THE IMPORT OF ZOONOTIC DISEASES

INTRODUCTION

In 2020, "zoonosis"[1] reemerged in mainstream discourse as a result of the COVID-19 pandemic.[2] However, the United States had been grappling with phases of panic around severe acute respiratory syndrome, swine flu, Middle East respiratory syndrome, Ebola virus, and Zika virus[3] for the last two decades — each time letting disease prevention fade into memory once more. Perhaps a scarcity of virology expertise could account for the lack of comprehensive pandemic measures following the global 1918 Spanish flu outbreak,[4] but why is it that the last two decades of epidemics never produced a cohesive system for pandemic preparedness?[5] Here, law is one of the best vehicles for effectuating desired changes because global health is often a shared policy objective[6] and laws can be tailored to the balance between a state's unique circumstances and public health objectives. This Note argues that the United States lacks an answer to the problem of zoonoses. With Congress's recent passage of the One Health Act,[7] a provision granting agencies significant authority to combat zoonotic disease outbreaks,[8] this Note explores one of the several avenues through which the United States can monitor and curtail zoonotic disease spread: its customs regime.

Part I explains the significance of zoonotic diseases and the connection between the animal trade and disease spread. Part II examines how zoonotic diseases fit into current policies, including import policies, and explains why these measures are presently inadequate. Part III proposes

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[1] Zoonoses are "any disease or infection that is naturally transmissible from vertebrate animals to humans." *Zoonoses*, WHO (July 29, 2020), https://www.who.int/news-room/fact-sheets/detail/zoonoses [https://perma.cc/MS5D-ZMSD].

[2] *See, e.g.*, Ferris Jabr, *How Humanity Unleashed a Flood of New Diseases*, N.Y. TIMES (June 25, 2020), https://www.nytimes.com/2020/06/17/magazine/animal-disease-covid.html [https://perma.cc/D4LM-JGVD].

[3] A. Wilder-Smith, *COVID-19 in Comparison with Other Emerging Viral Diseases: Risk of Geographic Spread via Travel*, TROPICAL DISEASES TRAVEL MED. & VACCINES, Jan. 31, 2021, 1–2.

[4] *See 1918 Influenza Pandemic (Spanish Flu)*, CLEV. CLINIC (Oct. 24, 2024), https://my.clevelandclinic.org/health/diseases/21777-spanish-flu [https://perma.cc/HX5Y-DHCF].

[5] Bill Gates, *The Next Outbreak? We're Not Ready*, TED (Mar. 2015), https://www.ted.com/talks/bill_gates_the_next_outbreak_we_re_not_ready/transcript?language=en [https://perma.cc/5FS9-EZBM]; Timothy I. Mellish et al., *Why Were the UK and USA Unprepared for the COVID-19 Pandemic? The Systemic Weaknesses of Neoliberalism: A Comparison Between the UK, USA, Germany, and South Korea*, 7 J. GLOB. FAULTLINES 9, 25 (2020) (characterizing the United States's response to the 2020 COVID-19 pandemic as "disjointed" in comparison to other states).

[6] Tedros Adhanom Ghebreyesus et al., *Investing in Global Health: A Common Objective*, WHO (June 23, 2023), https://www.who.int/news-room/commentaries/detail/investing-in-global-health--a-common-objective [https://perma.cc/6MJP-YHDN].

[7] 42 U.S.C. § 300hh–37.

[8] *Id.*

a new regime for controlling imports into the United States in order to reduce the global demand for wildlife and create a more effective system of monitoring and intervention for zoonotic disease-carrying agents. This Note concludes with broader considerations about the United States's footprint in zoonoses and its role in global pandemic prevention.

I. THE PROBLEM OF ZOONOSES

Zoonosis has ebbed and flowed as a subject of scholarly and social interest but remains largely without solution. This Part explains why zoonotic diseases constitute an important issue that requires a dedicated regulatory scheme. It further explains that, because the animal trade elevates the risk of disease spread and because the United States is the biggest wildlife importer in the global animal trade, the United States bears particular responsibility for ensuring that its imports do not create a new channel for zoonotic disease spread.

A. Prevalence of Zoonotic Diseases

The deadliest outbreaks in history, including the plague, Spanish flu, HIV/AIDS, and COVID-19 pandemics, have all been zoonotic.[9] "Spillover" events, where a disease moves from one species to another, occur over the course of human-animal interactions.[10] These interactions have given rise to some of the most common infectious diseases in humans, such as AIDS,[11] which emerged from nonhuman primates, or rabies, which infects a range of hosts.[12] These are not isolated examples: Sixty percent of emerging infectious diseases are zoonotic, and of these diseases, about seventy-two percent originate in wildlife.[13] Together, "zoonoses are responsible for 2.5 billion cases of human illness and 2.7 million human deaths worldwide" each year.[14]

Zoonotic diseases can spread in a variety of ways because they emerge from a vast array of pathogens.[15] These pathogens can be transmitted from animals to humans, humans to animals, or sometimes

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[9] *See* Shrikanth Sampath et al., *Pandemics Throughout the History*, CUREUS, Sept. 20, 2021, art. e18136, at 2–4.

[10] ANN LINDER ET AL., ANIMAL MARKETS AND ZOONOTIC DISEASE IN THE UNITED STATES 7 (2023).

[11] Beatrice H. Hahn et al., *AIDS as a Zoonosis: Scientific and Public Health Implications*, 287 SCIENCE 607, 607 (2000).

