



## REPORT BY THE ANIMAL LAW COMMITTEE

### ZOONOTIC TRANSFER OF DISEASE IN A POST-COVID-19 ERA: IN OUR BACKYARDS AND IN OUR FUTURE

#### BACKGROUND

As the scientific community takes a deep dive into understanding COVID-19, we are learning that the way we live has a direct impact on our susceptibility to emerging infectious diseases. In fact, we have already known this, and we have the power to stop it — or, at the very least, slow it down. Many factors contribute to disease emergence, such as deforestation, changes in agricultural industries, and habitat degradation and fragmentation.<sup>1</sup> Even once the COVID-19 pandemic is behind us, the continued expansion of human populations into wildlife habitats makes human-animal interactions more likely and therefore exposure to new zoonotic diseases more likely as well. Preventing this eventuality requires novel and comprehensive approaches to predicting and preventing disease emergence and pandemics. It also requires us to enact laws that will help stop the future spread of disease and to ensure that enforcement of those laws remains a priority.

According to the Centers for Disease Control and Prevention (CDC), zoonotic diseases — also known as zoonoses — are caused by germs that spread between animals and people.<sup>2</sup> Prior to the COVID-19 outbreak, zoonoses have already manifested in several forms in the past — for example, Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS), Ebola, monkeypox, and Lassa fever were all instances of zoonotic diseases. Zoonotic diseases are common in the United States and around the globe. Approximately six out of every ten known infectious diseases in people can be spread from animals, and three of every four new or emerging infectious diseases in people come from animals.<sup>3</sup> Put another way, two-thirds of human infectious diseases are shared with animals, and the majority of these are from wild species.<sup>4</sup> The fact that we share so many diseases with wild animals is increasingly relevant given the pressures we put on our environment. Scientists estimate that the vast majority of all future infectious diseases will be zoonotic in nature.<sup>5</sup>

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<sup>1</sup> Stephen Wells & Dr. Billy Karesh, Webinar: *Why Pandemics Happen: COVID-19* (Apr. 20, 2020), available with registration at <https://register.gotowebinar.com/recording/8033836101957263873>. (All websites cited in this report were last visited on June 26, 2020.)

<sup>2</sup> CDC, Zoonotic Diseases. <https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html>.

<sup>3</sup> *Id.*

<sup>4</sup> Stephen Wells & Dr. Billy Karesh, *supra* note 1.

<sup>5</sup> *Id.*

The virus that causes COVID-19 is SARS-CoV-2. COVID-19 started with animals, then mutated to transfer to people, but research still has not shown if the virus has jumped back to animals — and there is very little research about potential crossover.<sup>6</sup> SARS-CoV-2 is believed to have originated in bats (similar to MERS-CoV and SARS-CoV, which also had animal origins).<sup>7</sup> The original virus that infected those bats has changed, altering surface proteins to be able to transfer the virus from person to person. Surface proteins are different in the mutated bat virus, making SARS-CoV-2 less likely to affect the original bats now. When viruses infect an animal, they produce billions of copies of themselves. Some of those copies are slightly different from the original virus. Most of these irregular copies die but occasionally one has a mutation that is beneficial for the virus, such as altering its ability to infect a different species.<sup>8</sup> Moreover, while studies initially suggested that the virus may have infected humans through an intermediary host, such as pangolins, viral sequencing on this has not been confirmed.<sup>9</sup> Bats are considered one of the most significant animal reservoirs for emerging infectious viruses, and the reason for this is that with more than 1,300 bat species in the world — the second-largest class of mammals after rodents — bats are as diverse as the viruses they carry.<sup>10</sup>

Coronaviruses are a large family of viruses — with SARS-CoV-2 the latest iteration. Some coronaviruses cause illnesses in people, some in animals, and others in both humans and animals. SARS and MERS, for example, both stemmed from coronaviruses that started in animals. SARS was associated with civet cats, while MERS was transmitted by dromedary camels.<sup>11</sup> For unknown reasons, however, neither SARS nor MERS were as highly infectious and adapted to human-to-human transmission as COVID-19.<sup>12</sup>

