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Why Utah's wild mink COVID-19 case matters

On March 6, 2020, a sexagenarian Utahn, who returned to the east shore of the Great Salt Lake after vacationing on the coronavirus-haunted Grand Princess cruise ship, tested positive for COVID-19. It was the pandemic's first knock on Utah's door. Then-Governor Gary Herbert declared a state of emergency on the same day. In the following months, COVID-19 would spread to over 300,000 people in the state and wreak havoc on at least 12,000 minks, the discreet, short-legged, fluffy mammals known for their colorful, luxurious pelts.

The country's first cases in mink were confirmed in mid-August, when two employees working at Utah fur farms infected five minks. Suspecting spillover of the virus to wildlife, researchers with the United States Department of Agriculture began to screen wildlife for COVID-19 in proximity to fur farm outbreaks. In December, their worry was confirmed: A wild mink, trapped just outside of a farm tested positive.

The mink was "asymptomatic" and "humanely euthanized upon capture to allow for tissue sampling and testing," Gail Keirn, a spokesperson for the USDA's Animal and Plant Health Inspection Service told *High Country News* by email. At this time, researchers are not concerned that COVID-19 will decimate wild mink populations because their solitary lifestyles provide limited opportunity for one to spread the virus to others.

COVID-19 blew the fur business in the West last year. Data from the USDA shows that multi-generation farms in Utah, Idaho and Oregon yielded more than a third of nearly 3 million mink-pelt products made in the country in 2019. But the industry's production has declined since its peak in 2014, and pelts grown in the United States have plunged by more than a quarter.

Compounding that challenge on mink farmers, at least 12 of the more than 30 mink farms in Utah have experienced COVID-19 outbreaks since last August.

In a late December statement, Utah's Department of Agriculture and Food said COVID-19 wiped out nearly half of the breeding herds in the facilities. In Oregon, one of its 11 fur farms was quarantined after an outbreak sickened minks and humans. Among the three escaped minks, two tested positive for the coronavirus. Environmental organizations have since argued for the infected plant's closure. "It's clear that this facility poses too great of a threat to wildlife and public health to continue operating," said Lori Ann Burd, environmental health director at the Center for Biological Diversity.

In Denmark and the Netherlands, minks contracted the virus and passed it on to people, leading to millions of minks culled and farms shut down permanently. Danish public health authorities also warned that some variants of SARS-CoV-2, the virus that causes COVID-19, contained mutations from the country's fur farm outbreaks. No mink-to-human transmissions have been

reported in the United States. But scientists fear rampant spread, like those in Utah, and further mutations could jeopardize vaccines.

Recently, *High Country News* spoke with Dr. Anna Fagre, a virologist and veterinarian at Colorado State University, to help put the recent COVID-19 outbreak among wild minks in context. Fagre has studied viral transmission, ecology and wildlife conservation for 12 years, including research on bat viruses, deer mice and livestock in Colorado. This conversation has been edited for length and clarity.

***High Country News*:** What are your main concerns on the first known case of the coronavirus detected in the wild?

***Anna Fagre*:** It's always concerning when you find a pathogen in wildlife that can make both the animals and people sick. It becomes a risk for wildlife conservation and public health. What worries me is: how did it get there? Researchers who sampled the mink in Utah believe that the positive mink escaped from the fur farm, meaning they were likely infected on the fur farm rather than infected in the wild. It just speaks to the way we are managing animals and encroaching on the environment.

From a conservation standpoint, for wildlife within proximity of people for eco-tourism and conservation purposes, we need to consider wildlife as susceptible to any pathogens we carry. We need to be really careful in those situations. Just like you will wear a mask when interacting with someone you want to protect. I may have a cold, but who knows what the virus that gives me a runny nose could do to the species I'm sampling or interacting with?

HCN: Human-animal-human jumps of diseases seem rare. But what are the consequences if something similar happens in the Southwest?

AF: The incidents of spillback – human-to-animal transmissions of pathogens – are very rarely documented. We could be not detecting them, or they don't make both hosts sick enough to notice. The pathogen has to find a new host in an ecological situation where there is enough interspecies interaction and it can transmit. It has to become a pathogen that's really well adapted in wild hosts in order to get to be circulating all the time. At this point, human-to-human transmissions of SARS-CoV-2 pose greater risk than those between animals and humans.

But for us living in the Southwest, especially around the Four Corners, we have plague, rabies virus, hantavirus and other pathogens that spread from animals to humans on our radar. We see them set up shops in rodent populations. Every year, we see human cases. The risk of disease transmission between wildlife and humans is endemic. Adding another pathogen to think about would be scary.

HCN: What is a sustainable solution to check outbreaks in mink farms in the West?

AF: When animals get crowded and confined and moved around, their immune systems will be compromised. It's the same as humans: you send a bunch of kids to live in the dorms and they're

stressed out for finals, and everybody is more likely to get sick. It raises the question of how sustainable mink farming is, and how this changes fur farming in the United States.

HCN: Beyond the minks, how vulnerable, or not, are other wildlife and animals in this pandemic and future ones?

AF: I hate to say "silver lining" because there is no silver lining in the madness. But we're fortunate that, so far, many farm animals we rely on for protein aren't susceptible to SARS-CoV-2 like cats and ferrets are.

We are learning from outbreaks of closely related species to the endangered ones. As those who dabble in wildlife conservation saw ferrets and minks are susceptible, it rang an alarm bell for them that the endangered black-footed ferrets could be susceptible, too. In the National Black-Footed Ferret Conservation Center near Fort Collins, Colorado, where humans are caring for the animals, they proactively vaccinated those black-footed ferrets against the coronavirus, as we can't afford to lose that genetic diversity.

There's so much that we're learning about SARS-CoV-2 and the species that it can infect right now. But there's so much we don't know about other viruses and the species they can infect. People think it's scary that wildlife carry all these viruses that could infect us. But it's also really scary thinking about animals getting sick and the impact on wildlife conservation. It's an important time for us to pause and take note and think about how we should interact with wildlife in the future.