[12] *Rabies*, WHO (June 5, 2024), https://www.who.int/news-room/fact-sheets/detail/rabies [https://perma.cc/8Z2J-4RG6].

[13] Kate E. Jones et al., *Global Trends in Emerging Infectious Diseases*, 451 NATURE 990, 990 (2008).

[14] Kelley Lee, *The Global Governance of Emerging Zoonotic Diseases*, COUNCIL ON FOREIGN RELS. (Feb. 2023), https://www.cfr.org/report/global-governance-emerging-zoonotic-diseases [https://perma.cc/LSC5-9PDF].

[15] *See generally* Tanvir Rahman et al., *Zoonotic Diseases: Etiology, Impact, and Control*, MICROORGANISMS, Sept. 2020, art. 1405.

humans to animals then back to humans.[16] Research has steadily revealed the animal origins of these diseases, such as the discovery of ticks as carriers of Lyme disease[17] and birds as carriers of certain strains of influenza.[18] Oftentimes, animals carry other disease hosts (rats with plague-carrying fleas are the classic example[19]), or their bodies contain pathogens that are exposed during decomposition.[20] Both live animals and animal remains are therefore capable of spreading zoonotic diseases to new hosts. Once a disease has been transmitted to a human host, the human is most often considered a "'dead-end' host[], meaning that there is no subsequent human-to-human transmission."[21] Outbreaks occur in sustained human-to-human transmissions, at which point the probability of spread depends on the infectious period length, mortality, host immunity, and human behavior.[22] Sustained human-animal contact in areas with high population density elevates this risk.

B. Zoonotic Diseases & the Wildlife Trade

1. Domestic Markets. — Animal markets host some of the densest concentrations of animal-animal and human-animal interactions, giving rise to multiple risk factors: the presence of pathogens, intense confinement, poor animal health, mixing of species, and human exposure.[23] In live animal markets around the world, these risk factors are intensified. These markets often carry wild animals either captured from their habitats or bred in captivity.[24] Animals are trafficked for purposes of consumption, companionship, medicine, and creating novelty items.[25] Both legally and illegally obtained "animal species of all kinds, from different origins, ecosystems, and taxonomic groups are caged and crowded together, sharing the same unsanitary and unnatural space, food, water, and also the ecto- and endoparasitic vectors of disease," which "lead[s] to the exchange of pathogenic and parasitic microorganisms, forcing interactions among species that should never happen."[26]

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[16] *Id.* at 1, 7.

[17] Willy Burgdorfer et al., *Lyme Disease — A Tick-Borne Spirochetosis?*, 216 SCIENCE 1317, 1317 (1982).

[18] Robert G. Webster & Elizabeth Jane Walker, *Influenza*, 91 AM. SCIENTIST 122, 123 (2003).

[19] *Plague*, MAYO CLINIC (Apr. 20, 2023), https://www.mayoclinic.org/diseases-conditions/plague/symptoms-causes/syc-20351291 [https://perma.cc/T64J-6PZC].

[20] *Animal Transmitted Diseases*, WASH. STATE DEP'T OF HEALTH, https://doh.wa.gov/you-and-your-family/illness-and-disease-z/animal-transmitted-diseases [https://perma.cc/3JDC-AM2G].

[21] Stephen G. Baum, *Zoonoses — With Friends Like This, Who Needs Enemies?*, 119 TRANSACTIONS AM. CLINICAL & CLIMATOLOGICAL ASS'N 39, 39 (2008).

[22] *See generally* Nita Madhav et al., *Pandemics: Risks, Impacts, and Mitigation*, *in* DISEASE CONTROL PRIORITIES 315 (Dean T. Jamison et al. eds., 3d ed. 2018).

[23] LINDER ET AL., *supra* note 10, at 30.

[24] *Id.* at 9, 18.

[25] Daya J. Taylor, *Improving Wet Market Regulation to Control the Spread of Disease*, 23 ASIAN-PAC. L. & POL'Y J. 97, 102 (2021).

[26] Jorge Galindo-González, *Live Animal Markets: Identifying the Origins of Emerging Infectious Diseases*, CURRENT OP. ENV'T SCI. & HEALTH, Feb. 2022, art. 100310, at 1.

From recent memory, the coronavirus behind the COVID-19 pandemic was found to be ninety-six percent identical to a bat coronavirus,[27] and the most likely source of spillover was traced to a live animal market in Wuhan, China.[28] Less than twenty years before, the SARS outbreak of 2002 was traced to the active civet cat trade within live animal markets of southern China[29] — civet cat was an ingredient in a delicacy in China's Guangdong province.[30] Today, civet cats in Indonesia are farmed in captivity to produce kopi luwak coffee for coffee afficionados across the world.[31] When the international trade is factored in and the same products sold at these domestic markets reach shipping hubs, the zoonotic risks of the activities along the chain are compounded.

2. International Trade of Wildlife & Animal Products. — Between 1997 and 2016, the global legal wildlife trade alone was estimated to be worth between $2.9 and 4.4 trillion.[32] This could be accounted for by the harvesting of wild animals (for protein, micronutrients, or money), recreational hunting and consumption, trading live animals for recreation or research, and using animal parts for "decorative, medicinal, and other commercial products."[33] This trade uniquely elevates the risk of transmission because infected animals are being sold away from their

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[27] Peng Zhou et al., *A Pneumonia Outbreak Associated with a New Coronavirus of Probable Bat Origin*, 579 NATURE 270, 270 (2020).