Coronaviruses are common among farm animals and according to some studies, if COVID-19 were to jump species again, a likely animal to catch it on farms would be pigs.<sup>13</sup> Among all farm animals, pigs appear to be the most susceptible to coronaviruses— there are at least six different pig-specific coronaviruses.<sup>14</sup> In fact, one of the more devastating coronaviruses among livestock in recent years affected only pigs: the porcine epidemic diarrhea virus. During a 2013 outbreak, the virus killed significant numbers of pigs in the United States and China.<sup>15</sup>

“Wet markets” — marketplaces where fresh fish, meat, and other foods are sold — present particular risks of viruses, especially where there is live animal slaughter involved (so-called “live

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<sup>6</sup> Alayna Demartini, *Are Animals Vulnerable to COVID-19?*, Phys.org (Mar. 30, 2020), <https://phys.org/news/2020-03-animals-vulnerable-covid-.html>.

<sup>7</sup> *Id.*

<sup>8</sup> *Id.*

<sup>9</sup> R. Scott Nolen, *Can Veterinarians Prevent the Next Pandemic?*, American Veterinary Medical Association (Mar. 25, 2020), <https://www.avma.org/javma-news/2020-04-15/can-veterinarians-prevent-next-pandemic>.

<sup>10</sup> *Id.*

<sup>11</sup> World Health Organization, Q&A on Coronaviruses (COVID-19) (Apr. 17, 2020), <https://www.who.int/news-room/q-a-detail/q-a-coronaviruses>.

<sup>12</sup> Nolen, *supra* note 9.

<sup>13</sup> Demartini, *supra* note 6.

<sup>14</sup> *Id.*

<sup>15</sup> *Id.*

markets”). The World Health Organization (WHO) warns those visiting wet markets to avoid direct contact with animals and surfaces in contact with animals; ensure good food safety practices at all times; handle raw meat, milk or animal organs with care to avoid contamination of uncooked foods; and avoid consuming raw or undercooked animal products.”<sup>16</sup> These basic principles are familiar to us, as evidenced by the safety instructions for handling animal products listed on food labels everywhere. The extensive and prevalent guidelines for handling animal products are also indicative of the risks involved in wet markets. It is virtually impossible to take precautions in settings where cages of different species of animals are stacked on top of one another and the same chopping block is used to slaughter different animals — these conditions are a breeding ground for disease.<sup>17</sup> Considering what we know about animal-to-human disease transmission and prevention, it should come as no surprise that the novel coronavirus came from animals and that our actions play a key role in the spread of the virus.

Countries around the globe have watched as the pandemic began to unfold. In reaction, leaders began to take measures to prevent further spread of the virus to their countries — with varying degrees of effectiveness.

## **ACTIONS TAKEN BY THE UNITED STATES TO CURB ZOOONOTIC DISEASES**

On January 31, 2020 the Trump Administration restricted travel into the U.S. for most people who traveled to China.<sup>18</sup> Interestingly, during the summer of 2019, Congress had already introduced two federal bills relating to zoonotic diseases — signaling that the need to reform the way we prevent and respond to zoonotic diseases was understood well before the COVID-19 outbreak. These bills would require the Department of Health and Human Services and the Department of Agriculture, in coordination with other agencies and departments, to develop, publish, and submit to Congress a national One Health Framework for coordinated federal activities under the One Health Program, which supports collaborative efforts to prevent, prepare for, and respond to zoonotic disease outbreaks.<sup>19</sup>

Introduced in the early 2000s by the World Organisation for Animal Health (OIE), “One Health” represents the idea that human health and animal health are interdependent and bound to the health of the ecosystems in which they exist. The concept as envisioned and implemented by the OIE is a collaborative global approach to understanding the risks for human and animal health

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<sup>16</sup> World Health Organization, Q&A on Coronaviruses (COVID-19), *supra* note 11.

