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# The Latest Threat to Siberian Tigers: Canine Distemper

[In Wildlife](#)[Tags Cat Watch](#)

November 30, 2014

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Rare Siberian tigers face a new threat. (Photograph by John Goodrich)

### [Talking Tigers: Part 8 of a 12-part series](#)

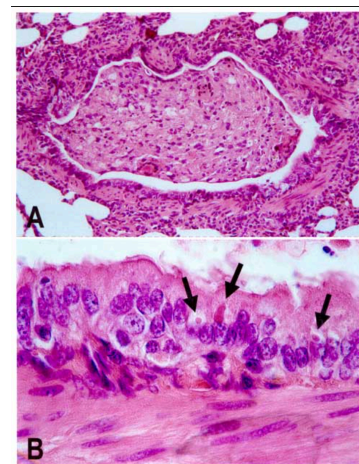
The first signs that something was wrong came in 2000. Gaunt [Siberian tigers](#) (*Panthera tigris altaica*) began wandering through villages and staggered haltingly across [roads](#) in Russia's Far East. They were dazed, hungry and boldly unafraid of humans, extremely odd behavior for this secretive, wary animal.

One of them was a skinny tigress named Galia, an animal that researchers from the [Wildlife Conservation Society](#) had outfitted with a satellite collar. After several failed attempts to capture her, she was shot by police. Her three cubs were discovered nearby, dead. She'd been too sick to hunt, and had stumbled into a town to grab a cow, a pig, a dog, any easy prey to feed her starving family. Galia was the fourth collared study animal that the biologists lost that year. All of them died under puzzling circumstances.

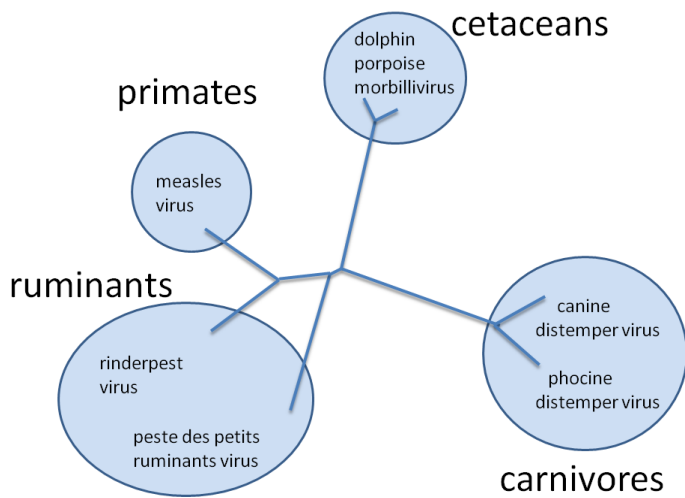
Autopsies revealed the presence of some type of [morbillivirus](#), a family of highly contagious viruses that infect people, dogs, and wildlife. (The word derives from *morbus*, meaning plague.) But it wasn't until last year that US and Russian scientists conclusively [identified](#) the culprit: [canine distemper virus](#) (CDV), a close relative of human measles.

Now, with new outbreaks biologists and wildlife managers are trying to assess the scope of the threat. The Siberian (or Amur) tiger, the largest of the big cats, is one of the six remaining tiger subspecies and one of the most [endangered](#). Somewhere between 250 and 400 are thought to still roam the lushly forested Sikhote-Alin mountains in southeast Siberia, its last real stronghold. (Current population numbers are expected in 2015 as part of a new global tiger census.)

These cats are in the emergency room, so investigating the origins and prevalence of the virus is crucial for future conservation efforts. CDV is a promiscuous pathogen that readily jumps between animal species and typically kills about half its victims. Like many viruses, it causes diarrhea, fever, dehydration, and can progress into pneumonia.