[28] A. Alonso Aguirre et al., *Illicit Wildlife Trade, Wet Markets, and COVID-19: Preventing Future Pandemics*, 12 WORLD MED. & HEALTH POL'Y 256, 256 (2020). There is growing evidence of a connection between the SARS-CoV-2 variant and the Wuhan market, although there is a group of scientists and politicians who, despite a lack of direct evidence, are convinced that the variant's origins track with safety risks at the Wuhan Institute of Virology. Sheryl Gay Stolberg & Benjamin Mueller, *Lab Leak or Not? How Politics Shaped the Battle Over Covid's Origin*, N.Y. TIMES (Mar. 23, 2023), https://www.nytimes.com/2023/03/19/us/politics/covid-origins-lab-leak-politics.html [https://perma.cc/VK9V-H7N5]. Experts also dispute the presence of bats (as well as pangolins, which have been identified as another potential host) at these markets. Xiao Xiao et al., *Animal Sales from Wuhan Wet Markets Immediately Prior to the COVID-19 Pandemic*, SCI. REPS., June 7, 2021, art. 11898, at 3. However, further studies into the spillover origins indicate that the virus could have found an intermediate host, such as raccoon dogs sold at the market. Smriti Mallapaty, *COVID-Origins Study Links Raccoon Dogs to Wuhan Market*, 615 NATURE NEWS 771, 771 (2023). Altogether, this research strongly indicates that the virus spilled over from bats either directly at the market or through an intermediate host sold at the market.

[29] Yi Guan et al., *Isolation and Characterization of Viruses Related to the SARS Coronavirus from Animals in Southern China*, 302 SCIENCE 276, 276 (2003).

[30] Ian Sample & John Gittings, *In China the Civet Cat Is a Delicacy — And May Have Caused Sars*, THE GUARDIAN (May 23, 2003, 9:47 PM), https://www.theguardian.com/world/2003/may/24/china.sars [https://perma.cc/2S2P-KC25].

[31] Anthony Esguerra, *Could the Next Pandemic Be Brewing in "Filthy" Civet Cat Coffee Farms?*, VICE (Sept. 9, 2020, 8:46 AM), https://www.vice.com/en/article/filthy-civet-cat-coffee-coronavirus-pandemic [https://perma.cc/VE2Z-ZPW8].

[32] Astrid Alexandra Andersson et al., *CITES and Beyond: Illuminating 20 Years of Global, Legal Wildlife Trade*, GLOB. ECOLOGY & CONSERVATION, Jan. 2021, art. e01455, at 1.

[33] DELIA GRACE RANDOLPH ET AL., PREVENTING THE NEXT PANDEMIC: ZOONOTIC DISEASES AND HOW TO BREAK THE CHAIN OF TRANSMISSION 15 (Maarten Kappelle & Pinya Sarasas eds., 2020).

native environments and introduced into new environments and hosts.[34] The means of such spillover events are well-illustrated by the U.S. mpox outbreak of 2003: A shipment of approximately 800 small mammals was imported from Ghana to a wholesaler in Texas.[35] A portion of these animals was housed at an animal vendor in Illinois near prairie dogs, and among these animals, two African giant pouched rats, nine dormice, and three rope squirrels were infected with the mpox virus.[36] The prairie dogs contracted the virus and were sold as pets, which caused the disease to spread to humans.[37] This example only captures the effect that a subset of 800 imported animals had in 2003 — one can only imagine the collective effect that the 224 million live animals imported in 2019[38] had on elevating zoonotic risk, which ignores the significant effects of products derived from wildlife.

The United States is the largest importer in the world of both domesticated animals and wildlife — "[i]n 2019, the United States legally imported more than 224 million live wild animals and 883 million wildlife products worth over $4.3 billion."[39] Simultaneously, the United States is also a global leader in animal *exports*,[40] oftentimes importing the same animals' byproducts later[41] (for example, animals to be slaughtered for their fur or meat are exported and their products are imported[42]). This means that the United States is capable of dramatically influencing both the global supply and demand curves through altering its import restrictions or enforcing its existing ones.

So pandemic regulation rests not only on jurisdictions overseeing high-risk farms and markets, but also on the United States. As the largest importer in the trade, the United States is responsible for curbing its own demand and monitoring imports to ensure they meet a standard for health and safety. Indeed, "[m]ore emerging infectious diseases originated in the United States than in any other country in the world during the second half of the 20th century."[43] Moreover, enforcing U.S.

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[34] Michelle Marie Esposito et al., *The Impact of Human Activities on Zoonotic Infection Transmissions*, ANIMALS, May 15, 2023, art. 1646, at 7.

[35] *Past U.S. Cases and Outbreaks*, CTRS. FOR DISEASE CONTROL & PREVENTION (Sept. 13, 2024), https://www.cdc.gov/mpox/outbreaks/past-us-cases [https://perma.cc/F2N9-T54Q].

[36] *Id.*

[37] *Id.*

[38] CTR. FOR BIOLOGICAL DIVERSITY & NAT. RES. DEF. COUNCIL, END WILDLIFE TRADE: AN ACTION PLAN TO PREVENT FUTURE PANDEMICS 1 (2020).

[39] LINDER ET AL., *supra* note 10, at 8.

[40] *See* Andersson et al., *supra* note 32, at 4.

[41] LINDER ET AL., *supra* note 10, at 21.

