

**BEFORE THE SECRETARY OF THE UNITED STATES DEPARTMENT OF
THE INTERIOR & THE UNITED STATES FISH AND WILDLIFE SERVICE**

**PETITION TO BAN TRADE IN WILD MAMMALS AND BIRDS
AND FOR REGULATIONS INSTITUTING A COMPREHENSIVE CHAIN-OF-
CUSTODY SYSTEM FOR ALL PLANTS AND WILDLIFE IMPORTED INTO
OR EXPORTED FROM THE UNITED STATES**



**CENTER FOR BIOLOGICAL DIVERSITY AND THE NATURAL RESOURCES
DEFENSE COUNCIL**

AUGUST 3, 2021

EXECUTIVE SUMMARY

Pursuant to Section 553(e) of the Administrative Procedure Act (“APA”)¹ and the First Amendment of the U.S. Constitution, the Center for Biological Diversity and the Natural Resources Defense Council submit this petition to the Department of the Interior and the U.S. Fish and Wildlife Service (“FWS” or “the Service”) to ban import and export of wild mammals and birds and institute a comprehensive chain-of-custody and tracing system for all imports and exports of all wildlife and plants. These actions are necessary to help prevent the introduction and spread of zoonotic diseases into the United States, curtail the ongoing loss of biological diversity, and protect against calamitous consequences for both people and wildlife.²

Pandemics caused by zoonoses—infectious diseases that jump from animals to people—are entirely preventable. However, the Service will only succeed in ensuring U.S. wildlife trade is not injurious to human beings and wildlife if it develops a proactive approach to restricting wildlife trade. The current system only regulates known threats, restricting the import or transport of a species only after it has posed a risk, but by then it is often too late. In contrast, a proactive approach, as requested in this petition, will reduce risk to help prevent future outbreaks.

The Service has a significant opportunity to strengthen the United States’ ability to respond to future pandemics by implementing regulatory programs to ban trade in wild mammals and birds and ensure that all remaining imports and exports of wildlife into and out of the United States are fully traceable. Implementing stronger safeguards for all aspects of wildlife trade will also reduce unsustainable and illegal exploitation of wildlife, which is the second largest driver of the loss of terrestrial species.³ These actions must be accompanied by concerted federal coordination of funding and capacity building activities to transition livelihoods from the mammal and bird trade supply chains and to invest in surveillance, monitoring, conservation, and restoration efforts.

The Requested Rulemakings

To reduce disease risk and biodiversity loss, we petition the Service to find that trade of wild mammals and birds is injurious to people and wildlife and in so doing institute import and export bans. The Service has the authority to undertake the petitioned action using its authorities under the Lacey Act.⁴ “Wild” is given the meaning in the Lacey Act and includes “any creatures that, whether or not raised in captivity,

¹ 5 U.S.C. § 553(e).

² 43 C.F.C. § 14.2 provides that “[a]ny person may petition for the issuance, amendment, or repeal of a rule (5 U.S.C. 553(e)). The petition will be addressed to the Secretary of the Interior, U.S. Department of the Interior, Washington, DC 20240. It will identify the rule requested to be repealed or provide the text of a proposed rule or amendment and include reasons in support of the petition.” The regulatory text for the proposed rule is provided below.

³ IPBES (2019) Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany.

⁴ 16 U.S.C. §§ 3371-3378; 18 U.S.C. § 42.

normally are found in a wild state.”⁵ Mammals and birds mean the *mammal* and *aves* classes. We further propose the bans would be subject to the Lacey Act permitting exemptions for zoological, educational, medical, or scientific imports and the statutory exemption for psittacine birds.

Carefully tracking wildlife trade is an important mechanism for improving the United States’ ability to establish origin and respond to zoonotic disease emergence and re-emergence, along with aiding the Service in ensuring that such trade is not detrimental to species or illegal. The Service has clear authority to establish this point-of-origin-to-first-sale system for tracing traded wildlife using its authorities under the Lacey Act, the Endangered Species Act (“ESA”),⁶ and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (“CITES”).⁷

To accompany these regulatory changes, it is imperative that the Department of the Interior work holistically with the U.S. Agency for International Development and other federal agencies to increase funding opportunities and capacity building efforts. Programs and support are needed to transition livelihoods from the mammal and bird trade supply chain and to invest in wildlife and disease surveillance and monitoring programs as well as restoration and conservation efforts. Transformative change is urgently needed to draw down pandemic risk and protect biodiversity, but without concerted funding this change will not take place.

Summary of Support

The risk of future zoonotic pandemics similar to COVID-19 is high. Experts convened by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (“IPBES”) have called this “the era of pandemics” in which “pandemics will emerge more often, spread more rapidly, kill more people, and affect the global economy with more devastating impact than ever before.”⁸ The World Health Organization and other experts agree that future pandemics will likely come from wildlife and be zoonotic in origin.⁹ Indeed, over the last four decades, the worst pandemics were all zoonotic, including Human Immunodeficiency Virus (“HIV”), H5N1 Avian Influenza, H1N1 Swine Influenza, Severe Acute Respiratory Syndrome (“SARS”)

⁵ 18 U.S.C. § 42(a)(2).

⁶ 16 U.S.C. §§ 1531-1544.

⁷ CITES, TIAS 8249, 27 U.S.T. 1087 (March 3, 1973).

⁸ IPBES (2020) Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrel, C., Buss, P., Dundarova, H., Feferholtz, Y., Foldvari, G., Igbinsosa, E., Junglen, S., Liu, Q., Suzan, G., Uhart, M., Wannous, C., Woolaston, K., Mosig Reidl, P., O'Brien, K., Pascual, U., Stoett, P., Li, H., Ngo, H. T., IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4147318.

⁹ Can, Ö. E., D'Cruze, N., & Macdonald, D. W. (2019). Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. *Global Ecology and conservation*, 17, e00515.

and COVID-19.¹⁰ Mammals and birds have played an oversized role in the emergence of these and other zoonoses.

This threat is significant because in our global society, a disease harbored in a person or animal can travel halfway around the globe in under twenty-four hours, or often less time than the onset of symptoms for many diseases including COVID-19.¹¹ Therefore, *where* a disease emerges is far less important than ensuring we limit the risk of emergence. With a COVID-like event predicted to occur every decade,¹² we need a dramatic shift to a precautionary approach.

Prevention is paramount, and among the key drivers of infectious disease emergence is the wildlife trade.¹³ Animals are captured in their wild habitats, forced into close quarters, placed near other species they may never come into contact with in the wild, and subjected to stressful, unsanitary conditions that weaken their immune systems and increase the likelihood that diseases will shed, spread, and mutate.¹⁴ As wildlife moves through the supply chain, direct contact occurs with numerous people creating opportunities for zoonotic diseases to spillover. Wildlife bred or farmed for sale originate from similar cramped, often unsanitary, and unregulated conditions creating breeding grounds for disease.¹⁵ Again, the contact with people at these facilities provides

¹⁰ Peters, A., Vetter, P., Guitart, C., Lotfinejad, N., & Pittet, D. (2020). Understanding the emerging coronavirus: what it means for health security and infection prevention. *Journal of Hospital Infection*, 104(4), 440-448; Holmes, E. C., Goldstein, S. A., Rasmussen, A. L., Robertson, D. L., Crits-Christoph, A., Wertheim, J. O., ... & Rambaut, A. (2021). The Origins of SARS-CoV-2: A Critical Review.

¹¹ Kruse, H., Kirkemo, A. M., & Handeland, K. (2004). Wildlife as source of zoonotic infections. *Emerging infectious diseases*, 10(12), 2067.

¹² Daszak, P., (2020), Chair of the IPBES workshop on biodiversity and pandemics ('Escaping the Era of Pandemics'), in a verbal presentation to the Convention on Biological Diversity Special Virtual Session on Biodiversity, One Health and the Response to Covid-19, 15-16 Dec 2020; G20 High Level Independent Panel (2021) A Global Deal for Our Pandemic Age: Report of the G20 High Level Independent Panel on Financing the Global Commons for Pandemic Preparedness and Response (available at: <https://www.g20.org/wp-content/uploads/2021/07/G20-HLIP-Report.pdf> (last visited August 1, 2021)).

¹³ Wyler, L. S., & Sheikh, P. A. (2008, August). International illegal trade in wildlife: threats and US policy. Library of Congress Washington DC Congressional Research Service.

¹⁴ Johnson, C.K., et al. (2020). Global shifts in mammalian population trends reveal key predictors of virus spillover risk. *Proc. R. Soc. B* 287: 20192736. <http://dx.doi.org/10.1098/rspb.2019.2736>; Bell, D., Robertson, S., & Hunter, P. R. (2004). Animal origins of SARS coronavirus: possible links with the international trade in small carnivores. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 359(1447), 1107-1114; Huang, N. Q., et al. (2020). Coronavirus testing indicates transmission risk increases along wildlife supply chains for human consumption in Viet Nam, 2013-2014. *bioRxiv*; Lee, J., et al. (2020). No evidence of coronaviruses or other potentially zoonotic viruses in Sunda pangolins (*Manis javanica*) entering the wildlife trade via Malaysia. *bioRxiv*; Tu, C., et al. (2004). Antibodies to SARS coronavirus in civets. *Emerging infectious diseases*, 10(12), 2244; Karesh, W. B., et al. (2005). Wildlife trade and global disease emergence. *Emerging infectious diseases*, 11(7), 1000.

¹⁵ Can, Ö. E., D'Cruze, N., & Macdonald, D. W. (2019). Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. *Global Ecology and conservation*, 17, e00515; Wolfe, N. D., Dunavan, C. P., & Diamond, J. (2007). Origins of major human infectious diseases. *Nature*, 447(7142), 279-283; Magouras, I., Brookes, V. J., Jori, F., Martin, A., Pfeiffer, D. U., & Dürr, S. (2020). Emerging Zoonotic Diseases: Should We Rethink the Animal–Human Interface?. *Frontiers in Veterinary Science*, 7, 748; Lin, B., Dietrich, M. L., Senior, R. A., & Wilcove, D. S. (2021). A better classification of wet markets is key to safeguarding human health and biodiversity. *The Lancet Planetary Health*, 5(6), e386-e394; IPBES (2020) Workshop Report on Biodiversity and Pandemics of the

ideal opportunities for diseases to spillover to people. When farms and breeding facilities are on the periphery of the urban-wild interface, they spur interactions between wild and captive animals, further increasing disease risk.

These practices threaten catastrophic consequences including to our economy. Globally, according to Di Marco et al. (2020) “the SARS outbreak in 2003, the H1N1 pandemic in 2009, and the West African Ebola outbreak in 2013–2016 each caused more than US \$10 billion in economic damages.”¹⁶ The current COVID-19 pandemic was estimated to globally cause a GDP loss of \$5.6 trillion USD in 2020 not accounting for loss of human life or any other costs.¹⁷ These practices also threaten native wildlife and domestic animals as we trade in diseases such as white-nose syndrome or rabies and introduce invasive species.¹⁸

Diseases that emerge from trading, breeding, and farming of wildlife are a symptom of the biodiversity crisis and human exploitation of wildlife, which is driving species loss and nature’s decline. By exploiting wildlife, not only are we threatening future pandemics but also the very fabric of life. According to recent studies, “[l]egal and illegal wildlife trade is estimated to affect 1 in 4 mammal and bird species globally”¹⁹ and the legal wildlife trade averages \$39.6 billion a year when seafood is excluded.²⁰ The magnitude of this trade makes it difficult to predict what species and combination of events are likely to cause a new zoonotic disease outbreak.²¹ To truly prevent future infectious disease emergence and protect human and animal health, a wildlife trade moratorium is needed. At the very least, the Service should halt trade in known disease

Intergovernmental Platform on Biodiversity and Ecosystem Services. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrel, C., Buss, P., Dundarova, H., Feferholtz, Y., Foldvari, G., Igbinosa, E., Junglen, S., Liu, Q., Suzan, G., Uhart, M., Wannous, C., Woolaston, K., Mosig Reidl, P., O'Brien, K., Pascual, U., Stoett, P., Li, H., Ngo, H. T., IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4147318.