<sup>17</sup> Rachel Nuwer, *To Prevent Next Coronavirus, Stop the Wildlife Trade, Conservationists Say*, N.Y. Times (Feb. 19, 2020), <https://www.nytimes.com/2020/02/19/health/coronavirus-animals-markets.html>.

<sup>18</sup> Since January 31, 2020, President Trump has expanded Presidential Proclamation 9994 to include: Iran, the Schengen Area, the United Kingdom, Ireland, and Brazil. Proclamation on Suspension of Entry as Immigrants and Nonimmigrants of Certain Additional Persons Who Pose a Risk of Transmitting Novel Coronavirus (May 24, 2020), <https://www.whitehouse.gov/presidential-actions/proclamation-suspension-entry-immigrants-nonimmigrants-certain-additional-persons-pose-risk-transmitting-novel-coronavirus/>.

<sup>19</sup> Advancing Emergency Preparedness Through One Health Act of 2019, H.R.3771, 116th Cong. (2019-20), <https://www.congress.gov/bill/116th-congress/senate-bill/1903/text>; Advancing Emergency Preparedness Through One Health Act of 2019, S.1903, 116th Cong. (2019-20), <https://www.congress.gov/bill/116th-congress/senate-bill/1903/text>.

(including both domestic and wildlife) and ecosystem health as a whole.<sup>20</sup> According to the OIE, understanding the risks to human, animal and environmental health must happen in tandem and cannot happen without a collaborative approach. It urges that a collaboration of this nature must be based on harmonized and coordinated systems of health governance adapted regionally, nationally, and internationally.<sup>21</sup>

On April 8, 2020, with the pandemic having spread across the country, a bipartisan Congressional coalition wrote to the WHO and other intergovernmental organizations urging a global ban on wet markets.<sup>22</sup> In their letter, they point out that scientists studying zoonotic diseases have zeroed in on “the close proximity of shoppers, vendors, and both live and dead animals at wildlife markets in countries around the world as prime transmission locations for these pathogens.” They noted that “the stress of transport and holding wild animals in these crowded markets where they are also sometimes slaughtered creates an unnatural environment where viruses from different species are able to come in contact, mutate, and spread from one species to another.”<sup>23</sup> These situations enable viruses to spill over to humans through the handling and consumption of these animals, creating the potential for new outbreaks of diseases for which we have no natural immunity — as we are experiencing now with COVID-19. According to Dr. Brian L. Strom, Chancellor of Rutgers University Biomedical and Health Sciences and Rutgers University’s Executive Vice President for Health Affairs, “[d]isease surveillance is a pillar of public health prevention, and monitoring zoonotic diseases is an important component of this strategy. There is a perception that novel viruses emerge from exotic live animal markets that are unfamiliar to the West, and genomic evidence does link this coronavirus to bats as a possible source. But virulent diseases like avian flu and swine flu also commonly emerge from the livestock we are more familiar with, like chickens and pigs.”<sup>24</sup>

## **LIVE ANIMAL MARKETS IN NEW YORK**

As the world reels at the devastation that COVID-19 is causing, many people may not realize that these wet markets also exist in their own backyards. Contrary to misinformation circulating in the media and online, these markets are not tied to any one ethnicity or nationality.

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<sup>20</sup> World Organisation for Animal Health, One Health “at a Glance”, <https://www.oie.int/en/for-the-media/onehealth/>.

<sup>21</sup> World Organisation for Animal Health, Strengthening Multi-Sectoral Collaboration at the National Level, <https://www.oie.int/en/for-the-media/onehealth/controlling-health-risks/national-collaboration/>.