CANINE  
DISTEMPER VIRUS  
IN AN AFRICAN  
WILD DOG.  
(WIKICOMMONS)



THIS FAMILY OF VIRUS INFECTS EVERYTHING FROM GORILLAS AND HUMANS TO SEALS AND TIGERS. (WIKICOMMONS)

But it sometimes sparks more deadly symptoms in tigers that explain infected cats' uncharacteristic actions: it can cause brain swelling and neurological problems. Researchers reported that at least 1 percent of the Amur tiger population succumbed to the disease from 2009 to 2013. But even those that survive are at risk: impaired tigers that have lost their fear of humans can easily be shot by poachers or killed by locals who are concerned over safety.

The virus is suspected to have caused the deaths of thousands of Caspian seals during outbreaks in 1988 and 2000; it nearly exterminated the black-footed ferret and has decimated Africa's wild dog populations.

Researchers had long believed that cats were resistant. Although domestic cats could be infected in the laboratory, they didn't get sick or transmit the virus to others. But then, in 1994, CDV hit Serengeti lions. The epidemic took down about a third of the population, killing about nearly 1,000 animals in one deadly swoop—as well as a huge number of leopards, bat-eared foxes, and hyenas.

Amur tigers have already been brought back from the brink once. They once roamed across the entire Russian Far East, the Korean peninsula, and northern China. But by the 1940s, both they and their prey had been nearly hunted out: maybe 40 survived.



RUSSIAN HUNTERS WITH SIBERIAN TIGERS. (PHOTOGRAPH COURTESY N. NAZAROV, V. G. HEPTNER, ET AL./WIKICOMMONS)

Russia became the world's first country to fully protect tigers, and by the 1980s, the population had rebounded to about 500. That recovery, however, was short-lived. A deadly confluence of events brought a new flood of illegal hunters to the region: the Soviet Union collapsed, the Russian economy later crashed, and China's insatiable demand for tiger parts grew and tigers became a high-priced commodity. These well-armed hunters are a new breed, often linked to international crime syndicates that smuggle endangered wildlife. Tigers are the top prize, but poachers also target the tiger's prey: deer, boar, and elk, leaving them little to eat.

With sparse prey living in this northern temperate landscape, Siberian tigers need immense territories to survive; large scale illegal logging is whittling away its forest home and impacting its prey, which feed on these trees when the land is blanketed in snow. (A female needs at least 175 square miles to feed her and her cubs, drastically larger than India's Bengal tigers that need just eight square miles because food is abundant.)

At least one-third of all Russian timber exports are illegal; the US is the top importer of these hardwoods; and logging in the Amur tiger's range has more than doubled since 2000, according to a World Wildlife Fund

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WITH MINIMAL RESOURCES TO DETECT AND PROSECUTE ILLEGAL LOGGING OF MUCH SOUGHT-AFTER OF KOREAN PINE AND MONGOLIAN OAK ,

THE SHEER SCALE OF VIOLATIONS HAS REACHED EPIDEMIC PROPORTIONS—WITH TIGER HABITAT SHRINKING RAPIDLY.

(PHOTOGRAPH BY ANATOLY KABANETS / WWF-RUSSIA)

[report](#). And then there's the land that's been cleared to make way for agriculture, expanding towns, roads, mines and other development.

It's created small, isolated tiger populations that are less likely to

survive CDV, according to a [study](#) published last month in the journal *PLOS*. Using computer modeling, researchers from the Wildlife Conservation Society, University of Glasgow, and other institutions found that tigers that living in areas that held were roughly 55 percent more likely to die out within the next 50 years.

This cat still carries the legacy of their near-extinction. A genetic analysis of 95 Siberian tigers [published](#) in *Molecular Biology* found that the gene pool had constricted dramatically. So much so that one of the authors, Michael Russello of the University of British Columbia, said that the population is behaving as if it were the size of 27 to 35 individuals. Because they are such tiny populations, losing even a few animals, can further bottleneck their already low genetic diversity, making them more susceptible to disease.

"This might just be enough to push them over the edge," said University of Nottingham veterinary virologist Rachael Tarlinton.