[42] *See id.*

[43] *Id.* at 5 (citing Jones et al., *supra* note 13, at 990). The United States was one of the likely sources of the 1918 Spanish flu pandemic. *Id.*

restrictions has the potential upstream effect of altering labor conditions, thereby reducing disease exposure in source markets.[44]

3. Demand & Policy Changes. — A survey conducted in 2021 found that "nearly 30% of people surveyed across China, Myanmar, Thailand, Vietnam and the United States say they have consumed less or stopped consuming wildlife altogether because of the global health crisis."[45] This could suggest an organic transition in consumer behavior, but these effects are likely temporary. Considering the short-term effects of post-pandemic responses, these effects will most likely be short-lived unless additional interventions are established. There was a dramatic drop in the recorded wildlife trade in 2020, but the 2021 numbers have recovered significantly.[46] There have been short dips in the trade throughout the years, but the overall trajectory reflects significant long-term growth.[47] Short-term dips in the wildlife trade will not move the needle on disease spillover in the long run. It is also uncertain whether local wildlife trade bans will be enforced in the future if pandemic concerns fade into memory and poverty alleviation efforts, with a particular focus on wildlife farming,[48] resume priority. With these delicate balancing acts in mind, it is unrealistic to demand long-term changes to another state's domestic legal agenda.

II. ANIMAL TRADE & ZOONOTIC DISEASE GOVERNANCE

Zoonoses have not gone completely ignored, but they receive little specialized attention in the law. This Part reviews both the international measures that have potential to govern zoonotic disease spread and the U.S. rules that apply to imported goods. This Part further explains how international mechanisms ultimately seesaw between enforceability and generality such that there is no binding provision that is targeted at zoonoses. Meanwhile, U.S. import guidelines are targeted at specific products and ignore the vast majority of traded wildlife and products.

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[44] *See* Press Release, U.S. Customs & Border Prot., CBP Modifies Withhold Release Order in Response to Smart Glove's Successful Actions to Address Forced Labor Supply Chain Issues (Apr. 26, 2023), https://www.cbp.gov/newsroom/national-media-release/cbp-modifies-withhold-release-order-response-smart-glove-s [https://perma.cc/Q68Y-ECP2].

[45] Press Release, World Wildlife Fund, Consumption of Wildlife Drops Almost 30% over Links to COVID-19 (May 24, 2021), https://www.worldwildlife.org/press-releases/consumption-of-wildlife-drops-almost-30-over-links-to-covid-19 [https://perma.cc/5ZY3-MHFU].

[46] *See What Is CITES?*, CONVENTION ON INT'L TRADE IN ENDANGERED SPECIES OF WILD FAUNA & FLORA, https://cites.org/eng/disc/what.php [https://perma.cc/B6GU-8QKM].

[47] *Id.*

[48] *See* Michael Standaert, *Coronavirus Closures Reveal Vast Scale of China's Secretive Wildlife Farm Industry*, THE GUARDIAN (Feb. 24, 2020, 10:01 PM), https://www.theguardian.com/environment/2020/feb/25/coronavirus-closures-reveal-vast-scale-of-chinas-secretive-wildlife-farm-industry [https://perma.cc/D4N3-2MK2].

A. International Regulation

Since zoonoses are a global problem, it may be tempting to first seek international solutions. An examination into some of the instruments that may be used in this capacity reveals serious deficiencies.

1. Convention on International Trade in Endangered Species of Wild Fauna & Flora. — The Convention on International Trade in Endangered Species of Wild Fauna & Flora[49] (CITES) is a treaty that has been ratified by 184 parties to "ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species."[50] While CITES does not regulate the wildlife trade beyond what is necessary for sustainability,[51] its Secretariat compiles data provided by parties regarding the number and nature of authorized transactions in wild species.[52]

CITES is binding on its parties and imposes minimum standards for the international trade of more than 38,000 regulated species.[53] However, CITES does not regulate zoonotic risks and may be ineffective for such a goal. For example, turtles can host Salmonella[54] and many turtle species have come under CITES protection,[55] but U.S. turtle populations are still struggling with overexploitation.[56] Finally, amending CITES to include provisions targeted at zoonotic diseases would still require each party to pass domestic implementing legislation.[57]

2. World Health Organization. — The World Health Organization (WHO) of the United Nations has a dedicated set of protocols for monitoring diseases. Unlike CITES, which is directed at preserving

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[49] Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1973, 27 U.S.T. 1087, 993 U.N.T.S. 243 [hereinafter CITES].

[50] *What Is CITES?*, *supra* note 46.

[51] *See id.*

[52] Sofie H. Flensborg, *Convention on International Trade in Endangered Species of Wild Fauna and Flora*, *in* INTERNATIONAL EXPORT REGULATIONS AND CONTROLS: NAVIGATING THE GLOBAL FRAMEWORK BEYOND WTO RULES 26, 33 (World Trade Org. ed., 2023), https://www.wto.org/english/res_e/booksp_e/international_exp_regs_e.pdf [https://perma.cc/T3QR-9P4F].

[53] *Id.* at 27.

[54] Salmonella *Outbreak Linked to Small Turtles — August 2024*, CTRS. FOR DISEASE CONTROL & PREVENTION (Aug. 1, 2024), https://www.cdc.gov/salmonella/outbreaks/turtles-08-24 [https://perma.cc/93WP-7GWA].

[55] CITES, *supra* note 49, apps. I–III, at 45–49 (May 25, 2024).

[56] *See* Tara Easter & Neil Carter, *Analysis of 20 Years of Turtle Exports from the US Reveals Mixed Effects of CITES and a Need for Better Monitoring*, CONSERVATION SCI. & PRAC., Apr. 2024, art. e13092, at 5–7.