<sup>22</sup> Letter from Sen. Cory A. Booker and other Congressmembers to Directors General of the World Health Organization, World Organisation for Animal Health, and Food and Agriculture Organization of the United Nations (Apr. 8, 2020), [https://www.booker.senate.gov/imo/media/doc/04.08.20\\_Booker\\_Graham\\_Quigley\\_McCaul\\_Final%20sBlock.pdf](https://www.booker.senate.gov/imo/media/doc/04.08.20_Booker_Graham_Quigley_McCaul_Final%20sBlock.pdf).

<sup>23</sup> *Id.*

<sup>24</sup> The Perfect Storm of Pandemics, Rutgers Magazine for Alumni and Friends of The State University of New Jersey (Spring 2020), <https://ucmweb.rutgers.edu/magazine/ebook/spring2020/index-h5.html#page=37>.

In New York City alone, there are over 80 live-animal markets and storefront slaughterhouses in operation.<sup>25</sup> These markets sell and slaughter a variety of species for human consumption.<sup>26</sup> Many of these animals are kept in the same conditions that created the breeding grounds for disease as those in Wuhan. While awaiting slaughter, these animals are confined in poorly ventilated areas and languishing in agonizing conditions — overcrowded, stressed, starving, and sitting in their own excrement — where they can easily spread diseases to both animals and people.<sup>27</sup> Even more surprising is that many of New York City’s slaughterhouses are located in residential neighborhoods.

Since the mid-1800s, slaughterhouses, or abattoirs as they were called, could be found in New York City. West 39th Street, nicknamed “Abattoir Row,” was the center of Manhattan’s slaughterhouse district.<sup>28</sup> Today, slaughterhouses exist in all five boroughs of New York City. Inspection reports indicate that several live animal markets in the city have repeatedly received citations for deficiencies, such as lack of cleanliness and sterilization of equipment.<sup>29</sup> While a recent state bill will potentially ban *new* slaughterhouses from opening within 1,500 feet of a residence,<sup>30</sup> these live animal markets still exist in our densely populated city of over eight million residents.

## CONSUMPTION OF WILDLIFE AND WILDLIFE PRODUCTS IN THE U.S.

In addition to the live animal markets in our own city, many might be surprised to know that exotic and endangered species are sold in the U.S. Indeed, the U.S. is one of the largest consumers of imported wildlife products and wildlife. U.S. Fish and Wildlife records show that more than 55 million pounds of wildlife products enter the country each year, with New York City being the most common port of entry, followed by Miami and Los Angeles.<sup>31</sup>

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<sup>25</sup> Heather Greenhouse, Opinion: *Shutter NYC’s Storefront Slaughterhouses*, N.Y. Daily News (Mar. 2, 2020), <https://www.nydailynews.com/opinion/ny-oped-shutter-new-york-citys-slaughterhouses-20200302-2jav25gn35g7tkvhi3rvsukzry-story.html>.

<sup>26</sup> Judie Mancuso, *NY & CA Lawmakers Introduce Legislation to Ban Wet Markets & Wildlife Trafficking to Reduce Risk of Future Pandemics & Prevent Mass Extinction*, World Animal News (Apr. 14, 2020), <https://worldanimalnews.com/lawmakers-in-ny-ca-to-introduce-legislation-to-ban-wet-markets-wildlife-trafficking-to-reduce-future-pandemic-risk-and-prevent-mass-extinction/>.

<sup>27</sup> Greenhouse, *supra* note 25.

<sup>28</sup> Ephemeral New York, *The Bloody Past of Manhattan’s West 39th Street* (Oct. 28, 2016), <https://ephemeralnewyork.wordpress.com/tag/slaughterhouses-in-new-york-city/>.

<sup>29</sup> Danielle Leigh, *Coronavirus News: Mounting Calls to Close Live Animal Markets amid COVID-19*, abc7NY (Apr. 15, 2020), <https://abc7ny.com/nyc-slaughterhouses-live-markets-coronavirus-update/6105833/>.