Biologists can't stave off an epidemic if they don't know the source. Siberian tigers catch CDV when they eat infected animals, but which ones? Domestic dogs are of greatest concern, but raccoon dogs, foxes, and other local animals also harbor the disease.

If dogs are indeed the main carrier, it will require a blitzkrieg vaccination effort. Inoculating tigers with an injected vaccine is impossible.

Protecting remaining forest is another antidote, according to the authors of the *PLOS* study. "In lieu of a practical means of delivering [canine distemper virus] vaccines to wild tigers, the most viable strategy to ensure their conservation is the maintenance of large connected populations within protected areas that buffer the effects of local declines," they wrote.

The situation is quite serious, said McAloose. "It's the first infectious disease that we know is a significant risk to Amur tiger survival."



SIBERIAN TIGER CUB IN THE RUSSIAN FAR EAST.  
(PHOTOGRAPH BY DEREK RAMSEY)

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**Next up:** In part nine of the Talking Tigers series, I'll look at a new study on the tiger trade in Myanmar's border towns.



## MEET THE AUTHOR

Sharon is a National Geographic Explorer. Her work focuses on environmental issues that impact wildlife, ecosystems, and human health--with a particular focus on wildlife trafficking and environmental crime. She has written widely on big cats, pangolins, rhinos and other endangered species and has written features, essays, blogs and commentary National Geographic, The New York Times, Smithsonian, Scientific American and other outlets. Her January 2016 story for National Geographic helped close down the Thai Tiger Temple--a combination monastery and tiger tourism operation that is now under investigation for black market wildlife trade. She's worked with jaguar researchers in the Brazilian Panatanal, with park guards in India's Kaziranga National Park (the last outpost for Indian one-horned rhinos) and in tiger reserves across the subcontinent. Sharon has also written and photographed from the remote heart of Eastern Siberia (where grizzlies still thrive), Turkey's Eastern Anatolian villages, has traveled by boat to isolated river towns along Myanmar's Irrawaddy River, driven across Cuba, explored African savannas and Latin American jungles and has spent considerable time beneath the sea in various oceans. Her book, "Tigers Forever: Saving the World's Most Endangered Big Cat" is a collaboration with National Geographic photographer Steve Winter, published in 2013 by National Geographic Books. In 2006, she launched the "State of the Wild: A Global Portrait of Wildlife, Wildlands and Oceans" book series for the Wildlife Conservation Society, published by Island Press. She has co-produced short videos for National Geographic, including "Special Investigation: Famous Tiger Temple Accused of Supplying Black Market" and "Battling India's Illegal Tiger Trade." Sharon lived in Turkey for a year on a Fulbright Fellowship, is a scuba diver, and worked as a photojournalist for some years before earning her Masters degree in Journalism from New York University's Science, Health and Environmental Reporting Program, where she has also taught as adjunct assistant professor. Sharon is currently a public policy fellow at the Woodrow Wilson International Center for Scholars in Washington, DC.



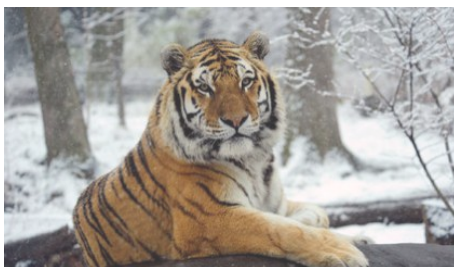
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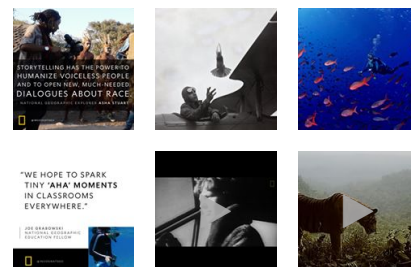
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Voices director: David Braun ([dbraun@ngs.org](mailto:dbraun@ngs.org))

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