[57] *What Is CITES?*, *supra* note 46; *see also* Daniel W.S. Challender & Douglas C. MacMillan, *Poaching Is More than an Enforcement Problem*, 7 CONSERVATION LETTERS 484, 486–87 (2014) ("[C]hanges in demand for wildlife products have been more effective in controlling trade, leading to population recovery, than a purely regulatory approach." *Id.* at 486.).

biodiversity,[58] the WHO is directly charged with protecting global health.[59] Under the International Health Regulations (IHR), the WHO requires member nations to surveil and report events which may constitute a public health emergency of international concern.[60] The IHR are legally binding on 196 states,[61] so the WHO "can apply and enforce IHR (2005) to any disease considered to pose a significant threat to international public health."[62]

The problem with the IHR, however, is that they are difficult to animate against zoonoses. For one, the IHR lack a devoted set of guidelines on zoonotic diseases.[63] But more importantly, they do not contain enforcement provisions.[64] Instead, they primarily operate through assembling Emergency Committees that identify public health emergencies and propose temporary recommendations, and Review Committees that recommend amendments to the IHR.[65] Recommendations are typically written as general references for member states as opposed to actionable agendas. For example, the Emergency Committee on the multicountry outbreak of mpox indicated that states parties should sustain and promote the response strategy, develop and implement integrated control plans, maintain epidemiological surveillance, and report confirmed travel-related cases to the WHO.[66]

Separately, the WHO issued guidance during the COVID-19 pandemic that was more targeted to the animal trade. In March of 2020, the WHO issued hygiene and food-safety recommendations directed at "[a]nyone visiting live animal markets, wet markets, or animal product markets" and "[s]laughterhouse workers, veterinarians in charge of animal and food inspection in markets, market workers, and those handling live animals and animal products" after bats were identified as the

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[58] *See* David Favre, *Brief Summary of Convention on Trade in Endangered Species (CITES)*, MICH. STATE UNIV. ANIMAL LEGAL & HIST. CTR. (2002), https://www.animallaw.info/intro/convention-trade-endangered-species-cites [https://perma.cc/3HFH-RU2E].

[59] *Our Values*, WHO, https://www.who.int/about/values [https://perma.cc/6D22-Q8AA].

[60] World Health Organization [WHO], *International Health Regulations* arts. 5–6, (May 23, 2005) [hereinafter IHR].

[61] *International Health Regulations*, WHO, https://www.who.int/health-topics/international-health-regulations [https://perma.cc/XG84-T6QH].

[62] H. Simons & D. Patel, *International Health Regulations in Practice: Focus on Yellow Fever and Poliomyelitis*, 12 HUM. VACCINES & IMMUNOTHERAPEUTICS 2690, 2690 (2016).

[63] *See* IHR, *supra* note 60.

[64] *See* Kumanan Wilson et al., *Strategies for Implementing the New International Health Regulations in Federal Countries*, 86 BULL. WORLD HEALTH ORG. 215, 215–16 (2008) (discussing strategies for implementing the IHR in the absence of enforcement provisions).

[65] IHR, *supra* note 60, arts. 48.1, 50.1.

[66] *Fifth Meeting of the International Health Regulations (2005) (IHR) Emergency Committee on the Multi-Country Outbreak of mpox (monkeypox)*, WHO (May 11, 2023), https://www.who.int/news/item/11-05-2023-fifth-meeting-of-the-international-health-regulations-(2005)-(ihr)-emergency-committee-on-the-multi-country-outbreak-of-monkeypox-(mpox) [https://perma.cc/QV8Q-NDGY].

virus's likely ecological reservoir.[67] In April of 2021, the WHO issued another piece of interim guidance "to suspend the trade in live caught wild animals of mammalian species for food or breeding and close sections of food markets selling live caught wild animals of mammalian species,"[68] but the guidance focused on domestic markets rather than the international trade of wildlife and derived products.[69]

This approach was reinforced by the Director-General in the WHO's Global Strategy for Food Safety. The strategy called for "[e]mergency regulations to suspend live wild animal sales in traditional food markets" and "[i]mproving standards of hygiene and sanitation in traditional food markets to reduce the risk of transmission of zoonotic diseases from live wild animals intended for food and person-to-person transmission of disease."[70] The IHR underwent an extensive revision process completed in June of 2024,[71] with some amendments adopted "in response to the challenges posed by the COVID-19 pandemic."[72] Unfortunately, none of the amendments contemplated monitoring or intervention for zoonoses.[73] Instead, revisions focused on "introducing a definition of a pandemic emergency to trigger more effective international collaboration" and "a commitment to solidarity and equity on strengthening access to medical products and financing."[74]

3. Sanitary & Phytosanitary Measures. — The Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) of the World Trade Organization (WTO) "sets out the basic rules on food safety and animal and plant health standards that governments are required to follow."[75] The SPS Agreement is attractive in that it requires

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[67] *WHO Recommendations to Reduce Risk of Transmission of Emerging Pathogens from Animals to Humans in Live Animal Markets or Animal Product Markets*, WHO (Mar. 26, 2020), https://iris.who.int/bitstream/handle/10665/332217/WHO-2019-nCoV-Human_animal_risk-2020.2-eng.pdf [https://perma.cc/F69X-M7W2].