¹⁶ Di Marco, M., Baker, M. L., Daszak, P., De Barro, P., Eskew, E. A., Godde, C. M., ... & Karesh, W. B. (2020). Opinion: Sustainable development must account for pandemic risk. *Proceedings of the National Academy of Sciences*, 117(8), 3888-3892.

¹⁷ Dobson, A. P., Pimm, S. L., Hannah, L., Kaufman, L., Ahumada, J. A., Ando, A. W., ... & Vale, M. M. (2020). Ecology and economics for pandemic prevention. *Science*, 369(6502), 379-381. The authors relied upon IMF projections to reach the \$5.6 trillion global GDP loss from the COVID-19 pandemic (Dobson et al. supplementary materials).

¹⁸ Frick, W. F., Puechmaille, S. J., & Willis, C. K. (2016). White-nose syndrome in bats. In *Bats in the Anthropocene: Conservation of bats in a changing world* (pp. 245-262); Birhane, M. G., Cleaton, J. M., Monroe, B. P., Wadhwa, A., Orciari, L. A., Yager, P., ... & Wallace, R. M. (2017). Rabies surveillance in the United States during 2015. *Journal of the American Veterinary Medical Association*, 250(10), 1117-1130; Wyler, L. S., & Sheikh, P. A. (2008, August). *International illegal trade in wildlife: threats and US policy*. Library of Congress Washington DC Congressional Research Service.

¹⁹ Peters, A., Vetter, P., Guitart, C., Lotfinejad, N., & Pittet, D. (2020). Understanding the emerging coronavirus: what it means for health security and infection prevention. *Journal of Hospital Infection*.

²⁰ Andersson, A. A., Tilley, H. B., Lau, W., Dudgeon, D., Bonebrake, T. C., & Dingle, C. (2021). CITES and beyond: Illuminating 20 years of global, legal wildlife trade. *Global Ecology and Conservation*, 26, e01455.

²¹ Zoonoses are unpredictable, if not unknowable in nature. Zoonotic diseases can emerge anywhere in the world, adapt to wide ranges of animal hosts, and cause illnesses of different degrees of severity. National Research Council. (2010). *Sustaining global surveillance and response to emerging zoonotic diseases*.

reservoir and host species—mammals and birds—and establish a system to trace the remaining wildlife trade.

PETITIONERS

Pursuant to the APA, “[e]ach [federal] agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule.”²² The Center for Biological Diversity (“Center”), the Natural Resources Defense Council (“NRDC”), and their members are “interested persons” within the meaning of the APA.

The Center is a non-profit, public interest environmental organization dedicated to the protection of species and their habitats through science, policy, and environmental law. The Center has over 1.7 million members and online activists. The current pandemic and future pandemics like it are a symptom of the biodiversity crisis and result from humans’ unhealthy relationship with wildlife and nature. At the Center we believe that the welfare of human beings is deeply linked to nature—to the existence in our world of a vast diversity of wild animals and plants. Because diversity has intrinsic value, and because its loss impoverishes society, we work to secure a future for all species, great and small, hovering on the brink of extinction.

NRDC is an international nonprofit environmental organization with more than 3 million members and online activists. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and the environment. NRDC and its members are “interested persons” within the meaning of the APA and are concerned with the conservation of species, protecting human health, and the effective implementation of the Lacey Act, ESA, and CITES.

The Center and NRDC petition the Service to adopt a ban on imports and exports of wild mammals and birds and to update its existing regulatory system to comprehensively trace wildlife imports and exports. These measures can be adopted through rulemaking pursuant to the APA and in accordance with the agencies’ powers under the Lacey Act, the ESA, and CITES, and relevant related regulations.

FACTUAL BACKGROUND

1. Zoonoses and the Era of Pandemics

Zoonotic diseases, or zoonoses, are caused by viruses, bacteria, parasites, fungi, and prions that spread between animals and people.²³ Zoonoses comprise a majority of recurrent and emerging infectious disease threats and are considered to be one of the greatest challenges facing public health.²⁴ One quarter of human deaths are caused by

²² 5. U.S.C. § 553(e).

²³ Center for Disease Control & Prevention, Zoonotic Diseases, <https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html> (last visited June 12, 2021).

²⁴ Johnson, C. K., Hitchens, P. L., Pandit, P. S., Rushmore, J., Evans, T. S., Young, C. C., & Doyle, M. M. (2020). Global shifts in mammalian population trends reveal key predictors of virus spillover risk. *Proceedings of the Royal Society B*, 287(1924), 20192736.

infectious diseases.²⁵ More than 60% of emerging infectious disease events are zoonotic, meaning they are caused by a pathogen that was transmitted from an animal to a person, and more than 70% of these emerging infectious disease events are from wild animals.²⁶ In the last forty years, the most devastating pandemics were all zoonotic or vector-borne in origin, including HIV, SARS, H5N1 Avian Influenza, H1N1 Swine Influenza, Ebola Virus Disease, Zika Virus, and COVID-19.²⁷ Experts predict that future pandemics will be caused by wildlife and will be zoonotic in nature.²⁸

The scientific experts convened by IPBES in 2020 declared that we have entered the “era of pandemics.”²⁹ Karesh et al. (2005) documented the emergence of 35 new infectious diseases over 25 years that can spread to people—the equivalent of a new disease emerging every eight months.³⁰ Daszak (2020) and a high level G20 panel both concluded that we can expect a COVID-like event every decade.³¹ The IPBES pandemics workshop report estimated “five new diseases emerging in people every year” and that “1.7 million currently undiscovered viruses are thought to exist in mammal and avian hosts” of which “631,000-827,000 could have the ability to infect humans.”³² The report further noted that “less than 0.1% of the potential zoonotic viral risk has been

²⁵ Taylor, L. H., Latham, S. M., & Woolhouse, M. E. (2001). Risk factors for human disease emergence. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 356(1411), 983-989.

²⁶ Jones, K.E., Patel N.G., Levy M.A., Storeygard A., Balk D., Gittleman J.L. et al. (2008). Global trends in emerging infectious diseases. *Nature* 451, 990-993 doi: 10.1038/nature06536.

²⁷ Peters, A., Vetter, P., Guitart, C., Lotfinejad, N., & Pittet, D. (2020). Understanding the emerging coronavirus: what it means for health security and infection prevention. *Journal of Hospital Infection*, 104(4), 440-448.

²⁸ Can, Ö. E., D’Cruze, N., & Macdonald, D. W. (2019). Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. *Global Ecology and conservation*, 17, e00515; Borzée, A., McNeely, J., Magellan, K., Miller, J. R., Porter, L., Dutta, T., ... & Zhang, L. (2020). COVID-19 highlights the need for more effective wildlife trade legislation. *Trends in ecology & evolution*.

²⁹ IPBES (2020) Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrel, C., Buss, P., Dundarova, H., Feferholtz, Y., Foldvari, G., Igbinsosa, E., Junglen, S., Liu, Q., Suzan, G., Uhart, M., Wannous, C., Woolaston, K., Mosig Reidl, P., O’Brien, K., Pascual, U., Stoett, P., Li, H., Ngo, H. T., IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4147318.

³⁰ Karesh, W. B., et al. (2005). Wildlife trade and global disease emergence. *Emerging infectious diseases*, 11(7), 1000.

³¹ Daszak, P., (2020), Chair of the IPBES workshop on biodiversity and pandemics (‘Escaping the Era of Pandemics’), in a verbal presentation to the Convention on Biological Diversity Special Virtual Session on Biodiversity, One Health and the Response to Covid-19, 15-16 Dec 2020; G20 High Level Independent Panel (2021) A Global Deal for Our Pandemic Age: Report of the G20 High Level Independent Panel on Financing the Global Commons for Pandemic Preparedness and Response (available at: <https://www.g20.org/wp-content/uploads/2021/07/G20-HLIP-Report.pdf> (last visited August 1, 2021)).

³² IPBES (2020) Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrel, C., Buss, P., Dundarova, H., Feferholtz, Y., Foldvari, G., Igbinsosa, E., Junglen, S., Liu, Q., Suzan, G., Uhart, M., Wannous, C., Woolaston, K., Mosig Reidl, P., O’Brien, K., Pascual, U., Stoett, P., Li, H., Ngo, H. T., IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4147318

discovered.”³³ As one example, the SARS-CoV-2 virus is only the seventh coronavirus to have spilled over to infect humans,³⁴ but given the large number of suspected other coronaviruses the consequences of the current pandemic are a potential marker for likely future pandemics.

2. The Disease Risks Posed by the *Mammalia* and *Aves* Classes

When considering where zoonotic risk resides, mammals and birds (the *mammalia* and *aves* taxonomic classes) pose the greatest risks.³⁵ Many scientists have concluded that human interactions with warm blooded mammals and birds pose the greatest risk of disease spillover.³⁶ Of the zoonoses, viruses pose a great risk of spillover to people, and birds and mammals are common hosts of viruses.³⁷ As hosts, birds and mammals pose the greatest risk “due to their genetic proximity to humans.”³⁸ The more related a species is to humans, the more likely diseases from that species can also infect people.³⁹ For example, the IPBES pandemics workshop report estimated that mammals are host to 320,000 different types of viruses.⁴⁰

³³ IPBES (2020) Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrel, C., Buss, P., Dunderova, H., Feferholtz, Y., Foldvari, G., Igbinsosa, E., Junglen, S., Liu, Q., Suzan, G., Uhart, M., Wannous, C., Woolaston, K., Mosig Reidl, P., O'Brien, K., Pascual, U., Stoett, P., Li, H., Ngo, H. T., IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4147318.

³⁴ Rabi, F. A., et al. (2020). SARS-CoV-2 and coronavirus disease 2019: what we know so far. *Pathogens*, 9(3), 231.

³⁵ Halabowski, D., & Rzymiski, P. (2020). Taking a lesson from the COVID-19 pandemic: Preventing the future outbreaks of viral zoonoses through a multi-faceted approach. *Science of The Total Environment*, 143723; Walsh, M. G., Sawleshwarkar, S., Hossain, S., & Mor, S. M. (2020). Whence the next pandemic? The intersecting global geography of the animal-human interface, poor health systems and air transit centrality reveals conduits for high-impact spillover. *One Health*, 11, 100177.

³⁶ Explaining that of the animal-derived human pathogens “virtually all arose from pathogens of other warm-blooded vertebrates, primarily mammals” and birds. Wolfe, N. D., Dunavan, C. P., & Diamond, J. (2007). Origins of major human infectious diseases. *Nature*, 447(7142), 279-283.

Other scientists explain that “reservoirs of the new, zoonotic human pathogens are mainly mammals, although a small number are associated with birds.” Woolhouse, M., & Gaunt, E. (2007). Ecological origins of novel human pathogens. *Critical reviews in microbiology*, 33(4), 231-242.

³⁷ Cupertino, M. C., Resende, M. B., Mayer, N. A., Carvalho, L. M., & Siqueira-Batista, R. (2020). Emerging and re-emerging human infectious diseases: A systematic review of the role of wild animals with a focus on public health impact. *Asian Pacific Journal of Tropical Medicine*, 13(3), 99.

³⁸ Cupertino, M. C., Resende, M. B., Mayer, N. A., Carvalho, L. M., & Siqueira-Batista, R. (2020). Emerging and re-emerging human infectious diseases: A systematic review of the role of wild animals with a focus on public health impact. *Asian Pacific Journal of Tropical Medicine*, 13(3), 99.

³⁹ Lin, B., Dietrich, M. L., Senior, R. A., & Wilcove, D. S. (2021). A better classification of wet markets is key to safeguarding human health and biodiversity. *The Lancet Planetary Health*, 5(6), e386-e394. The authors explain that “A species' phylogenetic relatedness to humans has an important role in determining its potential for zoonotic spillover. In general, the more phylogenetically related a species is to humans, the more likely that diseases affecting that species can adapt to human hosts.”

