

# Into the wild: Animals the latest frontier in COVID fight

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A wildlife team covers a young buck's head with a cloth to help calm it before testing the deer for the coronavirus and taking other biological samples in Grand Portage, Minn. on Wednesday, March 2, 2022. Scientists are concerned that the COVID-19 virus could evolve within animal populations – potentially spawning dangerous viral mutants that could jump back to people, spread among us and reignite what for now seems like a waning crisis. Credit: AP Photo/Laura Ungar

To administer this COVID test, Todd Kautz had to lie on his belly in the snow and worm his upper body into the narrow den of a hibernating black bear. Training a light on its snout, Kautz carefully slipped a long cotton swab into the bear's nostrils five times.

For postdoctoral researcher Kautz and a team of other wildlife experts, tracking the coronavirus means freezing temperatures, icy roads, trudging through deep snow and getting uncomfortably close to potentially dangerous wildlife.

They're testing bears, moose, deer and wolves on a Native American reservation in the remote north woods about 5 miles from Canada. Like researchers around the world, they are trying to figure out how, how much and where wildlife is spreading the virus.

Scientists are concerned that the virus could evolve within animal populations – potentially spawning dangerous viral mutants that could jump back to people, spread among us and reignite what for now seems to some people like a waning crisis.

The coronavirus pandemic has served as a stark and tragic example of how closely animal health and human health are linked. While the origins of the virus have not been proven, [many scientists say](#) it likely jumped from bats to humans, either directly or through another species that was being sold live in Wuhan, China.





E.J. Isaac, fish and wildlife biologist for the Grand Portage Band of Lake Superior Chippewa, places a swab into a vial after testing a young buck for the coronavirus in Grand Portage, Minn. on March 2, 2022. "If we consider that there are many species and they're all intermingling to some extent, their patterns and their movements can exponentially increase the amount of transmission that could occur," Isaac says. Credit: AP Photo/Laura Ungar

And now the virus has been confirmed in wildlife in [at least 24 U.S. states](#), including Minnesota. Recently, an [early Canadian study](#) showed someone in nearby Ontario likely contracted a highly mutated strain from a deer.

"If the virus can establish itself in a wild animal reservoir, it will always be out there with the threat to spill back into the human population," said

University of Minnesota researcher Matthew Aliota, who is working with the Grand Portage Reservation team.

E.J. Isaac, a fish and wildlife biologist for the reservation that's home to the Grand Portage Ojibwe, said he expects the stakes to get even higher with the start of spring, as bears wake from hibernation and deer and wolves roam to different regions.

"If we consider that there are many species and they're all intermingling to some extent, their patterns and their movements can exponentially increase the amount of transmission that could occur," he said.



A young buck peaks out from under a blanket while in a Clover deer trap. A wildlife team is testing the animal for the coronavirus and taking other biological samples in Grand Portage, Minn. on March 2, 2022. The COVID-19 virus has



been confirmed in wildlife in at least 24 U.S. states, including Minnesota. Recently, an early Canadian study showed someone in nearby Ontario likely contracted a highly mutated strain from a deer. Credit: AP Photo/Laura Ungar

## INTO THE WILD

Their research is meant to ward off such unwelcome surprises. But it carries its own set of risks.

Seth Moore, who directs the reservation biology and environment department, recently almost got bitten by a wolf.

And they sometimes team with a crew from the Texas-based company Heliwild to capture animals from the air. One chilly late-winter afternoon, the men climbed into a small helicopter with no side doors that lifted above the treetops. Flying low, they quickly spotted a deer in a forest clearing. They targeted the animal from the air with a net gun and dropped Moore off.

Wind whipped at his face as he worked in deep snow to quickly swab the deer's nose for COVID, put on a tracking collar and collect blood and other biological samples for different research.

The men capture moose in much the same way, using tranquilizer darts instead of nets. They trap wolves and deer either from the air or on the ground, and trap bears on the ground.



E.J. Isaac, fish and wildlife biologist for the Grand Portage Band of Lake Superior Chippewa, swabs a young buck for the coronavirus in Grand Portage, Minn. on March 2, 2022. Isaac expects animal COVID-19 infections to increase with the start of spring, as bears wake from hibernation and deer and wolves roam to different regions. Credit: AP Photo/Laura Ungar

They knew of the young male bear they recently tested because they had already been tracking it. To get to the den, they had to take snowmobiles to the bottom of a hill then hike a narrow, winding path in snow shoes.

When Kautz crawled part-way into the den, a colleague held his feet to pull him out quickly if necessary. The team also gave the animal a drug to keep it sleeping and another later to counteract the effects of the first.



To minimize the risk of exposing animals to COVID, the men are fully vaccinated and boosted and get tested frequently.

The day after testing the bear, Isaac packed their samples to send to Aliota's lab in Saint Paul. The veterinary and biomedical researcher hopes to learn not just which animals are getting infected but also whether certain animals are acting as "bridge species" to bring it to others. Testing may later be expanded to red foxes and racoons.



E.J. Isaac, Roger Deschampe Jr., and Frank Manthey, who work in resource management for the Grand Portage Band of Lake Superior Chippewa, take biological samples from a deer they caught in a Clover trap on March 2, 2022 in Grand Portage, Minn.. These samples, including a COVID-19 test on the animal, will be sent to scientists for research. Credit: AP Photo/Emma H. Tobin

It's also possible the virus hasn't reached this remote location – yet. Since it's already circulating in the wilderness of Minnesota and nearby states, Aliota said it's only a matter of time.