[68] WHO, REDUCING PUBLIC HEALTH RISKS ASSOCIATED WITH THE SALE OF LIVE WILD ANIMALS OF MAMMALIAN SPECIES IN TRADITIONAL FOOD MARKETS: INTERIM GUIDANCE 3 (2021).

[69] *See id.* at 3–6.

[70] WHO, WHO GLOBAL STRATEGY FOR FOOD SAFETY: REDUCING PUBLIC HEALTH RISKS ASSOCIATED WITH THE SALE OF LIVE WILD ANIMALS OF MAMMALIAN SPECIES IN TRADITIONAL FOOD MARKETS — INFECTION PREVENTION AND CONTROL 4 (2022).

[71] WHO, *World Health Assembly Agreement Reached on Wide-Ranging, Decisive Package of Amendments to Improve the International Health Regulations* (June 1, 2024), https://www.who.int/news/item/01-06-2024-world-health-assembly-agreement-reached-on-wide-ranging--decisive-package-of-amendments-to-improve-the-international-health-regulations--and-sets-date-for-finalizing-negotiations-on-a-proposed-pandemic-agreement [https://perma.cc/ZG3M-3VRF].

[72] News Release, WHO, Governments Make Progress Towards Agreeing Amendments to the International Health Regulations (2005) (Oct. 7, 2023), https://www.who.int/news/item/07-10-2023-governments-make-progress-towards-agreeing-amendments-to-the-international-health-regulations-(2005) [https://perma.cc/HX8G-7HSN].

[73] *See id.*; WHO, ZERO DRAFT OF THE WHO CA+ FOR THE CONSIDERATION OF THE INTERGOVERNMENTAL NEGOTIATING BODY AT ITS FOURTH MEETING (2023).

[74] *See* WHO, *supra* note 71.

[75] *Sanitary and Phytosanitary Measures*, WTO, https://www.wto.org/english/tratop_e/sps_e/sps_e.htm [https://perma.cc/A2Q7-4EB6].

WTO members to tailor their standards on food safety and animal and plant health "based on science, applied only to the extent necessary to protect human, animal or plant life or health, [without] arbitrarily or unjustifiably discriminat[ing] between countries where identical or similar conditions prevail."[76]

These provisions *restrict* member states' sanitary measures. While the SPS Agreement's preamble states a desire "to improve the human health, animal health and phytosanitary situation in all Members" in enacting the agreement, subsequent lines indicate that such frameworks are desired "in order to minimize [its] negative effects on trade."[77] Article 5, the only provision that contemplates health-related measures, instructs members to "take into account [various] relevant economic factors" and "the objective of minimizing negative trade effects."[78] Indeed, the WTO indicates that the SPS Agreement is meant to work in tandem with the Technical Barriers to Trade Agreement "to meet the need to apply standards while avoiding disguised protectionism."[79] And so, the SPS Agreement and its analogs[80] are — if anything — potential hurdles to international efforts to combat zoonoses.

B. United States Port Inspections

1. Customs Restriction Enforcement. — Even when equipped with knowledge about zoonotic risks, the law has seldom taken proactive steps. Bats had been identified as hosts for emerging viruses almost a decade before the outbreak of COVID-19,[81] but they were never seriously contemplated as a regulatory target before 2020. The United States still does not have any centralized authority for preventing zoonotic disease spread, but it could have mobilized a response decades earlier. The Code of Federal Regulations once contained a broad provision pertaining to potential disease-carrying imports which stated the following in relevant part:

> (a) A person may not import into the United States, nor distribute after importation, any etiological agent or any arthropod or other animal host or vector of human disease, or any exotic living arthropod or other animal capable of being a host or vector of human disease unless accompanied by

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[76] *Id.*

[77] Agreement on the Application of Sanitary and Phytosanitary Measures, pmbl., Apr. 15, 1994, 1867 U.N.T.S. 493.

[78] *Id.* at art. 5.3–5.4.

[79] *See Sanitary and Phytosanitary Measures*, *supra* note 75.

[80] *See generally* 1998 O.J. (L 118) 1 (approving an "[a]greement between the European Community and the United States of America" to "put[] into practice the provisions of the WTO Agreement on the application of sanitary and phytosanitary measures as regards public and animal health measure").

[81] *See* Ina Smith & Lin-Fa Wang, *Bats and Their Virome: An Important Source of Emerging Viruses Capable of Infecting Humans*, 3 CURRENT OP. VIROLOGY 84, 84 (2013).

> a permit issued by the Director [of the Centers for Disease Control and Prevention].[82]

Despite its broad language, this provision targeted academic and commercial laboratories and facilities.[83] And instead of being interpreted broadly to encompass all imports, the rule was narrowed such that the current version disposes of the broad language and contains carveouts for imports "for educational, exhibition, or scientific purposes [that are] accompanied by documentation confirming that the animal or animal product is not known to contain (or suspected of containing) an infectious biological agent or has been rendered noninfectious."[84]

All imported goods go through one of the several ports of entry where potential disease agents are inspected.[85] These ports carry out daily operations, and "officers also perform agricultural inspections to protect the USA from potential carriers of animal and plant pests or diseases that could cause serious damage to America's crops, livestock, pets, and the environment."[86] On the surface, these ports have structures to enforce the few existing customs restrictions; the CDC maintains twenty Port Health Stations covering all 300-plus ports of entry to "restrict[] the importation of animals or products that may carry disease[s],"[87] and the Fish & Wildlife Service (FWS) operates wildlife inspection offices at forty-one[88] ports of entry to "regulate wildlife trade."[89] Agencies also collaborate with one another and partner with organizations on public health emergency responses.[90] But a deeper inspection reveals that the ports are likely facing operational setbacks, including a severe staff shortage:

> The FWS operates with only 113 inspectors distributed across major international airports, ocean ports, and border crossings, tracking millions of wildlife imports valued at $4.3 billion annually. The port of Los Angeles, which imports and exports more wildlife than any other U.S. port, employed

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[82] 42 C.F.R. § 71.54 (2010).