⁴⁰ IPBES (2020) Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrel, C., Buss, P., Dunderova, H., Feferholtz, Y., Foldvari, G., Igbinsosa, E., Junglen, S., Liu, Q., Suzan, G., Uhart, M., Wannous, C., Woolaston, K., Mosig Reidl, P., O'Brien, K.,

Birds and mammals are also risky from a disease conveyance perspective given their prevalence in human exploitation. According to recent studies, “[l]egal and illegal wildlife trade is estimated to affect 1 in 4 mammal and bird species globally”⁴¹ and the legal wildlife trade averages \$220 billion a year or \$39.6 billion when seafood is excluded.⁴² Another study analyzing International Union for Conservation of Nature (“IUCN”) and CITES data on wildlife trade found that globally “18% of all extant terrestrial vertebrate species” are affected by wildlife trade with “a higher percentage of all birds” and mammals being traded when compared to reptiles and amphibians.⁴³ The accompanying graphic demonstrates this point:

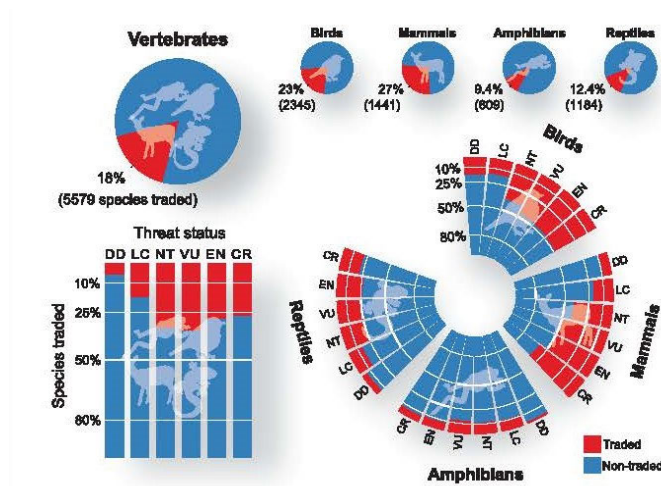


Fig. 1. Wildlife trade in terrestrial vertebrates (birds, mammals, amphibians, and reptiles) affects ~18% of species globally. Numbers in brackets are the total number of traded species. IUCN threat status codes: data deficient, DD; least concern, LC; near threatened, NT; vulnerable, VU; endangered, EN; and critically endangered, CR.

An analysis of disease reports over an eight year period from the OIE World Animal Health Information System-Wild database found that almost half the reports were on birds and almost half of the rest were on mammals.⁴⁴ Recent guidelines from the World Health Organization, the World Organisation for Animal Health, and the United Nations Environment Programme recommend that countries “[s]uspend the trade in live caught wild animals of mammalian species for food or breeding purposes.”⁴⁵ Many

Pascual, U., Stoett, P., Li, H., Ngo, H. T., IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4147318

⁴¹ Peters, A., Vetter, P., Guitart, C., Lotfinejad, N., & Pittet, D. (2020). Understanding the emerging coronavirus: what it means for health security and infection prevention. *Journal of Hospital Infection*.

⁴² Andersson, A. A., Tilley, H. B., Lau, W., Dudgeon, D., Bonebrake, T. C., & Dingle, C. (2021). CITES and beyond: Illuminating 20 years of global, legal wildlife trade. *Global Ecology and Conservation*, 26, e01455.

⁴³ Scheffers, B. R., Oliveira, B. F., Lamb, I., & Edwards, D. P. (2019). Global wildlife trade across the tree of life. *Science*, 366(6461), 71-76; Erratum for the Research Article: “Global wildlife trade across the tree of life,” by B. R. Scheffers, B. F. Oliveira, I. Lamb, D. P. Edwards - July 24, 2020.

⁴⁴ Can, Ö. E., D’Cruze, N., & Macdonald, D. W. (2019). Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. *Global Ecology and Conservation*, 17, e00515.

⁴⁵ World Health Organization. (2021). Reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets: interim guidance, 12 April 2021 (No. WHO/2019-nCoV/Food_safety/traditional_markets/2021.1). World Health Organization.

countries survey poultry and to a lesser extent other birds and contain and eradicate birds when necessary to prevent avian flu outbreaks.⁴⁶ The dire need to curtail trade in birds and mammals is a global problem, and the Service could set a global precedent by eliminating this threat.

3. The Role of the Wildlife Trade in Disease Risk

The global spread of zoonotic diseases is increasingly attributed to wildlife trade.⁴⁷ A majority of this trade is legally sanctioned, i.e., not illegal.⁴⁸ The exploitation and consumption of wildlife and wildlife products are not foreign phenomena but occur globally, constituting a multi-billion-dollar industry.⁴⁹

The United States is one of the top importers of wildlife, occupying about twenty percent of the global wildlife market.⁵⁰ On average between 2000-2012, the United States imported 225 million live animals and 883 million wildlife specimens with much of the live trade going to the pet and aquarium industry.⁵¹ Trends reveal that the quantity of wildlife entering the United States is increasing.⁵²

The wildlife trade, and people's role in exploiting wildlife, are one root cause of disease emergence.⁵³ By stressing animals, putting species together that do not typically interact in nature, and maintaining close proximity to humans, the wildlife trade creates the perfect conditions for new diseases to emerge and infect people.⁵⁴

⁴⁶ Forster, P. (2014). Ten years on: Generating innovative responses to avian influenza. *EcoHealth*, 11(1), 15-21.

⁴⁷ Johnson, C. K., et al. (2015). Spillover and pandemic properties of zoonotic viruses with high host plasticity. *Scientific reports*, 5, 14830; Wyler, L. S., & Sheikh, P. A. (2008, August). International illegal trade in wildlife: threats and US policy. Library of Congress Washington DC Congressional Research Service.

⁴⁸ Wyler, L. S., & Sheikh, P. A. (2008, August). International illegal trade in wildlife: threats and US policy. Library of Congress Washington DC Congressional Research Service.

⁴⁹ Smith, K. M., et al. (2017). Summarizing US wildlife trade with an eye toward assessing the risk of infectious disease introduction. *EcoHealth*, 14(1), 29-39; Lenzen, M., et al. (2012). International trade drives biodiversity threats in developing nations. *Nature*, 486(7401), 109-112.

⁵⁰ Smith, K. M., et al. (2017). Summarizing US wildlife trade with an eye toward assessing the risk of infectious disease introduction. *EcoHealth*, 14(1), 29-39 ["The USA is a top global consumer at the national level of legal wildlife and wildlife products according to records, along with China, and the EU as a whole"]; National Research Council. (2010). Sustaining global surveillance and response to emerging zoonotic diseases (G.T. Keusch et al. eds., 2009). The United States was the largest importer of live mammals and live amphibians between 2012-2016.

⁵¹ Smith, K. M., Zambrana-Torrel, C., White, A., Asmussen, M., Machalaba, C., Kennedy, S., ... & Karesh, W. B. (2017). Summarizing US wildlife trade with an eye toward assessing the risk of infectious disease introduction. *EcoHealth*, 14(1), 29-39 (available at: <https://link.springer.com/article/10.1007/s10393-017-1211-7>).

⁵² Between 2000-2013, the number of declared wildlife shipments into the United States doubled. Smith, K. M., Zambrana-Torrel, C., White, A., Asmussen, M., Machalaba, C., Kennedy, S., ... & Karesh, W. B. (2017). Summarizing US wildlife trade with an eye toward assessing the risk of infectious disease introduction. *EcoHealth*, 14(1), 29-39.

⁵³ Johnson, C. K., et al. (2015). Spillover and pandemic properties of zoonotic viruses with high host plasticity. *Scientific reports*, 5, 14830.

⁵⁴ Huong, N. Q., Nga, N. T. T., Long, N. V., Luu, B. D., Latinne, A., Pruvot, M., ... & Olson, S. H. (2020). Coronavirus testing indicates transmission risk increases along wildlife supply chains for human

Trade includes “the capture, transport, and containment of wild animals” all of which “induce stress, injury, sickness, and compromise immune systems” and in turn “inhibit animal immune responses and allow for enhanced shedding of pathogens.”⁵⁵ Scientific research has documented that animals become more stressed the longer they are in the supply chain (e.g., from their point of capture to processing).⁵⁶ This stress increases the risk animals will both shed and contract diseases, and trade makes it more likely wildlife will come into contact with other captured species and people, increasing the chance for diseases to evolve and mutate, including in ways that may enable them to infect people.⁵⁷ Research shows that animals that are exploited share more zoonotic diseases with humans than non-exploited animals.⁵⁸

As human populations expand so does human exploitation of wildlife. Thousands of additional species are predicted to enter the wildlife trade, further facilitating introduction of zoonoses.⁵⁹ As Dobson et al. (2020) explained regarding this threat, “[l]aws to ban the national and international trade of high risk disease reservoir species, and the will to sustain their enforcement, are necessary and precautionary steps to prevent zoonotic disease.”⁶⁰

consumption in Viet Nam, 2013-2014. *PloS one*, 15(8), e0237129; Lee, J., et al. (2020). No evidence of coronaviruses or other potentially zoonotic viruses in Sunda pangolins (*Manis javanica*) entering the wildlife trade via Malaysia. *bioRxiv*; Tu, C., et al. (2004). Antibodies to SARS coronavirus in civets. *Emerging infectious diseases*, 10(12), 2244.

⁵⁵ Walzer, C. (2020). COVID-19 and the Curse of Piecemeal Perspectives. *Frontiers in Veterinary Science*, 7, 720; Hing, S., Narayan, E. J., Thompson, R. A., & Godfrey, S. S. (2016). The relationship between physiological stress and wildlife disease: consequences for health and conservation. *Wildlife Research*, 43(1), 51-60; Lin, B., Dietrich, M. L., Senior, R. A., & Wilcove, D. S. (2021). A better classification of wet markets is key to safeguarding human health and biodiversity. *The Lancet Planetary Health*, 5(6), e386-e394.

⁵⁶ Johnson, C. K., et al. (2015). Spillover and pandemic properties of zoonotic viruses with high host plasticity. *Scientific reports*, 5, 14830; Huong, N. Q., Nga, N. T. T., Long, N. V., Luu, B. D., Latinne, A., Pruvot, M., ... & Olson, S. H. (2020). Coronavirus testing indicates transmission risk increases along wildlife supply chains for human consumption in Viet Nam, 2013-2014. *PloS one*, 15(8), e0237129; Lee, J., Hughes, T., Lee, M. H., Field, H., Rovie-Ryan, J. J., Sitam, F. T., ... & Daszak, P. (2020). No evidence of coronaviruses or other potentially zoonotic viruses in Sunda pangolins (*Manis javanica*) entering the wildlife trade via Malaysia. *Ecohealth*, 17(3), 406-418; Tu, C., et al. (2004). Antibodies to SARS coronavirus in civets. *Emerging infectious diseases*, 10(12), 2244; Walzer, C. (2020). COVID-19 and the Curse of Piecemeal Perspectives. *Frontiers in Veterinary Science*, 7, 720.

⁵⁷ Johnson, C. K., et al. (2015). Spillover and pandemic properties of zoonotic viruses with high host plasticity. *Scientific reports*, 5, 14830; Huong, N. Q., Nga, N. T. T., Long, N. V., Luu, B. D., Latinne, A., Pruvot, M., ... & Olson, S. H. (2020). Coronavirus testing indicates transmission risk increases along wildlife supply chains for human consumption in Viet Nam, 2013-2014. *PloS one*, 15(8), e0237129; Lee, J., et al. (2020). No evidence of coronaviruses or other potentially zoonotic viruses in Sunda pangolins (*Manis javanica*) entering the wildlife trade via Malaysia. *bioRxiv*; Tu, C., et al. (2004). Antibodies to SARS coronavirus in civets. *Emerging infectious diseases*, 10(12), 2244.

⁵⁸ Johnson, C. K., Hitchens, P. L., Pandit, P. S., Rushmore, J., Evans, T. S., Young, C. C., & Doyle, M. M. (2020). Global shifts in mammalian population trends reveal key predictors of virus spillover risk. *Proceedings of the Royal Society B*, 287(1924), 20192736.