## LOOKING FOR MUTANTS

Close contact between humans and animals has allowed the virus to overcome built-in barriers to spread between species.

To infect any living thing, the virus must get into its cells, which isn't always easy. Virology expert David O'Connor likens the process to opening a "lock" with the virus' spike protein "key."

"Different species have different-looking locks, and some of those locks are not going to be pickable by the key," the University of Wisconsin-Madison scientist said.

But other locks are similar enough for the virus to enter an animal's cells and make copies of itself. As it does, it can randomly mutate and still have a key that fits in the human lock. That allows it to leap back to humans through close contact with live animals, scientists believe.





A helicopter lifts off in Grand Portage, Minn., carrying Seth Moore, director of biology and environment for the Grand Portage Band of Lake Superior Chippewa, and a team from the wildlife capture company Heliwild. The team searches for deer and moose from the air as part of an effort to test wildlife for the coronavirus and take other biological samples. Tuesday, March 1, 2022.  
Credit: AP Photo/Laura Ungar

Although spillback is rare, it only takes one person to bring a mutated virus into the realm of humans.

Some think the highly mutated omicron variant emerged from an animal rather than an immune-compromised human, as many believe. Virologist Marc Johnson of the University of Missouri is one of them, and now sees animals as "a potential source of pi," the Greek letter that may be

used to designate the next dangerous coronavirus variant.

[Johnson and his colleagues found](#) strange coronavirus lineages in New York City sewage with mutations rarely seen elsewhere, which he believes came from animals, perhaps rodents.

What scientists are most concerned about is that current or future variants could establish themselves and multiply widely within a reservoir species.

One possibility: white-tailed deer. [Scientists found](#) the coronavirus in a third of deer sampled in Iowa between September 2020 and January 2021. [Others found](#) COVID-19 antibodies in a third of deer tested in Illinois, Michigan, New York and Pennsylvania. Infected deer generally have no symptoms. Testing in many other wild species has been limited or absent.





Frank Manthey follows E.J. Isaac and Roger Deschampe Jr. into the Grand Portage, Minn. woods on March 2, 2022, to check traps they set to catch deer for scientific research for the Grand Portage Band of Lake Superior Chippewa. One of the samples they take from the deer is a COVID-19 swab. Credit: AP Photo/Emma H. Tobin

"It's possible that the virus is already perhaps circulating in multiple animals," said virology expert Suresh Kuchipudi of Pennsylvania State University, an author of the Iowa deer study. If unmonitored, the virus could leave people "completely blindsided," he said.

### CAN IT BE STOPPED?

Ultimately, experts say the only way to stop viruses from jumping back

and forth between animals and humans—extending this pandemic or sparking a new one—is to tackle big problems like habitat destruction and illegal wildlife sales.

"We are encroaching on animal habitats like we have never before in history," Aliota said. "Spillover events from wild animals into humans are, unfortunately I think, going to increase in both frequency and scope."

To combat that threat, three international organizations—the United Nations Food and Agriculture Organization, the World Organization for Animal Health and the World Health Organization—are urging countries to make COVID surveillance in animals a priority.





The sun begins to set over Hollow Rock on frozen Lake Superior in Grand Portage, Minn. on March 3, 2022. Credit: AP Photo/Emma H. Tobin



E.J. Isaac, fish and wildlife biologist for the Grand Portage Band of Lake Superior Chippewa, stands over an empty deer trap in Grand Portage, Minn. on March 1, 2022. He and his team are catching deer in order to take biological samples to send to scientists for research. One of the samples he takes is testing for COVID-19 in the animals. Credit: AP Photo/Emma H. Tobin



Todd Kautz, a post-doctoral researcher from the State University of New York, lies on his belly to take biological samples from a hibernating bear in its den as a colleague holds his feet in Grand Portage, Minn. on March 2, 2022. This includes testing the young black bear for the coronavirus. Credit: AP Photo/Laura Ungar





A bear hibernates in a den in Grand Portage, Minn. on March 2, 2022. Biologists from the Grand Portage Band of Lake Superior Chippewa are tracking the animals and taking biological samples, including a COVID-19 swab, from bears and other mammals for research. In order to access the bear dens, which they find through GPS collars on the bears, researchers need to sometimes dig down through many feet of snow and then stick the upper half of their bodies into the dens with the hibernating bear inside to sedate the animals further so that the bears don't wake up while they are taking the biological samples. Credit: AP Photo/Emma H. Tobin



The sun sets behind an abandoned structure on frozen Lake Superior off of Highway 61 between Grand Marais and Grand Portage, Minn. on March 3, 2022.  
Credit: AP Photo/Emma H. Tobin



A frozen Hollow Rock sits on Lake Superior in Grand Portage, Minn. on March 3, 2022. Credit: AP Photo/Emma H. Tobin





The sun rises over icy Lake Superior in Grand Marais, Minn., on March 3, 2022.  
Credit: AP Photo/Emma H. Tobin

In Grand Portage, Aliota's collaborators continue to do their part by testing as many animals as they can catch.

With icy Lake Superior sparkling through the evergreens, Isaac slipped his hand beneath the netting of a deer trap. A colleague straddling the animal lifted its head off the snowy ground so that Isaac could swab its nostrils.

The young buck briefly lurched its head forward, but kept still long enough for Isaac to get what he needed.

"Nicely done," his colleague said as Isaac put the sample into a vial.

When they were finished, they gently lifted the trap to let the deer go. It bounded into the vast forest without looking back, disappearing into the snowy shadows.

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