<sup>30</sup> See also New York State Department of Agriculture and Markets, Food Business Licensing: Slaughterhouse, <https://agriculture.ny.gov/food-business-licensing>; S.6252/A8009, 242nd Leg., Reg. Sess. (2019-2020), <https://www.nysenate.gov/legislation/bills/2019/s6252>. Under the bill, which at the date of this writing has passed the Assembly and Senate and is awaiting the Governor’s signature, slaughterhouses located within 1,500 feet of a residential dwelling and licensed prior to 2008 may remain operational.

<sup>31</sup> Stefanie Spear, *Study Indicates U.S. Ports at Risk of Diseases Associated with Illegal Wildlife Trade*, EcoWatch (Jan. 11, 2012), <https://www.ecowatch.com/study-indicates-u-s-ports-at-risk-of-diseases-associated-with-illegal--1881568977.html> (“A previous study by EcoHealth Alliance showed that over a six-year period (2000-2006), approximately 1.5 billion live wild animals were legally imported into the United States — with 90 percent slated for the pet trade.”).

Despite the enormous risks presented by importing wildlife and wildlife products, the U.S. continues to play a role in the global wildlife trade. Indeed, in 2018, the Trump Administration reversed an Obama-era ban on importing endangered species.<sup>32</sup>

## LEGISLATIVE PROPOSALS IN THE WAKE OF COVID-19

At the state level, lawmakers in California and New York announced plans to introduce legislation to ban wet markets as well as exotic and endangered wildlife trafficking to reduce future pandemic risk and prevent mass extinction. California state Senator Henry Stern and New York Assemblywoman Linda Rosenthal are taking the lead in working to pass this legislation.<sup>33</sup>

At the national level, the Physicians Committee for Responsible Medicine (PCRM) recently filed a legal Petition for Rulemaking with the U.S. Surgeon General, demanding that U.S. live animal markets be immediately shut down and stating that “Live animal markets are a welcome mat to coronaviruses. The failure to close a single live animal market in China led to a pandemic that has closed countless businesses worldwide and led to an enormous death toll and economic havoc.”<sup>34</sup>

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While we grapple with understanding the origin and mechanics of COVID-19, we would be well-served to take note of what we already know: the link between preventable illnesses in humans and the exploitation, confinement and slaughter of animals is irrefutable, and has led to multiple cases of wide-spread disease over the years. Preventing the next pandemic requires us to enact comprehensive laws to end wet markets—locally, nationally, and around the globe.

Animal Law Committee  
Christopher Wlach, Chair

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<sup>32</sup> Mancuso, note *supra* 26.

<sup>33</sup> Social Compassion in Legislation, Press release: “Lawmakers in California and New York to introduce legislation to ban wet markets and exotic wildlife trafficking to reduce future pandemic risk and prevent mass extinction” (Apr. 13, 2020), <https://socialcompassioninlegislation.org/news/lawmakers-in-california-and-new-york-to-introduce-legislation-to-ban-wet-markets-and-exotic-wildlife-trafficking-to-reduce-future-pandemic-risk-and-prevent-mass-extinction/>; *see also* Mancuso, *supra* note 26. On May 4, 2020, Assemblywoman Rosenthal introduced A.10399, prohibiting the operation of establishments where animals and/or fowls are slaughtered or butchered for food; subsequently Senator Luis Sepulveda introduced a same-as bill (S.8291) in the Senate (*available at* <https://nyassembly.gov/leg/?bn=a10399>).

<sup>34</sup> Physicians Committee for Responsible Medicine, Petition for Rulemaking to VADM Jerome M. Adams, MD, MPH, Office of the Surgeon General, U.S. Department of Health and Human Services, at 4 (Apr. 7, 2020), <https://thebrooksinsitute.org/sites/default/files/article/2020-04/PCRM%20Petition%20-%20To%20Accompany%202020-04-13%20Digest%20Issue%20No%2026.pdf>.