mazet, Director of PREDICT.

Joshi's team will be sampling all over the city and surrounding areas for the next year. The PREDICT project has brought a lot of opportunity to Nepalese scientists who have recently returned home after the civil war.

"I desperately wanted to help my country and put my education to good use," Joshi said. "Now we finally have an opportunity to be an important part of this global research."