

## Bats suspected in disease outbreak

Leslie Bienen

An outbreak of human encephalitis in February 2004 in Bangladesh has so far caused 17 deaths. The US Centers for Disease Control (Atlanta, GA) has confirmed that these and 22 non-fatal cases were caused by a virus of the genus *Henipavirus*. All past outbreaks of these viruses have been linked to flying foxes (genus *Pteropus*). The virus behind the latest Bangladesh outbreak may be a new member of this genus, as epidemiologically it behaves differently than other known species of *Henipavirus*. The World Health Organization is still investigating the Bangladesh events, but the assumption is that flying foxes are the natural host. The worst *Henipavirus* outbreak to date was of Nipah virus, which killed 105 people in Malaysia between 1998 and 1999, and involved pigs as amplifier hosts. Spillovers of related viruses have occurred in Australia, India, and previously in Bangladesh.

Peter Daszak of the Consortium for Conservation Medicine (CCM) at Wildlife Trust (Palisades, NY) is spearheading an international team of researchers that are studying the epi-



Courtesy of R Plowright

Little red flying fox, Chillagoe, Australia.

demology of these viruses in the context of flying fox ecology. With the emergence of four new viruses between 1993 and 1997, flying foxes acquired the dubious distinction of hosting the most new viruses isolated from a single genus in such a short time.

The researchers are trying to untangle the elements, many of them probably anthropogenic, that drive disease spillovers from flying foxes to humans. “Flying foxes are not new, nor are

their viruses new”, points out Hume Field (Department of Primary Industries, Brisbane, Australia). “What has changed are the ecological dynamics. We’re looking at global climate change, introduction of livestock into forested areas, flying fox distribution and migration, habitat loss, and anything else we think may be driving disease emergence.” Understanding how such factors have affected pathogen dynamics in bats is vital to the researchers’ efforts. “Figuring out how the virus spreads from bat to bat is crucial to determining how it is transmitted from bats to humans”, emphasizes Raina Plowright (University of California, Davis, CA).

The theory that some *Henipavirus* could be spread from bat to bat by the tick *Ixodes holocyclus*, which parasitized flying foxes relatively recently, has been postulated, but the CCM researchers believe that viral transmission occurs directly via bodily fluids. “Clearly, much more investigation into the spread of these viruses is needed”, says Daszak. “The new challenge for global health is to understand the connections between landscape changes, flying fox ecology, and virology, and the unprecedented increase in emerging viruses suggests we need to do this fast.” ■

## Europe’s polluters “outed”

Martina Habeck

The European Commission has launched a website that features information on 50 air and water pollutants emitted by almost 10 000 of Europe’s largest industrial facilities. “It empowers citizens and local communities”, says Tony Carritt at the European Environment Agency (EEA) (Copenhagen, Denmark), which hosts the website, launched in February 2004. He anticipates that citizens and environmental groups will use the information to put pressure on companies to clean up.

Similar publicly available pollutant registers already exist in the US (the Toxics Release Inventory) and in England and Wales (the Pollution Inventory). The inventories are

mainly used by NGOs to campaign for a cleaner environment. For example, Friends of the Earth (FOE) used raw data from the Pollution Inventory to collate league tables of factories that emit cancer-causing gases. As a result of their campaign, emissions fell by 48% between 1998 and 2002.

The new European Pollutant Emission Register (EPER) ([www.eper.cec.eu.int](http://www.eper.cec.eu.int)) contains information on emissions in 2001 from the 15 EU member states and Norway. Two years from now, it will be updated with emissions data from 2004 and will then also include information from the 10 EU accession countries. Eventually, the register will be updated annually.

“This is a good first step”, says FOE’s safer chemicals campaigner Mary Taylor, “but it is pretty limited in its

scope”. She points out that the list of chemicals is short (the US inventory covers 650 pollutants). The site also lacks information on the production levels of specific companies; as a result, it is impossible to judge which are the cleanest, most efficient industries. Taylor says FOE will wait for more detailed analyses of the data until their quality has been confirmed – an EC review looking at the completeness and quality of the data is due this summer.

Despite some teething problems, the EPER website is already a success. Ironically, EEA had to temporarily shut down a service that allows users to search the database by clicking on a map. “Too many people were asking for it at the same time, and our servers were not able to keep up with the demand”, explains Carritt. ■