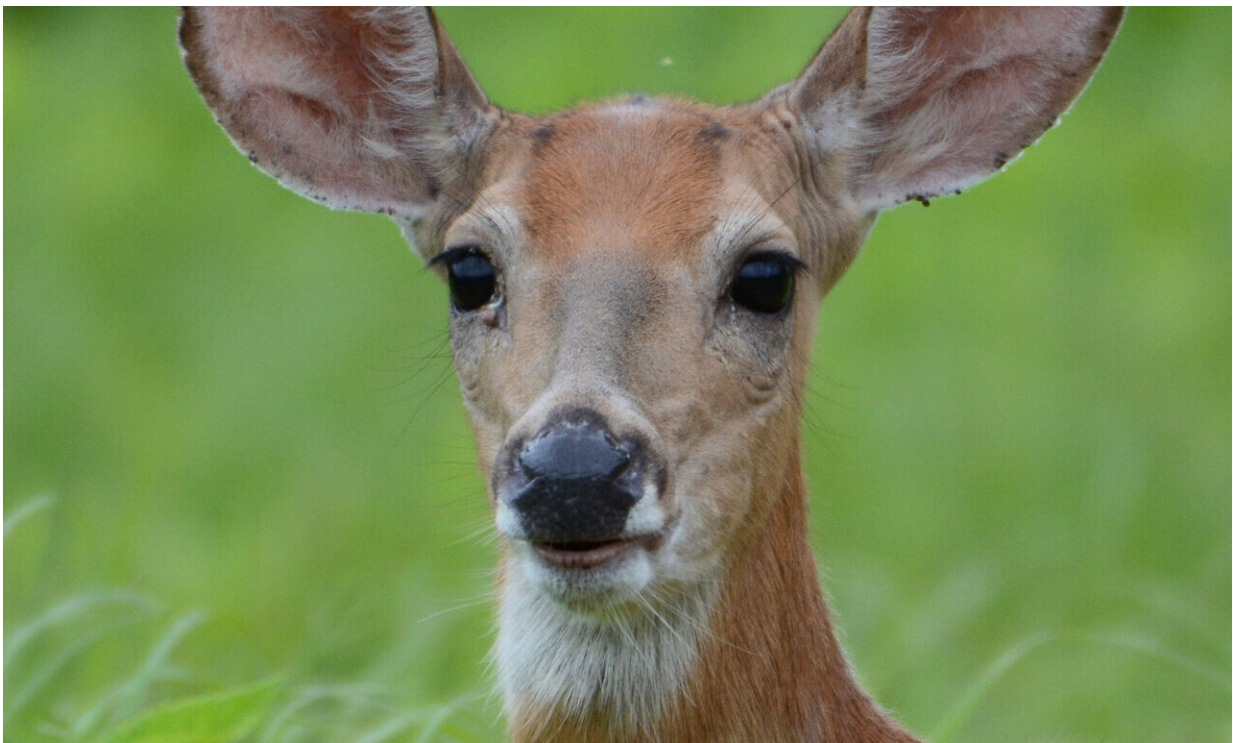


Global species study suggests warming planet will mean an increase in infectious diseases in cooler climates

November 20 2020, by Bob Yirka



White-tailed deer (*Odocoileus virginianus*), a wildlife host susceptible to chronic wasting disease. Credit: Jeremy Cohen, University of Wisconsin-Madison

A team of researchers from the University of South Florida, the University of Wisconsin–Madison and the University of Notre Dame has

found evidence suggesting that as the planet heats up due to global warming, cooler climates are likely to see increase in infectious diseases. In their paper published in the journal *Science*, the group describes their study of data for wildlife populations around the world as they experienced unusually warm or cool periods.

As the planet continues to warm due to human-produced [greenhouse gas emissions](#), scientists attempt to predict what sorts of impacts [warmer temperatures](#) might bring. In this new effort, the researchers chose to investigate how the "thermal mismatch" hypothesis might play out. The theory suggests that as species acclimated to [cooler climates](#) face warming temperatures, their risk of [infectious diseases](#) increases; similarly, as species acclimated to warmer temperatures face cooler conditions, their risk of disease also rises.

To find out if this might be the case as the future unfolds, the researchers obtained and analyzed data from 7,346 wildlife populations representing 1,381 species—from insects to large mammals. The samples include species from all of the continents and covered the past five decades. With the data in hand, the researchers focused on information that described what happened to each species during unusually warm or cool weather spells.

They found that the thermal mismatch hypothesis did appear to hold, though it was more pronounced for those creatures living in cooler climates living through warm periods than for those living in warm climates. And it was also much more pronounced in cold-blooded creatures.



Black-tailed prairie dog (*Cynomys ludovicianus*), a wildlife host susceptible to Plague. Credit: Jeremy Cohen, University of Wisconsin-Madison

The researchers then applied their findings to the future and found evidence that as the northern hemisphere warms, species living in cooler regions (such as [mountainous areas](#) or those in higher latitudes) will very likely face escalating rates of disease spread due to infections by viruses, fungi, infectious worms and bacteria. They further note that increased rates of infections by other species likely portend an increase in infections that spread from other species to humans.

More information: Jeremy M. Cohen et al. Divergent impacts of warming weather on wildlife disease risk across climates, *Science* (2020). [DOI: 10.1126/science.abb1702](https://doi.org/10.1126/science.abb1702)

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