



## Saving turtles from extinction

study leads to better diagnostics

Despite surviving millions of years of geological change, turtles and tortoises are now suffering huge population declines due to modern-day threats like habitat destruction, pollution, commercial and sport fishing, and infectious diseases. According to Conservation International, six of Earth's seven sea turtle species are endangered and have experienced massive population declines in the last 100 years. Many land turtles and tortoises are threatened as well.

Morris Animal Foundation is committed to helping preserve the world's turtles and tortoises, also known as chelonians. We began funding research specifically for these reptiles in 2000, and we've since funded 10 studies to improve their health and survivability. A number of scientists have partnered in this mission, including Dr. Elliott Jacobson at the University of Florida. With MAF funding, Drs. Jacobson and April Johnson (a former Ph.D. student now at the Centers for Disease Control and Prevention in Atlanta) recently developed a molecular-based test for diagnosing Ranavirus in chelonians. This pathogen kills fish and amphibians and causes oral inflammation and organ lesions that can lead to death in turtles and tortoises.

Dr. Jacobson says that, in his studies, "We showed that Ranavirus can cause lesion and tissue damage in turtles. Our work conclusively demonstrated that this virus can cause disease in chelonians and is probably responsible for die-offs of box turtles in the wild."

Until his study, little was known about the prevalence of Ranavirus in chelonians, but Dr. Jacobson suspects it is more common than previously thought. His team tested many tissue samples from turtles and tortoises, including some that had died within a few-month span, and several of those species tested positive. Though Dr. Jacobson can't definitively say the virus caused their deaths, the transmission studies indicate that this was likely.

Molecular-based tests have become a powerful way to diagnose viruses in humans and other species, and Dr. Jacobson's lab has become a valuable resource for others trying to diagnose and treat infectious diseases in turtles and tortoises. He now evaluates samples from veterinarians and biologists around the country. The test can screen pet turtles and tortoises, as well as those living in zoos and aquariums. It may also lead to insights into sudden illness outbreaks and death in wild turtles and tortoises, which will help conservationists better manage threatened populations.

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