



Research to **protect, treat & cure** animals.  
100% of donations fund animal health.

## Mysterious monkey deaths lead to valuable disease information

By Heidi Jeter

In 2002, serious illness in a young siamang (ape) at the Metro Zoo in Miami followed by the death of a gibbon at the zoo, and similar primate deaths at the nearby Monkey Jungle facility began raising red flags. At first glance, the cases appeared unrelated – one was the result of parasitic inflammation in the intestines, the other a neurologic condition caused by a parasite. Further evaluation showed that both diseases were caused by similar species of a parasite called *Parastrongylus*.



Christine Miller, a clinical veterinarian at Metro Zoo, immediately began investigating the problem. She sent samples of the infected tissues to Michael Kinsella (a parasitologist with expert knowledge of parasites in Florida wildlife) and Michael Duffy, a parasitologist at the University of New Brunswick, who identified *Parastrongylus cantonensis*, which causes neurological problems, and *Parastrongylus costaricensis*, which causes intestinal disease. Both are known to be spread by rats and neither was thought to exist in Florida. The deaths immediately raised concern about the unknown prevalence of these parasites, which can cause serious disease in many species.

Drs. Miller and Duffy applied for Morris Animal Foundation funding to study the issue. What they soon learned was alarming. Not only did they identify both of the parasites in the area's rat populations, they also learned that opossums and raccoons had high rates of *P. costaricensis* infection.

"The typical host is the cotton rat, so to find this parasite in raccoons and opossums raised all sorts of questions," Dr. Miller says. "The range for raccoons and opossums is far greater in the United States than that of cotton rats, so they could more easily spread the disease."

The Florida public health department was notified because this parasite can cause disease in people, particularly children, and many animal species. It's also difficult to detect if medical staff aren't looking for it, so raising awareness was a primary concern.

"There won't be an epidemic, but if you don't know it exists, you won't treat it," Dr. Duffy says. "If we know about it, we can probably treat it effectively."

The big challenge now is to develop a simple blood test for diagnosing infection. Currently, the only way to diagnose accurately is through surgery on the arteries. Thanks to this study, researchers are hopeful. "Based on the information we've collected, we're getting closer to a test that would diagnose disease," Dr. Duffy says.

In the meantime, veterinarians and human medical staff will have greater awareness and can treat an animal or person if infection is suspected. The surprising finding of this parasite in a new location is a good reminder that diseases continually emerge in new areas.

"This is an example of the fact that we shouldn't be secure in our knowledge of what diseases are in the United States," Dr. Miller says. "We should never let our guard down as far as new diseases go."