⁵⁹ Scheffers, B. R., Oliveira, B. F., Lamb, I., & Edwards, D. P. (2019). Global wildlife trade across the tree of life. *Science*, 366(6461), 71-76.

⁶⁰ Dobson, A. P., Pimm, S. L., Hannah, L., Kaufman, L., Ahumada, J. A., Ando, A. W., ... & Vale, M. M. (2020). Ecology and economics for pandemic prevention. *Science*, 369(6502), 379-381.

4. **Wildlife Parts and Products Also Pose Disease Risk Especially in the Country of Origin**

Generally live animals pose the greatest risk of disease conveyance, but trade in products, parts, and other dead specimens also poses a disease risk. Specimens of dead animals have themselves conveyed diseases. For example, anthrax from a goat hide used for a drum⁶¹ or the potential for products derived from rodents infected with the smallpox virus including “hair, quills, bones, and skins” can convey the virus if not properly processed.⁶² Researchers are currently investigating whether the SARS-CoV-2 virus can be transmitted through frozen meat or other cold-chain processes.⁶³

While dead animals and animal parts present a lesser risk of direct disease transmission, the process of capturing and killing wildlife to create wildlife parts and products maintains the overall risk associated with live animal trade. As Lin et al. (2021) explained “the presence of dead wild animals presents additional health risks through the inclusion of more high disease-risk taxa, which increases the likelihood of novel pathogens and interspecific spillover, including to humans, along the supply chain.”⁶⁴ Thus, as a major consumer of dead wild animals and wild animal parts, the United States shifts the risk of disease emergence to other countries where wildlife is collected, transported, slaughtered, and processed into goods before export. In other words, demand in the United States for products sourced from wild mammals and birds still poses a disease risk but that risk is borne primarily in the source country. While disease risk has been shown to increase along the supply chain,⁶⁵ whether an animal is collected, transported, and sourced to a wildlife market, to a restaurant, for export, or to a factory or artisan to be made into a product, the disease risk up to that point in the supply chain is the same.

Disease risk must be averted, even if that risk is initially incurred outside the United States where the animal is captured and processed. A disease harbored in a person or animal can travel half-way around the world in under 24 hours or less time than it takes many infectious diseases to incubate.⁶⁶ COVID-19—and its emerging more transmissible variants—demonstrates that where a disease emerges in our global society

⁶¹ Pavlin, B. I., Schloegel, L. M., & Daszak, P. (2009). Risk of importing zoonotic diseases through wildlife trade, United States. *Emerging infectious diseases*, 15(11), 1721.

⁶² *Control of Communicable Diseases; Restrictions on African Rodents, Prairie Dogs, and Certain Other Animals*. 68 Fed. Reg. 62, 353, 62,358 (Nov. 4, 2003).

⁶³ Fisher, D., Reilly, A., Zheng, A. K. E., Cook, A. R., & Anderson, D. (2020). Seeding of outbreaks of COVID-19 by contaminated fresh and frozen food. *BioRxiv*.

⁶⁴ Lin, B., Dietrich, M. L., Senior, R. A., & Wilcove, D. S. (2021). A better classification of wet markets is key to safeguarding human health and biodiversity. *The Lancet Planetary Health*, 5(6), e386-e394.

⁶⁵ Lin, B., Dietrich, M. L., Senior, R. A., & Wilcove, D. S. (2021). A better classification of wet markets is key to safeguarding human health and biodiversity. *The Lancet Planetary Health*, 5(6), e386-e394; Huong, N. Q., et al. (2020). Coronavirus testing indicates transmission risk increases along wildlife supply chains for human consumption in Viet Nam, 2013-2014. *bioRxiv*.

⁶⁶ Kruse, H., Kirkemo, A. M., & Handeland, K. (2004). Wildlife as source of zoonotic infections. *Emerging infectious diseases*, 10(12), 2067.

is not nearly as important as how that disease arose and spread. In sum, “physical distance from the origin of outbreaks no longer provides protection.”⁶⁷

Without deceleration of wildlife trade, the United States will continue to suffer from zoonotic disease outbreaks that emerge due to such trade.⁶⁸ The United States cannot continue to ignore the disease risk posed by our demand for wildlife.

5. Disease Risk Also Arises from the Farming and Breeding of Wildlife

Farming and captive breeding to support legal wildlife trade involve large numbers of animals in poor welfare conditions, which is another likely source of zoonotic disease transmission.⁶⁹ In more temperate regions and areas where people interact more frequently with domesticated or farmed wildlife than wild animals, zoonotic disease risks are still prevalent.⁷⁰ As Magouras et al. (2020) concluded regarding wildlife farming “health-monitoring programs in wildlife farms are seldom implemented, despite intensive farming conditions and low genetic diversity” and wildlife are stressed and often immunosuppressed.⁷¹ The general lack of standards for wildlife farms plus the risks from human contact with wildlife pose a risk of spillover. Additionally, the need to source more stock from the wild increases disease risk and can threaten biodiversity.⁷²

The report from the IPBES pandemics workshop highlighted that wildlife farms act as amplifiers and enable the transmission of viruses from animals to humans and vice versa. Specifically, the report referenced civet and raccoon dog farms in China where animals became infected with the virus causing SARS and potentially played an amplification role by enabling the virus to spill over to infect people.⁷³ Mink farms in the EU, the United States, and beyond have played a similar role during the COVID-19

⁶⁷ National Academies of Sciences, Engineering, and Medicine. (2020). A strategic vision for biological threat reduction: The US Department of Defense and Beyond.

⁶⁸ Smith, K. M., Zambrana-Torrel, C., White, A., Asmussen, M., Machalaba, C., Kennedy, S., ... & Karesh, W. B. (2017). Summarizing US wildlife trade with an eye toward assessing the risk of infectious disease introduction. *EcoHealth*, 14(1), 29-39 (available at: <https://link.springer.com/article/10.1007/s10393-017-1211-7>).

⁶⁹ Can, Ö. E., D'Cruze, N., & Macdonald, D. W. (2019). Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. *Global Ecology and conservation*, 17, e00515.

⁷⁰ Wolfe, N. D., Dunavan, C. P., & Diamond, J. (2007). Origins of major human infectious diseases. *Nature*, 447(7142), 279-283.

⁷¹ Magouras, I., Brookes, V. J., Jori, F., Martin, A., Pfeiffer, D. U., & Dürr, S. (2020). Emerging Zoonotic Diseases: Should We Rethink the Animal–Human Interface?. *Frontiers in Veterinary Science*, 7, 748.

⁷² Lin, B., Dietrich, M. L., Senior, R. A., & Wilcove, D. S. (2021). A better classification of wet markets is key to safeguarding human health and biodiversity. *The Lancet Planetary Health*, 5(6), e386-e394.

⁷³ IPBES (2020) Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrel, C., Buss, P., Dundarova, H., Feferholtz, Y., Foldvari, G., Igbinsosa, E., Junglen, S., Liu, Q., Suzan, G., Uhart, M., Wannous, C., Woolaston, K., Mosig Reidl, P., O'Brien, K., Pascual, U., Stoett, P., Li, H., Ngo, H. T., IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4147318.

pandemic, enabling the virus to transfer from humans to mink, mutate, and transfer back posing the risk of new variants spreading.⁷⁴ In response to the current pandemic, China transitioned wildlife farmers keeping wildlife for human consumption by providing compensation given the risk wildlife farms pose for disease emergence.⁷⁵ As these examples demonstrate, to truly address the risk wild mammals and birds pose, farming and breeding of these wild animals must also be addressed. By drawing down demand for wild mammal and birds and products thereof, a ban would aid in reducing the need for wildlife farms to breed more wildlife.

6. Costs from Disease Outbreaks Are Significant and Include Loss of Life as Well As Economic Consequences

The uncontrolled spread of a zoonotic disease can lead to public health emergencies and create devastating economic and societal impacts around the world. Zoonoses can cause many different types of illnesses in people, ranging in severity and scope.⁷⁶ Certain zoonoses may only cause mild illness in discrete populations, while other zoonoses, like COVID-19, can cause severe illness and death with impacts to the global population.

Each year, zoonotic diseases cause approximately one billion cases of human illness and millions of deaths globally.⁷⁷ These large-scale impacts on human health directly impact the global economy. However, zoonoses can also jeopardize diplomatic relations between countries, undermine global biodiversity conservation efforts, and imperil food security and production.⁷⁸ Governments worldwide must alter their national health budgets to tackle zoonotic disease outbreaks.⁷⁹ In the past twenty years (before COVID-19), global economic damage caused by emerging zoonoses is estimated around hundreds of billions of dollars.⁸⁰

⁷⁴ Sharun, K., Tiwari, R., Natesan, S., & Dhama, K. (2020). SARS-CoV-2 infection in farmed minks, associated zoonotic concerns, and importance of the One Health approach during the ongoing COVID-19 pandemic. *Veterinary Quarterly*, 1-14, DOI: 10.1080/01652176.2020.1867776.

⁷⁵ Xiao, L., Lu, Z., Li, X., Zhao, X., & Li, B. V. (2021). Why do we need a wildlife consumption ban in China?. *Current Biology*, 31(4), R168-R172.

⁷⁶ CDC, *Zoonotic Diseases*, available at: <https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html> (last visited June 12, 2021).

⁷⁷ Can, Ö. E., D'Cruze, N., & Macdonald, D. W. (2019). Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. *Global Ecology and conservation*, 17, e00515.

⁷⁸ Can, Ö. E., D'Cruze, N., & Macdonald, D. W. (2019). Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. *Global Ecology and conservation*, 17, e00515; Smith, K. M., Zambrana-Torrel, C., White, A., Asmussen, M., Machalaba, C., Kennedy, S., ... & Karesh, W. B. (2017). Summarizing US wildlife trade with an eye toward assessing the risk of infectious disease introduction. *EcoHealth*, 14(1), 29-39.

⁷⁹ Can, Ö. E., D'Cruze, N., & Macdonald, D. W. (2019). Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. *Global Ecology and conservation*, 17, e00515.

⁸⁰ This figure does not account for the major economic damage caused by COVID-19. Can, Ö. E., D'Cruze, N., & Macdonald, D. W. (2019). Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. *Global Ecology and conservation*, 17, e00515.

Estimates of the total cost of the current COVID-19 pandemic are in the trillions of dollars.⁸¹ Yet, experts convened by IPBES warn that “[f]uture pandemics will emerge more often, spread more rapidly, do more damage to the world economy and kill more people than COVID-19.”⁸² These costs must be considered alongside the costs of preventative measures—as the economic cost of maintaining the current reactive approach to disease emergence far exceeds the costs of measures to prevent or reduce disease emergence.⁸³ Preventive measures have ancillary benefits in terms of addressing the biodiversity and climate crises as well.⁸⁴

The immediate economic consequences of banning mammal and bird trade could be mitigated by the Service through coordinated federal economic aid and capacity building. Such aid is needed to transition jobs from the wildlife supply chain and to invest in the surveillance and research positions required to understand and prevent disease risk as well as into the conservation and restoration positions that are needed to curtail biodiversity loss.

7. Trade in Wild Mammals and Birds Also Threatens Native Wildlife and Domesticated Animals Due to the Introduction of Disease and Invasive Species

Even when zoonotic diseases fail to jump to humans, zoonoses can have catastrophic effects on wildlife. Novel zoonoses brought to ecosystems through the introduction of non-native species can affect the health of plants and wildlife and cause environmental damage.⁸⁵ For example, the decline of large groups of wildlife in the United States, including bats, amphibians, and snakes, has been caused by the accidental importation of zoonotic diseases.⁸⁶

⁸¹ Dobson, A. P., Pimm, S. L., Hannah, L., Kaufman, L., Ahumada, J. A., Ando, A. W., ... & Vale, M. M. (2020). Ecology and economics for pandemic prevention. *Science*, 369(6502), 379-381. The authors relied upon IMF projections to reach the \$5.6 trillion global GDP loss from the COVID-19 pandemic (Dobson et al. supplementary materials).