[83] Foreign Quarantine; Import Regulations for Infectious Biological Agents, Infectious Substances, and Vectors, 78 Fed. Reg. 7674 (Apr. 5, 2013) (to be codified at 42 C.F.R. § 71).

[84] *Id.*

[85] U.S. CUSTOMS & BORDER PROT., IMPORTING INTO THE UNITED STATES 6 (Mar. 18, 2014), https://www.cbp.gov/document/publications/importing-united-states [https://perma.cc/GVS4-C5YJ].

[86] *Id.*

[87] Michele Barry & Lawrence O. Gostin, *Improve CDC's Quarantine Stations to Prevent the Next Pandemic*, STAT (July 1, 2022), https://www.statnews.com/2022/07/01/improve-cdcs-quarantine-stations-to-prevent-the-next-pandemic [https://perma.cc/C9TB-FCNX].

[88] In at least one other document, the Fish & Wildlife Service has listed thirty-nine wildlife inspection offices. *Wildlife Inspection Offices*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/sites/default/files/documents/OLE%20Wildlife%20Trade%20-%20Wildlife%20Inspection%20Offices%202022.pdf [https://perma.cc/2D84-WDZ7].

[89] *See Law Enforcement at a Glance*, U.S. FISH & WILDLIFE SERV. (Mar. 28, 2020), https://www.documentcloud.org/documents/6843670-U-S-Fish-and-Wildlife-Service-Law-Enforcement-at.html [https://perma.cc/J3YY-48CS].

[90] *Port Health Stations*, CTRS. FOR DISEASE CONTROL & PREVENTION (May 15, 2024), https://www.cdc.gov/port-health/stations/index.html [https://perma.cc/4ZD6-9QTW].

> only six FWS inspectors to monitor the port's seven airports and seaports in 2020.[91]

In fact, the FWS has been alerted to its shortcomings since at least 1994, when the Government Accountability Office (GAO) declared that the "Fish and Wildlife Service's Inspection Program Need[ed] Strengthening."[92] At the time, "most wildlife shipments [were] not physically inspected, and it [was] likely that many illegal shipments [were] evading detection" such that "FWS estimate[d] that it [was] detecting less than 10 percent of the violations associated with declared shipments and a much lower percentage of undeclared shipments," thereby "rais[ing] questions about the level of staff and accompanying resources allocated to each of the ports of entry."[93] While it is possible that the last thirty years have yielded improvements to the program, the FWS still does not employ enough inspecting officers[94] despite the findings that it employed too few officers to accomplish its mission.[95] There is also a delegation problem. The FWS investigates wildlife crimes and regulates the wildlife trade[96] while the CDC controls for diseases.[97] Meanwhile, the CDC's Port Health Station operation relies on a network that includes the FWS.[98] Without a clear command from the Executive to inspect wildlife and animal products for diseases, it is unlikely that a broad restriction against importing animals or animal product containing infectious biological agents will carry much weight for mitigating zoonotic disease risk given the shortage of resources for carrying out even preexisting responsibilities.

Even now, many legal responses have been restricted only to sanitation protocols such as hand-washing or pasteurization requirements.[99] Instead, political will seems to go toward pressuring *other* countries to minimize spillovers,[100] largely placing the onus of global health into the

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91 LINDER ET AL., *supra* note 10, at 14 (footnotes omitted).

92 U.S. GOV'T ACCOUNTABILITY OFF., GAO-95-8, WILDLIFE PROTECTION: FISH AND WILDLIFE SERVICE'S INSPECTION PROGRAM NEEDS STRENGTHENING (1994).

93 *Id.* at 3–4.

94 *See supra* pp. 829–30; *see also* U.S. FISH & WILDLIFE SERV., MIDWEST REGION MICHIGAN 26 (2010). While the figures for new offices are not available, an office in Port Huron was established in 2008 and staffed by only one inspector in 2010. *Id.*

95 U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 92, at 46.

96 *What We Do*, U.S. FISH & WILDLIFE SERV. OFF. OF L. ENF'T, https://www.fws.gov/program/office-of-law-enforcement/what-we-do [https://perma.cc/A5XR-9FFM].

97 *See About Us, Import Permit Program (IPP)*, CTRS. FOR DISEASE CONTROL & PREVENTION (Oct. 26, 2023), https://www.cdc.gov/orr/ipp/about.htm [https://perma.cc/J3VB-2MKA].

98 *Port Health Stations*, *supra* note 90.

99 *See Emerging and Zoonotic Infectious Disease Laws*, CTRS. FOR DISEASE CONTROL & PREVENTION (Oct. 7, 2024), https://www.cdc.gov/phlp/php/publications/emerging-and-zoonotic-disease-laws.html [https://perma.cc/2SZP-U7VL].

