

Investigating Monkeypox in the Wild

A recent monkeypox outbreak in pet prairie dogs led to the first recorded human case of the disease in the U.S. The outbreak has USGS scientists concerned the disease may spread to wild rodent populations.



Most human monkeypox cases were traced back to pet prairie dogs

Monkeypox is a contagious orthopox virus related to smallpox. Its arrival in the U.S. from Africa in the Spring of 2003 prompted the U.S. Geological Survey (USGS) to launch a study to determine if the disease infected wildlife populations.

USGS wildlife scientists became concerned the virus may have spread from infected pets or humans to wild animals. If monkeypox were to escape into the wild, it could potentially find a reservoir in mice, squirrels, or other rodent populations.

USGS researchers, together with U.S. Department of Agriculture (USDA) Wildlife Services in Wisconsin and Illinois as well as the Wisconsin Laboratory of Hygiene, investigated wild populations of rodents in areas where cases of monkeypox were reported. In 9 Wisconsin and Illinois locations, scientists trapped 237 animals, representing 14 species, and tested them for monkeypox virus and monkeypox virus specific antibodies; all were negative.



Photo courtesy CDC

Monkeypox lesions on a child's hand and leg in Liberia

Monkeypox Background

Monkeypox is a disease native to Africa that affects rodents such as squirrels and mice, but other species are also susceptible, including a wide variety of primates. The outbreak in 2003 marks the first time it was found in non-primate species in North America.

Monkeypox is a zoonotic disease, meaning humans can become infected from an animal carrier. In Africa, monkeypox is endemic, outbreaks occur sporadically, and human-to-human transmission of the virus is documented. No reliable evidence exists to support human-to-human transmission of the virus in the U.S. Researchers believe monkeypox spreads through bites from infected carriers or contact with a carrier's blood and skin lesions, and that interhuman transmission of the monkeypox virus is relatively inefficient.

Currently no specific treatment for monkeypox exists. However, the smallpox vaccine can effectively prevent contraction of the disease. The Centers for Disease Control and Prevention (CDC) recommends smallpox immunization for health care workers in close contact with the virus.

The CDC reported over 80 suspected human monkeypox cases under investigation in 6 different states the first month the outbreak was discovered in the U.S. In July 2003, the CDC released its final monkeypox case report, in which it stated that 37 of all suspected monkeypox cases were laboratory confirmed. No human monkeypox fatalities were recorded in the U.S. Symptoms of monkeypox are similar to those of smallpox, though less severe,

and include swollen lymph nodes, fever, sore throat, chills, blisters, and skin lesions. Animals suspected of being infected should be quarantined immediately and local health officials should be contacted.

The disease appears to have first come to the U.S. through infected Gambian giant rats from Africa that were housed together with several prairie dogs. The prairie dogs were then sold or traded as pets throughout the Midwest. However, the CDC has stated that any one of nearly 300 animals from 9 different species may be responsible for the outbreak.

The CDC issued an embargo on importing African rodents, as well as the transportation, sale, or trade of prairie dogs and certain African rodents within the U.S. The agency also instructed that all of the animals on the original import shipment—over 750 animals—be destroyed, and their premises disinfected to prevent the disease from developing in wild rodents.

Additional information can be found at the Centers for Disease Control at <http://www.cdc.gov>

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