⁸² IPBES (2020) Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrel, C., Buss, P., Dundarova, H., Feferholtz, Y., Foldvari, G., Igbinsosa, E., Junglen, S., Liu, Q., Suzan, G., Uhart, M., Wannous, C., Woolaston, K., Mosig Reidl, P., O'Brien, K., Pascual, U., Stoett, P., Li, H., Ngo, H. T., IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4147318.

⁸³ Dobson, A. P., Pimm, S. L., Hannah, L., Kaufman, L., Ahumada, J. A., Ando, A. W., ... & Vale, M. M. (2020). Ecology and economics for pandemic prevention. *Science*, 369(6502), 379-381.

⁸⁴ Dobson, A. P., Pimm, S. L., Hannah, L., Kaufman, L., Ahumada, J. A., Ando, A. W., ... & Vale, M. M. (2020). Ecology and economics for pandemic prevention. *Science*, 369(6502), 379-381.

⁸⁵ Wyler, L. S., & Sheikh, P. A. (2008, August). International illegal trade in wildlife: threats and US policy. Library of Congress Washington DC Congressional Research Service.

⁸⁶ Frick, W. F., Puechmaile, S. J., & Willis, C. K. (2016). White-nose syndrome in bats. In *Bats in the Anthropocene: Conservation of bats in a changing world* (pp. 245-262). Springer, Cham; Lips, K. R., Brem, F., Brenes, R., Reeve, J. D., Alford, R. A., Voyles, J., ... & Collins, J. P. (2006). Emerging infectious disease and the loss of biodiversity in a Neotropical amphibian community. *Proceedings of the National Academy of Sciences*, 103(9), 3165-3170; Lorch, J. M., Knowles, S., Lankton, J. S., Michell, K., Edwards, J. L., Kapfer, J. M., ... & Blehert, D. S. (2016). Snake fungal disease: an emerging threat to wild snakes. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 371(1709), 20150457.

Not all diseases that affect wildlife are fatal but some such as foot and mouth disease, bovine tuberculosis, rinderpest, and others have been incredibly costly.⁸⁷ Additionally, zoonoses can be transmitted between wild and domesticated animals, such as pets and livestock.⁸⁸ The ongoing efforts to control the spread of rabies is a good example.⁸⁹

The SARS-CoV-2 virus has infected and been demonstrated to be able to infect a wide array of wildlife and domesticated animals. From cats and dogs in people's homes, to great apes and large carnivores in zoos, the virus poses consequences for wildlife that are not fully understood.⁹⁰ A key example is the mink. Found in the wild in the United States and also farmed for its fur, mink have not only contracted the SARS-CoV-2 virus but the virus has mutated in mink (in the United States and European countries), creating new variants.⁹¹ This species' susceptibility to COVID-19 also poses the risk of the virus spreading among wild mink and potentially re-emerging as variants in the future.⁹² This could have consequences for the efficacy of vaccines or efforts to eradicate the virus.⁹³

8. The Era of Pandemics Is a Symptom of the Biodiversity Crisis

Exploitation of wildlife, animals, and nature by people is the root cause of disease emergence.⁹⁴ But this exploitation is also driving the loss of biodiversity and the extinction of species.⁹⁵ The 2019 Global Assessment Report by IPBES concluded that we

⁸⁷ Weaver, G. V., Domenech, J., Thiermann, A. R., & Karesh, W. B. (2013). Foot and mouth disease: a look from the wild side. *Journal of Wildlife Diseases*, 49(4), 759-785; Carstensen, M., & DonCarlos, M. W. (2011). Preventing the establishment of a wildlife disease reservoir: a case study of bovine tuberculosis in wild deer in Minnesota, USA. *Veterinary medicine international*, 2011; Roeder, P., Mariner, J., & Kock, R. (2013). Rinderpest: the veterinary perspective on eradication. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 368(1623), 20120139.

⁸⁸ Johnson, C. K., Hitchens, P. L., Pandit, P. S., Rushmore, J., Evans, T. S., Young, C. C., & Doyle, M. M. (2020). Global shifts in mammalian population trends reveal key predictors of virus spillover risk. *Proceedings of the Royal Society B*, 287(1924), 20192736.

⁸⁹ Birhane, M. G., Cleaton, J. M., Monroe, B. P., Wadhwa, A., Orciari, L. A., Yager, P., ... & Wallace, R. M. (2017). Rabies surveillance in the United States during 2015. *Journal of the American Veterinary Medical Association*, 250(10), 1117-1130.

⁹⁰ Sharun, K., Tiwari, R., Natesan, S., & Dhama, K. (2020). SARS-CoV-2 infection in farmed minks, associated zoonotic concerns, and importance of the One Health approach during the ongoing COVID-19 pandemic. *Veterinary Quarterly*, 1-14, DOI: 10.1080/01652176.2020.1867776; McAloose, D., Laverack, M., Wang, L., Killian, M. L., Caserta, L. C., Yuan, F., ... & Diel, D. G. (2020). From people to Panthera: Natural SARS-CoV-2 infection in tigers and lions at the Bronx Zoo. *MBio*, 11(5), e02220-20.

⁹¹ Sharun, K., Tiwari, R., Natesan, S., & Dhama, K. (2020). SARS-CoV-2 infection in farmed minks, associated zoonotic concerns, and importance of the One Health approach during the ongoing COVID-19 pandemic. *Veterinary Quarterly*, 1-14, DOI: 10.1080/01652176.2020.1867776.

⁹² Shriner, S. A., Ellis, J. W., Root, J. J., Roug, A., Stopak, S. R., Wiscomb, G. W., ... & DeLiberto, T. J. (2021). SARS-CoV-2 exposure in escaped mink, Utah, USA. *Emerging infectious diseases*, 27(3), 988.

⁹³ Delahay, R. J., de la Fuente, J., Smith, G. C., Sharun, K., Snary, E. L., Girón, L. F., ... & Gortazar, C. (2021). Assessing the risks of SARS-CoV-2 in wildlife. *One Health Outlook*, 3(1), 1-14.

⁹⁴ Dobson, A. P., Pimm, S. L., Hannah, L., Kaufman, L., Ahumada, J. A., Ando, A. W., ... & Vale, M. M. (2020). Ecology and economics for pandemic prevention. *Science*, 369(6502), 379-381.

⁹⁵ Symes, W. S., McGrath, F. L., Rao, M., & Carrasco, L. R. (2018). The gravity of wildlife trade. *Biological Conservation*, 218, 268-276. The authors find that "Wildlife trade is now one of the most pressing threats to species survival globally."

stand to lose a million species, many within decades, absent “transformative change.”⁹⁶ Exploitation of wildlife, including wildlife trade, is the secondary driver of the loss of terrestrial species.⁹⁷

Scientists estimate that current extinction rates are “at least 100–1,000 times background extinction rates and future extinction rates (over the next 50 years) are estimated to be 10 to 100 times present extinction rates.”⁹⁸ Additionally, as Ceballos et al. (2017) explained, “beyond global species extinctions, Earth is experiencing a huge episode of population declines and extirpations, which will have negative cascading consequences.”⁹⁹ Trade and exploitation of “wild-caught individuals of threatened or declining species presents a clear threat to biodiversity, as it directly contributes to species’ extinction risk.”¹⁰⁰ Thus, curtailing the trade in mammals and birds not only helps prevent future pandemics but will also help preserve the fabric of life upon which all people depend.

9. Surveillance Efforts Are Insufficient and Bans Are Needed for Pandemic and Extinction Prevention

Current efforts to address the risks of wildlife trade, both globally and within the United States, are insufficient to detect and prevent future zoonotic disease outbreaks.¹⁰¹ The lack of adequate, integrated disease surveillance creates a substantial gap in global detection efforts.¹⁰² Further, the majority of global scientific and surveillance resources to counter disease emergence are found in Europe, North America, Australia, and some parts of Asia, while infectious diseases are more likely to originate from the global south.¹⁰³ Experts conclude that spillover of zoonoses between wildlife and humans are

⁹⁶ IPBES (2019) Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany.

⁹⁷ IPBES (2019) Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany.

⁹⁸ Keesing, F., Belden, L. K., Daszak, P., Dobson, A., Harvell, C. D., Holt, R. D., ... & Ostfeld, R. S. (2010). Impacts of biodiversity on the emergence and transmission of infectious diseases. *Nature*, 468(7324), 647-652.

⁹⁹ Ceballos, G., Ehrlich, P. R., & Dirzo, R. (2017). Biological annihilation via the ongoing sixth mass extinction signaled by vertebrate population losses and declines. *Proceedings of the national academy of sciences*, 114(30), E6089-E6096.

¹⁰⁰ Lin, B., Dietrich, M. L., Senior, R. A., & Wilcove, D. S. (2021). A better classification of wet markets is key to safeguarding human health and biodiversity. *The Lancet Planetary Health*, 5(6), e386-e394.

¹⁰¹ Han, B. A., Kramer, A. M., & Drake, J. M. (2016). Global patterns of zoonotic disease in mammals. *Trends in parasitology*, 32(7), 565-577.

¹⁰² Can, Ö. E., D’Cruze, N., & Macdonald, D. W. (2019). Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. *Global Ecology and conservation*, 17, e00515; Johnson, C.K., et al. (2020). Global shifts in mammalian population trends reveal key predictors of virus spillover risk. *Proc. R. Soc. B* 287: 20192736. <http://dx.doi.org/10.1098/rspb.2019.2736>.

¹⁰³ Jones, K. E., Patel, N. G., Levy, M. A., Storeygard, A., Balk, D., Gittleman, J. L., & Daszak, P. (2008). Global trends in emerging infectious diseases. *Nature*, 451(7181), 990-993. The authors found that “Our analysis shows that there is a high spatial reporting bias for EID events (see Methods, Supplementary Fig. 3), reflecting greater surveillance and infectious disease research effort in richer, developed countries of Europe, North America, Australia and some parts of Asia, than in developing regions. This contrasts with

most likely vastly underreported because of the poor allocation of global disease detection efforts and inequalities in healthcare access.¹⁰⁴ Thus, by the time an outbreak is reported, the zoonotic disease may have already crossed international boundaries.

The lack of adequate surveillance is not just an international problem. The United States also lacks the capacity to detect zoonotic diseases carried by imported wildlife. There is no comprehensive system for screening imported wildlife for zoonotic diseases when it enters the United States—and such a system is likely impossible due to the unpredictable nature of zoonoses.¹⁰⁵ Additionally, the United States Government Accountability Office concludes that gaps in the current statutory and regulatory framework across multiple federal agencies increase the risk that live animals imported into the United States will carry zoonotic diseases.¹⁰⁶ Further, there have traditionally been significant delays in the detection and identification of wildlife carrying zoonoses, and as a result, disease or disease-carrying wildlife can become well-established in the United States well before the Service bans their importation.¹⁰⁷

To be clear, surveillance will never succeed on its own given the inherent uncertainties surrounding the emergence of infectious diseases of zoonotic origin. Zoonoses are unpredictable, and perhaps unknowable, in nature and can find hosts in an infinite number of animals throughout the world. Moreover, the number of unknown viruses globally is estimated at a staggering 1.7 million, with scientists approximating that between 631,000 to 827,000 unknown viruses might be able to infect people.¹⁰⁸ Without knowing what to look for, even the best surveillance system will miss emerging diseases. Thus, halting the transmission of zoonoses and emerging infectious diseases is key. An important first step toward decreasing the risk of future outbreaks is to ban trade in wildlife and especially those species known to serve as hosts to diseases that might spill over to people—namely mammals and birds. Unless we fundamentally

our risk maps (Fig. 3), which suggest that predicted emerging disease hotspots due to zoonotic pathogens from wildlife and vector-borne pathogens are more concentrated in lower-latitude developing countries.”

¹⁰⁴ Johnson, C.K., et al. (2020). Global shifts in mammalian population trends reveal key predictors of virus spillover risk. *Proc. R. Soc. B* 287: 20192736. <http://dx.doi.org/10.1098/rspb.2019.2736>; Jones, K. E., Patel, N. G., Levy, M. A., Storeygard, A., Balk, D., Gittleman, J. L., & Daszak, P. (2008). Global trends in emerging infectious diseases. *Nature*, 451(7181), 990-993.

¹⁰⁵ Wyler, L. S., & Sheikh, P. A. (2008, August). International illegal trade in wildlife: threats and US policy. Library of Congress Washington DC Congressional Research Service; Smith, K. M., Zambrana-Torrel, C., White, A., Asmussen, M., Machalaba, C., Kennedy, S., ... & Karesh, W. B. (2017). Summarizing US wildlife trade with an eye toward assessing the risk of infectious disease introduction. *EcoHealth*, 14(1), 29-39.

¹⁰⁶ U.S. Gov't Accountability Office, LIVE ANIMAL IMPORTS: Agencies Need Better Collaboration to Reduce the Risk of Animal-Related Diseases (2010).

¹⁰⁷ Alexander, K. (2013). Injurious Species Listings Under the Lacey Act: A Legal Briefing. Congressional Research Service.

¹⁰⁸ IPBES (2020) Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrel, C., Buss, P., Dundarova, H., Feferholtz, Y., Foldvari, G., Igbiosa, E., Junglen, S., Liu, Q., Suzan, G., Uhart, M., Wannous, C., Woolaston, K., Mosig Reidl, P., O'Brien, K., Pascual, U., Stoett, P., Li, H., Ngo, H. T., IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4147318.

change our relationship with nature and alter human behavior, pandemics like COVID-19 will continue to occur and bring calamitous consequences. We either pay the costs for transformative change or pay the even greater costs of business as usual.¹⁰⁹

Limited forms of mammal and bird trade should be allowed to continue subject to scrutiny and regulation. While a majority of United States mammal imports, for example, are for commercial purposes (including food, pets, medicine, etc.), a small number of imports are for conservation or scientific (non-biomedical) research.¹¹⁰ It is important that conservation, scientific research, education, and other key activities continue. Thus, the petitioned regulatory provisions maintain the existing exemption for zoological, educational, medical, or scientific purposes from a ban on trade in the *mammalia* and *aves* taxa but expands it to include products as well as live animals.

LEGAL BACKGROUND

1. Authority to Implement a Ban

As originally crafted in 1900, the Lacey Act contained “a nearly blanket prohibition on the importation of all wild mammals and birds.”¹¹¹ The original intent of the Act was to create a broad ban with only limited exceptions, which makes sense given the current circumstances of the COVID-19 pandemic.

While the Act has been amended from its original form, today, the Service maintains clear authority to develop regulations to ban the import of wild birds and mammals and products therefrom. The Lacey Act grants the Service authority to ban the import of any “species of wild mammals, wild birds, fish (including mollusks and crustacea), amphibians, reptiles, brown tree snakes, or the offspring or eggs of any of the foregoing species” found to be “injurious to human beings” or to wildlife.¹¹² Thus, the agency is granted broad authority to create and implement a regulatory scheme beyond the specifically enumerated species that Congress has already deemed injurious.

Neither Lacey nor the Service’s regulations precisely define what “injurious” means, but the statute allows the Service to deem wildlife “injurious” due to its impact or potential to impact “human beings” or “wildlife.”¹¹³ As a matter of practice, the Service has listed species in a precautionary matter as injurious based on potential risk

¹⁰⁹ Dobson, A. P., Pimm, S. L., Hannah, L., Kaufman, L., Ahumada, J. A., Ando, A. W., ... & Vale, M. M. (2020). Ecology and economics for pandemic prevention. *Science*, 369(6502), 379-381.

¹¹⁰ Pavlin, B. I., Schloegel, L. M., & Daszak, P. (2009). Risk of importing zoonotic diseases through wildlife trade, United States. *Emerging infectious diseases*, 15(11), 1721.

¹¹¹ Jewell, S. D. (2020). A century of injurious wildlife listing under the Lacey Act: a history. *Management of Biological Invasions*, 11(3), 356.

¹¹² Specifically, the Lacey Act provides that “[t]he importation into the United States, . . . or any possession of the United States, of . . . such other species of wild mammals, wild birds, fish (including mollusks and crustacea), amphibians, reptiles, brown tree snakes, or the offspring or eggs of any of the foregoing which the Secretary of the Interior may prescribe by regulation to be injurious to human beings, to the interests of agriculture, horticulture, forestry, or to wildlife or the wildlife resources of the United States, is hereby prohibited.” 18 U.S.C. § 42(a)(1).

¹¹³ 18 U.S.C. § 42(1).

of disease spread. In 2016, the Service listed 201 salamanders from 20 genera as injurious under the Lacey Act after the agency determined that various species of salamanders could be a vector for the fungus *Batrachochytrium salamandrivorans* (Bsal), which caused major die-offs in salamanders in Europe and posed an imminent threat to U.S. native salamander populations. Notably, not all of the listed salamanders were confirmed carriers of Bsal, but the Service identified at least one species from each genus that was a carrier, and there was no “countervailing conclusive evidence suggesting that some species within the genus are not carriers,” so the agency found that “due to shared characteristics by species within a genus, other species within these genera are also highly likely to be carriers of Bsal.”¹¹⁴

The Lacey Act defines “wild” as “any creatures that, whether or not raised in captivity, normally are found in a wild state.”¹¹⁵ This grants authority to the Service to regulate wildlife from the wild as well as from farming and breeding facilities when the species occurs in the wild. Herein “imports and exports” of birds and mammals include not only live animals but also “any part, product, egg, or offspring thereof,” as defined by the Lacey Act.¹¹⁶

2. Authority to Adopt a Chain-of-Custody and Tracing System

The Service has authority to establish and implement a wildlife tracing system under the ESA and CITES as well as the agency’s authority under the Lacey Act. Currently, anyone wishing to import or export wildlife, parts, or products into or out of the United States is required to complete wildlife declaration Form 3-177. The form collects basic data from importers and exporters including: the date and purpose of the import or export; the species’ name, country of origin, and quantity of specimens imported or exported; and the names of importers, exporters, and carriers.¹¹⁷

Additionally, the ESA makes it unlawful for any person “without having first obtained permission from the Secretary [of the Interior], to engage in business as an importer or exporter of fish or wildlife.”¹¹⁸ Commercial importers and exporters of wildlife are required to “keep such records as will fully and correctly disclose each importation or exportation of . . . wildlife . . . and the subsequent disposition made by him with respect to such . . . wildlife.”¹¹⁹ The Secretary of the Interior is directed to promulgate such regulations which are “necessary and appropriate” to effectuate these conditions of trade.¹²⁰

The Service also implements the Lacey Act including its provisions making a host of imports and exports unlawful when done contrary not only to U.S. federal law but

¹¹⁴ *Listing Salamanders Due to Risk of Salamander Chytrid Fungus*, 81 Fed. Reg. 1,534, 1,534 (Jan. 13, 2016), available at: <https://www.govinfo.gov/content/pkg/FR-2016-01-13/pdf/2016-00452.pdf>

¹¹⁵ 18 U.S.C. § 42(a)(2).

¹¹⁶ 16 U.S.C. § 3371(a).

¹¹⁷ 50 C.F.R. § 14.61; USFWS Form 3-177 (revised 03/10).

¹¹⁸ 16 U.S.C. § 1538(d)(1).

¹¹⁹ 16 U.S.C. § 1538(d)(2)(A).

¹²⁰ 16 U.S.C. § 1538(d)(3).

also state and tribal laws or contrary to treaties and any foreign law. 16 U.S.C. § 3372(a).¹²¹ As discussed previously, Lacey also restricts trade in injurious species.¹²² To carry out these legal provisions, ensuring that all wildlife, parts, products, etc. are traced from point of origin through the trade chain to their final point of sale—whether exported or imported—would be hugely beneficial to ensuring the legality of the trade but also for tracking specimens from which diseases may emerge.

Additionally, as a Party to CITES, the Service has reporting obligations as well as implementation and enforcement responsibilities for species listed on CITES' appendices. For example, CITES requires that exports of CITES-listed species must not be obtained in contravention of the laws of that nation.¹²³ A system that traces wildlife from its point of origin in the trade supply chain will aid Service officials in ensuring that exports were acquired legally and help spur other CITES Parties to create similar systems.

To fully implement these laws and protect the public from future pandemics and respond to biodiversity loss, a detailed tracing system in addition to the data currently provided in Form 3-177 is needed. Given that the Service has designated ports for wildlife, an inspection system, and works in coordination with Customs and Border Patrol, it should expand upon the Service's existing regulatory authorities to create the necessary tracing system to fully track wildlife, parts, and products to help prevent future pandemics.

PROPOSED REGULATORY CHANGES

1. Ban on Import of All Wild Mammals and Birds

In order to both reduce the risk of future pandemics and address the biodiversity crisis, we petition the Service to use its authority under the Lacey Act as well as its ESA and CITES authorities to ban imports of all wild mammals and birds and products thereof.¹²⁴ In so doing, the Service must find that trade in wild mammals and birds and any part, product, egg, or offspring thereof is injurious to people and wildlife. We petition for the following regulatory changes to accomplish this task given the dire circumstances we face unless we transform our relationship with wildlife.

Pursuant to Section 553(e) of the Administrative Procedure Act, petitioners request that the Secretary of the Department of the Interior adopt the following amendments to the Service regulations implementing the Lacey Act (Title 50 of the

¹²¹ Specifically, the Lacey act makes it unlawful for any person to “to import, export, transport, sell, receive, acquire, or purchase any fish or wildlife or plant taken, possessed, transported, or sold in violation of any law, treaty, or regulation of the United States or in violation of any Indian tribal law.” 16 U.S.C. § 3372(a)(1). Likewise, “to import, export, transport, sell, receive, acquire, or purchase in interstate or foreign commerce—(A) any fish or wildlife taken, possessed, transported, or sold in violation of any law or regulation of any State or in violation of any foreign law . . .” 16 U.S.C. § 3372(a)(2).

¹²² 18 U.S.C. § 42(a)(1).

¹²³ CITES art. III(2)(b), IV(2)(b), V(2)(a).

¹²⁴ This request does not include psittacine birds per 18 U.S.C. § 42(a)(4).

Code of Federal Regulations, Part 16). Deletions are marked with ~~strikeout~~ and additions are indicated with underlining:

§ 16.11 Importation of ~~live~~ wild mammals and their parts.

(a) The importation, transportation, or acquisition is prohibited of all wild mammals including live specimens and any part, product, egg, or offspring thereof of: (1) Any species of so-called "flying fox" or fruit bat of the genus *Pteropus*; (2) any species of mongoose or meerkat of the genera *Atilax*, *Cynictis*, *Helogale*, *Herpestes*, *Ichneumia*, *Mungos*, and *Suricata*; (3) any species of European rabbit of the genus *Oryctolagus*; (4) any species of Indian wild dog, red dog, or dhole of the genus *Cuon*; (5) any species of multimammate rat or mouse of the genus *Mastomys*; (6) any raccoon dog, *Nyctereutes procyonoides*; and (7) any brushtail possum, *Trichosurus vulpecula*: Provided, that the Director shall issue permits authorizing the importation, transportation, and possession of such mammals under the terms and conditions set forth in § 16.22.

(b) ~~Upon the filing of a written declaration with the District Director of Customs at the port of entry as required under § 14.61, all other species of live wild mammals may be imported, transported, and possessed in captivity, without a permit, for scientific, medical, educational, exhibition, or propagating purposes, but no such live wild mammals or any progeny thereof may be released into the wild except by the State wildlife conservation agency having jurisdiction over the area of release or by persons having prior written permission for release from such agency: Provided, That the provisions of this paragraph shall not apply to live game mammals from Mexico, the importation of which is governed by regulations under part 14 of this chapter.~~

§ 16.12 Importation of ~~live~~ wild birds or their eggs.

(a) The importation, transportation, or acquisition is prohibited of all wild birds including any live specimen, or egg, part, product, or offspring but excluding psittacine birds of (1) the species of so-called "pink starling" or "rosy pastor" *Sturnus roseus*; (2) the species of dioch (including the subspecies black-fronted, red-billed, or Sudan dioch) *Quelea quelea*; (3) any species of Java sparrow, *Padda oryzivora*; (4) the species of red-whiskered bul-bul, *Pycnonotus jocosus*: Provided, That the Director shall issue permits authorizing the importation, transportation, and possession of such ~~live~~ birds under the terms and conditions set forth in § 16.22.

(b) ~~Upon the filing of a written declaration with the District Director of Customs at the port of entry as required under § 14.61, all species of live wild game, birds may be imported, transported, and possessed in captivity, without a permit, for scientific, medical, educational, exhibition, or propagating purposes, and the eggs of such birds may be imported, transported, and possessed, without a permit, for propagating or scientific collection purposes, but no such live wild game birds or any progeny thereof may be released into the wild except by the State wildlife conservation agency having jurisdiction over the area of release or by persons having prior written permission for release from such agency.~~

~~(c) Upon the filing of a written declaration with the District Director of Customs at the port of entry as required under § 14.61, all species of live, wild nongame birds (other than those listed in paragraph (a) of this section) may be imported, transported, and possessed in captivity, without a permit, for scientific, medical, educational, exhibition, or propagating purposes, but no such live, wild nongame birds or any progeny thereof may be released into the wild except by or under the direction of State wildlife conservation agencies when such agencies have received prior written permission from the Director for such release: And Further p~~Provided, That the provisions of this paragraph shall not apply to live bald and golden eagles or to live migratory birds, the importation of which is governed by regulations under parts 22 and 21 of this chapter, respectively, or to birds of the Family Psittacidae (parrots, macaws, cockatoos, parakeets, lorries, lovebirds, etc.), the importation and transportation of which is governed by U.S. Public Health Service regulations under 42 CFR parts 71 and 72.

(d) The importation of the eggs of wild nongame birds is prohibited except as permitted under § 16.33.

§ 16.22 Injurious wildlife permits.

The Director may, upon receipt of an application and in accordance with the issuance criteria of this section, issue a permit authorizing the importation into or shipment between the continental United States, the District of Columbia, Hawaii, the Commonwealth of Puerto Rico, or any possession of the United States of injurious wildlife (See subpart B of this part) for zoological, educational, medical, or scientific purposes.

(a) Application requirements. Submit applications for permits to import, transport, or acquire injurious wildlife for such purposes to the attention of the Director, U.S. Fish and Wildlife Service, at the address listed for the Division of Management Authority at 50 CFR 2.1(b). Submit applications in writing on a Federal Fish and Wildlife License/Permit application (Form 3-200) and attach all of the following information:

- (1) The number of specimens and the common and scientific names (genus and species) of each species of live wildlife proposed to be imported or otherwise acquired, transported and possessed;
- (2) The purpose of such importation or other acquisition, transportation and possession;
- (3) The address of the premises where such any live wildlife will be kept in captivity;
- (4) A statement of the applicant's qualifications and previous experience in caring for and handling captive wildlife (if applicable).

(b) Additional permit conditions. In addition to the general conditions set forth in part 13 of this subchapter B, permits to import or ship injurious wildlife for zoological, educational, medical, or scientific purposes shall be subject to the following conditions:

(1) All live wildlife acquired under permit and all progeny thereof, must be confined in the approved facilities on the premises authorized in the permit.

(2) No live wildlife, acquired under permit, or any eggs or progeny thereof, may be sold, donated, traded, loaned, or transferred to any other person unless such person has a permit issued by the Director under § 16.22 authorizing him to acquire and possess such wildlife or the eggs or progeny thereof.

(3) Permittees shall notify the nearest Special Agent-in-Charge (see § 10.22 of this chapter) by telephone or other expedient means within 24 hours following the escape of any wildlife imported or transported under authority of a permit issued under this section, or the escape of any progeny of such wildlife, unless otherwise specifically exempted by terms of the permit.

(4) No live wild mammals or birds or any progeny thereof may be released into the wild except by the State wildlife conservation agency having jurisdiction over the area of release or by persons having prior written permission for release from such agency.

(c) Issuance criteria. The Director shall consider the following in determining whether to issue a permit to import or ship injurious wildlife for zoological, educational, medical, or scientific purposes:

(1) Whether the wildlife is being imported or otherwise acquired for a bona fide scientific, medical, educational, or zoological exhibition purpose;

(2) Whether the facilities for holding the wildlife in captivity have been inspected and approved, and consist of a basic cage or structure of a design and material adequate to prevent escape which is maintained inside a building or other facility of such structure that the wildlife could not escape from the building or other facility after escaping from the cage or structure maintained therein;

(3) Whether the applicant is a responsible person who is aware of the potential dangers to public interests posed by such wildlife, and who by reason of his knowledge, experience, and facilities reasonably can be expected to provide adequate protection for such public interests; and

(4) If such wildlife is to be imported or otherwise acquired for zoological or aquarium exhibition purposes, whether such exhibition or display will be open to the public during regular appropriate hours.

(d) The Office of Management and Budget approved the information collection requirements contained in this part 16 under 44 U.S.C. 3507 and assigned OMB Control Number 1018-0093. The Service may not conduct or sponsor, and you are not required to respond to, a collection of information unless it displays a currently valid OMB control number. We are collecting this information to provide information necessary to evaluate permit applications. We will use this information to review permit applications and make decisions, according to criteria established in various Federal wildlife conservation

statutes and regulations, on the issuance, suspension, revocation, or denial of permits. You must respond to obtain or retain a permit. We estimate the public reporting burden for these reporting requirements to average 2 hours per response, including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the forms. Direct comments regarding the burden estimate or any other aspect of these reporting requirements to the Service's Information Collection Clearance Officer at the address provided at 50 CFR 2.1(b).

2. Establishment of a Wildlife Tracing Program

The Department of the Interior's current regulatory scheme provides "uniform rules and procedures for the importation, exportation, and transportation of wildlife"¹²⁵ and is implemented by the Service and Customs and Border Protection (CBP). Individuals who seek to import or export wildlife or wildlife products (other than seafood) must complete a Declaration upon importation or exportation, disclose the contents of each shipment, abide by port restrictions on shipping, obtain clearance from the Service for wildlife entering or leaving the country, and, for commercial shipments, must obtain a license from the Service.¹²⁶

The proposed amendments to the regulations are necessary to close critical information reporting gaps in the current regulatory framework. FWS has broad power to track imports and exports of wildlife and plants and to ensure any continuing trade is subject to a full-traceability regimen through recordation and reporting requirements. This proposal is similar to the National Oceanic and Atmospheric Administration's (NOAA) Seafood Import Monitoring Program (SIMP) implemented in 2016.¹²⁷ SIMP established reporting and recordkeeping requirements for imports of certain seafood products to prevent illegally caught and misrepresented seafood from entering U.S. commerce.¹²⁸ SIMP requires an importer to provide and report key data about the seafood imported, from the point of harvest to the point of entry into U.S. commerce.¹²⁹ A similar system for wildlife trade is petitioned for herein.

The Service can follow this precedent and implement a full-traceability system for traded wildlife that requires robust data collection and reporting with minimal exceptions. This can be achieved through strengthening the Declaration requirements in 50 C.F.R. §§ 14.61, 14.63 and the addition of a requirement to demonstrate chain of custody in §§ 14.52-14.53. Such a system will further the United States' ability to comply with and implement the ESA, CITES and the Lacey Act. A chain of custody requirement

¹²⁵ 50 C.F.R. § 14.1.

¹²⁶ 50 C.F.R. §§ 14.11, 14.20, 14.52, 14.53, 14.61, 14.63, 14.81, 14.91.

¹²⁷ *Seafood Import Monitoring Program*, 81 Fed. Reg. 88,975 (Dec. 9, 2016).

¹²⁸ NOAA, *U.S. seafood import monitoring program*,

<https://www.iuufishing.noaa.gov/RecommendationsandActions/RECOMMENDATION1415/FinalRuleTraceability.aspx> (last visited Aug. 2, 2021).

¹²⁹ *U.S. seafood import monitoring program*, NAT'L OCEANIC & ATMOSPHERIC ADMIN.,

<https://www.iuufishing.noaa.gov/RecommendationsandActions/RECOMMENDATION1415/FinalRuleTraceability.aspx> (last visited Aug. 7, 2020).

would, additionally, serve the purpose of facilitating tracking of wildlife hosting zoonoses in the case of an outbreak among animal or human populations.

Pursuant to Section 553(e) of the Administrative Procedure Act, petitioners request that the Secretary of the Department of Interior adopt the following amendments to the Service's regulations on importation, exportation, and transportation of wildlife at 50 C.F.R. §§ 14.52-14.53, 14.61-14.63 (deletions are marked with ~~strikeout~~ and additions are indicated with underlining):

Subpart E—Inspection and Clearance of Wildlife

§ 14.52 Clearance of imported wildlife.

(a) Except as otherwise provided by this subpart, a Service officer must clear all wildlife imported into the United States prior to release from detention by Customs officers. A Service officer must clear all wildlife to be exported from the United States prior to the physical loading of the merchandise on a vehicle or aircraft, or the containerization or palletizing of such merchandise for export, unless a Service officer expressly authorizes otherwise. Such clearance does not constitute a certification of the legality of an importation or exportation under the laws or regulations of the United States.

(b) An importer/exporter or his/her agent may obtain clearance by a Service officer only at designated ports (§ 14.12), at border ports (§ 14.16), at special ports (§ 14.19), or at a port where importation or exportation is authorized by a permit issued under subpart C of this part. An importer/exporter must return forthwith any wildlife released without a Service officer's clearance or clearance by Customs for the Service under authority of § 14.54 to a port where clearance may be obtained pursuant to this subpart.

(c) To obtain clearance, the importer, exporter, or the importer's or exporter's agent will make available to a Service officer or a Customs officer acting under § 14.54:

(1) All shipping documents (including bills of lading, waybills and packing lists or invoices);

(2) All permits, licenses or other documents required by the laws or regulations of the United States;

(3) All permits or other documents required by the laws or regulations of any foreign country;

(4) The wildlife being imported or exported; ~~and~~

(5) Any documents and permits required by the country of export or re-export for the wildlife;

(6) All documents demonstrating proof of authority or authorization for the person or entity to collect wildlife or wildlife products; and

(7) All documents to establish the chain of custody of the wildlife that identify each custodian of the wildlife or wildlife product including the name and contact information of each transshipper, processor, storage facility, or distributor of wildlife or wildlife products from point of collection to import into the United States or export from the United States, as well as any documents demonstrating proof of authority or authorization for the person or entity to ship, transport, export, or import such wildlife or wildlife products.

§ 14.53 Detention and refusal of clearance.

(a) Detention. Any Service officer, or Customs officer acting under § 14.54, may detain imported or exported wildlife and any associated property. As soon as practicable following the importation or exportation and decision to detain, the Service will mail a notice of detention by registered or certified mail, return receipt requested, to the importer or consignee, or exporter, if known or easily ascertainable. Such notice must describe the detained wildlife or other property, indicate the reason for the detention, describe the general nature of the tests or inquiries to be conducted, and indicate that if the releasability of the wildlife has not been determined within 30 days after the date of the notice, or a longer period if specifically stated, that the Service will deem the wildlife to be seized and will issue no further notification of seizure.

(b) Refusal of clearance. Any Service officer ~~may~~ shall refuse clearance of imported or exported wildlife and any Customs officer acting under § 14.54 ~~may~~ shall refuse clearance of imported wildlife when there are responsible grounds to believe that:

(1) A Federal law or regulation has been violated;

(2) The correct identity, ~~and~~ country of origin, and chain of custody of the wildlife has not been established (in such cases, the burden is upon the owner, importer, exporter, consignor, or consignee to establish such identity by scientific name to the species level or, if any subspecies is protected by the laws of this country or the country of origin to the subspecies level);

(3) Any permit, license, or other documentation required for clearance of such wildlife is not available, is not currently valid, has been suspended or revoked, or is not authentic;

(4) The importer, exporter, or the importer's or exporter's agent has filed an incorrect or incomplete declaration for importation or exportation as provided in § 14.61 or § 14.63; or

(5) The importer, exporter, or the importer's or exporter's agent has not paid any fee or portion of balance due for inspection fees required by § 14.93 or § 14.94, or penalties assessed against the importer or exporter under 50 CFR part 11. This paragraph does

not apply to penalty assessments on appeal in accordance with the provisions of part 11.

Subpart F—Wildlife Declarations

§ 14.61 Import declaration requirements.

(a) Except as otherwise provided by the regulations of this subpart, importers or their agents must file with the Service a completed Declaration for Importation or Exportation of Fish or Wildlife (Form 3-177), signed by the importer or the importer's agent, upon the importation of any wildlife at the place where Service clearance under § 14.52 is ~~requested~~ required. However, wildlife may be transshipped under bond to a different port for release from custody by Customs Service officers under 19 U.S.C. 1499. For certain antique articles as specified in § 14.22, importers or their agents must file a Form 3-177 with the District Director of Customs at the port of entry prior to release from Customs custody. Importers or their agents must furnish all applicable information requested on the Form 3-177 and the importer, or the importer's agent, must certify that the information furnished is true and complete ~~to the best of his/her knowledge and belief~~ under penalty of perjury.

(b) A Declaration for Importation of Fish or Wildlife (Form 3-177) must include all full and complete information, as follows. When a Declaration for Importation or Exportation of Fish or Wildlife (Form 3-177) is incomplete, the Fish and Wildlife Service shall inform the importer of the missing information within 24 hours. An incomplete Declaration for Importation of Fish or Wildlife (Form 3-177) shall result in refusal of clearance, as specified in § 14.53

(1) Date of import;

(2) Import license number;

(3) Port of clearance;

(4) Purpose code;

(5) Customs Document number(s);

(6) Name of carrier;

(7) Air waybill or bill of lading number;

(8) Transportation code, including license number and relevant state or province;

(9) Number of cartons containing wildlife;

(10) Markings on cartons containing wildlife;

- (11) Complete name, and address, telephone number, and e-mail address of person or entity importing the wildlife, including Identifier Number and ID type;
- (12) Complete name, foreign address, telephone number, and e-mail address of foreign person or entity exporting the wildlife, including country code, Identifier Number, and ID type;
- (13) Complete business name, address, telephone number, and fax number or e-mail address of customs broker, shipping agent, or freight forwarder, including contact name, Identifier Number, and ID type;
- (14) Name and address of person or entity that collected the wildlife;
- (15) Name and address of any person, production facility, or other enterprise that transformed or altered wildlife from its whole, wild or natural state into a wildlife product;
- (16) Name and address of all persons or entities that transported the wildlife from point of collection to point of importation;
- (16) Genus and species name of each individual animal or wildlife product that is being imported;
- (17) Common name of each individual animal or wildlife product being imported;
- (18) Venomous live wildlife indication;
- (19) Country of species origin code for each individual animal or wildlife product being imported, and the conservation status of that species in the nation of origin;
- (20) Foreign and United States CITES permit numbers, if applicable;
- (21) Description code of each individual animal or wildlife product being imported;
- (22) Source code of each individual animal or wildlife product being imported;
- (23) Quantity or unit of each individual animal or wildlife product being imported;
- (24) Total monetary value of animal or wildlife products being imported;
- (25) Date when and location where wildlife was collected. Importer shall provide the province or relevant sub-national jurisdiction for each individual wild animal or wildlife product that is harvested from the wild. For farmed or captive-bred wildlife, the specific address or Global Position System location of the wildlife farm or breeding facility must be disclosed;
- (26) Quantity of specimen(s) that are being imported.

(27) For animal-derived products, the estimated number of individual animals from which the product derived;

(27) Name of individual or entity that is the first point of sale after import of wildlife or wildlife product, if known at the time of import; and

(28) Certification under penalty of perjury that the information furnished is true and correct.

(c) Notwithstanding the requirements in section (b), if the wildlife or wildlife product imported is exclusively for personal or household use, and will not enter commerce, the non-commercial importer may indicate on Declaration for Importation or Exportation of Fish or Wildlife (Form 3-177) any information which is reasonably unknowable to the non-commercial importer. Fish and Wildlife Service may permit or prohibit the importation of those wildlife or wildlife products for personal or household use, at its discretion after consideration of the following:

(1) Whether the genus and species name of each individual animal or wildlife product being imported is likely adequately identified;

(2) Whether the nation of origin of the individual animal or wildlife product is likely accurately identified;

(3) Whether the location of collection of the individual animal or wildlife product is likely accurately identified; and

(4) Whether it can be confirmed that the individual animal or wildlife product was collected in accordance with relevant international and national regulations.

(d) Commercial importers must make their facilities, equipment, and business records, used in the importation of wildlife or wildlife products, available to Fish and Wildlife Service agents for inspection during operating business days and hours, and at other necessary and reasonable times, to enable Fish and Wildlife Service to ascertain compliance with the regulations in this section.

(e) Each individual or entity that submits a completed Declaration for Importation or Exportation of Fish or Wildlife (Form 3-177) hereby waives all privileges under any exemption provided by the Freedom of Information Act for all information provided on the Declaration, except for the street address and email and fax numbers, and all data collected from Declarations for Importation or Exportation of Fish or Wildlife (Form 3-177) and input into the Law Enforcement Management Information System (LEMIS) database shall be made available publicly by the Service every quarter.

§ 14.63 Export declaration requirements.

(a) Except as otherwise provided by the regulations of this subpart, a completed Declaration for Importation or Exportation of Fish or Wildlife (Form 3-177) signed by the exporter, or the exporter's agent, shall be filed with the Service prior to the export of any wildlife at the port of exportation as authorized in subpart B of this part. All applicable information requested on the Form 3-177 shall be furnished, and the exporter or the exporter's agent shall certify that the information furnished is true and complete to the best of his/her knowledge and belief under penalty of perjury.

(b) A Declaration for Exportation of Fish or Wildlife (Form 3-177) must include all full and complete information, as follows. When a Declaration for Importation or Exportation of Fish or Wildlife (Form 3-177) is incomplete, the Fish and Wildlife Service shall inform the importer of the missing information within 24 hours. An incomplete Declaration for Importation or Exportation of Fish or Wildlife (Form 3-177) will result in refusal of clearance, as specified in

(1) Date of export;

(2) Import license number;

(3) Port of clearance;

(4) Purpose code;

(5) Customs Document number(s);

(6) Name of carrier;

(7) Air waybill or bill of lading number;

(8) Transportation code, including license number and relevant state or province;

(9) Number of cartons containing wildlife;

(10) Markings on cartons containing wildlife;

(11) Complete name, and address, telephone number, and e-mail address of person or entity exporting the wildlife, including Identifier Number and ID type;

(12) Complete name, foreign address, telephone number, and e-mail address of foreign person or entity importing the wildlife, including country code, Identifier Number, and ID type;

(13) Complete business name, address, telephone number, and fax number or e-mail address of customs broker, shipping agent, or freight forwarder, including contact name, Identifier Number, and ID type;

- (14) Name and address of person or entity that collected the wildlife;
- (15) Name and address of any person, production facility, or other enterprise that transformed or altered wildlife from its whole, wild or natural state into a wildlife product;
- (16) Name and address of all persons or entities that transported the wildlife from point of collection to point of exportation;
- (16) Genus and species name of each individual animal or wildlife product that is being imported;
- (17) Common name of each individual animal or wildlife product being imported;
- (18) Venomous live wildlife indication;
- (19) Country of species origin code for each individual animal or wildlife product being exported, and the conservation status of that species in the nation of origin;
- (20) Foreign and United States CITES permit numbers, if applicable;
- (21) Description code of each individual animal or wildlife product being exported;
- (22) Source code of each individual animal or wildlife product being exported;
- (23) Quantity or unit of each individual animal or wildlife product being exported;
- (24) Total monetary value of animal or wildlife products being exported;
- (25) Date when and location where wildlife was collected. Exporter shall ascertain no greater than the state or Tribal jurisdiction for each individual wild animal or wildlife product that is harvested from the wild. For farmed wildlife, the specific address or Global Position System location of the wildlife farm must be disclosed;
- (26) Quantity of specimen(s) that are being exported;
- (27) For animal-derived products, the estimated number of individual animals from which the product derived;
- (27) Name of individual or entity that is the first point of sale after export of wildlife or wildlife product, if known at the time of export; and
- (28) Certification under penalty of perjury that the information furnished is true and correct.
- (c) Notwithstanding the requirements in section (b), if the wildlife or wildlife product exported is exclusively for personal or household use, and will not enter commerce, the

non-commercial exporter may indicate on Declaration for Importation or Exportation of Fish or Wildlife (Form 3-177) any information which is reasonably unknowable to the non-commercial exporter. Fish and Wildlife Service may permit or prohibit the exportation of those wildlife or wildlife products for personal or household use, at its discretion after consideration of the following:

(1) Whether the genus and species name of each individual animal or wildlife product being exported is likely adequately identified;

(2) Whether the nation of origin of the individual animal or wildlife product is likely accurately identified;

(3) Whether the location of collection of the individual animal or wildlife product is likely accurately identified; and

(4) Whether it can be confirmed that the individual animal or wildlife product was collected in accordance with relevant international and national regulations.

(d) Commercial exporters must make their facilities, equipment, and business records, used in the exportation of wildlife or wildlife products, available to Fish and Wildlife Service agents for inspection during operating business days and hours, and at other necessary and reasonable times, to enable Fish and Wildlife Service to ascertain compliance with the regulations in this section.

(e) Each individual or entity that submits a completed Declaration for Importation or Exportation of Fish or Wildlife (Form 3-177) hereby waives all privileges under any exemption provided by the Freedom of Information Act except for the street portion of the address and email and fax numbers, and all data collected from Declarations for Importation or Exportation of Fish or Wildlife (Form 3-177) and input into the Law Enforcement Management Information System (LEMIS) database shall be made available publicly by the Service every quarter.

3. The Need for Coordinated U.S. Financial Resources to Accompany Import Bans

We urge the Service to accompany the necessary trade bans and tracing system with a holistic plan for coordinating with the U.S. Agency for International Development and other federal agencies to increase resources directed toward ensuring a smooth transition away from wild mammal and bird trade. Capacity building and funding are needed to aid developing countries with transitioning livelihoods from trade, farming, and breeding of wild mammals and birds and to invest in surveillance and tracing systems as well as conservation and restoration programs.

As the National Academies of Science noted “[i]nternational engagement is one of the most cost-effective tools available to prevent adverse events rather than to

respond to them after they occur.”¹³⁰ Scientists predict a COVID-like event will occur every decade unless concerted changes take place. Those changes require financial resources and capacity building programs to transition livelihoods and develop coordinated surveillance, conservation, and restoration initiatives.

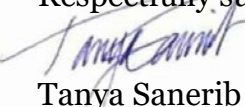
By prioritizing U.S. conservation funding and capacity building to transition jobs away from exploitation of mammals and birds the United States will be investing in an international effort that reduces disease risk. At the same time, the United States can help ensure that individuals with specific knowledge about local wildlife can put their skills to use in monitoring and surveillance, aiding in scientific research, and ensuring that conservation and where needed restoration of wildlife populations and the ecosystems upon which they depend takes place. This requires coordination among federal grantmaking and development agencies to ensure adequate resources accompany the petitioned for regulatory changes.

CONCLUSION

Zoonoses clearly pose a genuine, severe threat to biodiversity and species health, as well as to human health, economic security, and diplomatic relations. Future pandemics will likely be caused by wildlife and be zoonotic in nature. Allowing wildlife and wildlife products to enter and leave the United States with limited regulation poses an unnecessary risk of zoonotic disease introduction and transmission that the Secretary of the Interior can reduce this risk by acting pursuant to her authority under the Lacey Act, the Endangered Species Act, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora, respectively. Action is needed now to prevent zoonoses from entering the country through wildlife trade by implementing a wild mammal and bird ban along with a comprehensive tracing system for all imported and exported wildlife.

For further information or to discuss this petition, please contact the organizational representatives listed below.

Respectfully submitted,


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¹³⁰ National Academies of Sciences, Engineering, and Medicine. (2020). A strategic vision for biological threat reduction: The US Department of Defense and Beyond.