100 *See, e.g.*, Quint Forgey, *"Shut Down Those Things Right Away": Calls to Close "Wet Markets" Ramp Up Pressure on China*, POLITICO (Apr. 3, 2020, 3:39 PM), https://www.politico.com/news/2020/04/03/anthony-fauci-foreign-wet-markets-shutdown-162975 [https://perma.cc/V4SY-6CFU].

hands of developing countries and communities.[101] Not only does this approach ignore the fact that the United States is one of the largest importers and exporters of wildlife[102] and assume that diseases are transmitted unidirectionally, it also unreasonably assumes that other states can reliably implement policy agendas against zoonotic diseases in light of other efforts.

2. Illegal Wildlife Trade. — U.S. Immigration and Customs Enforcement has indicated that "[a]t the core of illegal wildlife trafficking is a rapidly expanding demand for a variety of products around the world: bushmeat; ingredients for traditional Eastern medicine; exotic pets; jewelry, trinkets, and accessories such as chess sets; furs for uses ranging from coats to traditional costumes; and trophies."[103] Despite monitoring by U.S. Customs and Border Protection, Homeland Security Investigations, National Marine Fisheries Service, and the FWS, "all illicit wildlife trafficking, including fisheries and timber, comprise the fourth largest global illegal trade after narcotics, human trafficking and counterfeit products."[104]

With so many animals and products slipping through the cracks, it is easy to assume that controlling for the legal side of the trade will either be ineffective for controlling the spillovers resulting from the illegal trade or simply drive the demand curve for illegal imports. However, the majority of imported wildlife enters the United States legally "without disease testing or . . . physical inspection."[105] This means that regulating the legal import of wildlife and derived products for zoonotic diseases will encompass a larger set of the imported goods and attenuate the overall risk of spillover. For purposes of mitigating zoonoses, creating a regime that can capture the animals and products being legally imported into the United States would account for the majority of interfaces for spillover events caused by wildlife imports. Furthermore, augmenting the import inspection process for legal imports may better prepare relevant agencies for handling illegally traded goods.

III. CREATING A NEW IMPORT REGIME IN THE UNITED STATES

Through examining the authority granted to agencies in recent legislation and information reported by the same agencies, this Part advocates for an interagency collaboration headed by the CDC and designed to prevent zoonotic outbreaks from imports. It begins by assessing the

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101 *See* Kevin Bardosh et al., *Wet Market Biosecurity Reform: Three Social Narratives Influence Stakeholder Responses in Vietnam, Kenya, and the Philippines*, PLOS GLOB. PUB. HEALTH, Sept. 6, 2023, art. e0001704, at 1, 11.

102 *See supra* p. 823.

103 *Wildlife*, U.S. IMMIGR. & CUSTOMS ENF'T (Sept. 30, 2024), https://www.ice.gov/features/wildlife [https://perma.cc/E2UX-4B24].

104 *Id.*

105 LINDER ET AL., *supra* note 10, at 9.

One Health framework for orienting a response to zoonoses. It then explains why wild animal products in addition to live animals must be brought under this framework, and it contemplates the effects these changes would bear on the illegal wildlife trade.[106]

A. One Health

One Health is a framework for considering health in a manner that is not restricted to human conditions.[107] Born out of veterinary communities,[108] a response to zoonoses called "One Health" has emerged as a "collaborative, multisectoral, and transdisciplinary approach — working at the local, regional, national, and global levels — with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment."[109] The "One Health approach calls for multisectoral and multi-institutional cooperation and partnership across the interfaces of human, animal and ecosystem health risks" without specific policy recommendations,[110] and its adoption has been left to the discretion of local jurisdictions, as One Health carries no legal force.[111]

After several failed iterations of One Health bills were introduced over the years,[112] Congress passed the One Health framework into law in December of 2022.[113] The law requires the Secretary of Health and Human Services (HHS) through the Director of the CDC to "develop, or update as appropriate, in coordination with other Federal departments and agencies, as appropriate, a One Health framework to address zoonotic diseases and advance public health preparedness."[114] In September of 2023, the CDC and HHS put out a request for comments on

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106 *Impacts of U.S. Consumer Demand on the Illegal and Unsustainable Trade of Wildlife Products: Oversight Hearing Before the Subcomm. on Fisheries, Wildlife and Oceans of the H. Comm. on Nat. Res.*, 110th Cong. 4–8 (2008) (statement of Benito A. Perez, Chief of the U.S. Fish and Wildlife Service's Office of Law Enforcement) (discussing the various placements of FWS personnel to combat the illegal wildlife trade).

107 *See About One Health*, CTRS. FOR DISEASE CONTROL & PREVENTION (Oct. 30, 2024), https://www.cdc.gov/onehealth/index.html [https://perma.cc/4B8K-LLNS].

108 *See* AM. VETERINARY MED. ASS'N, ONE HEALTH: A NEW PROFESSIONAL IMPERATIVE 3 (July 15, 2008). One Health was previously introduced as "One World, One Health" formally by the Wildlife Conservation Society. Justin Ancheta et al., *The Origins and Lineage of One Health, Part II*, 62 CANADIAN VETERINARY J. 1131, 1132 (2021).

109 CTRS. FOR DISEASE CONTROL & PREVENTION, *supra* note 107.

110 Alexandra L. Phelan & Lawrence O. Gostin, *Law as a Fixture Between the One Health Interfaces of Emerging Diseases*, 111 TRANSACTIONS ROYAL SOC'Y TROPICAL MED. & HYGIENE 241, 241 (2017).

111 *See id.*

112 *E.g.*, S. 2634, 114th Cong. (2016); *see also* Bernadette Dunham et al., *Advancing Legislation on "One Health" in the United States of America*, ONE HEALTH NEWSLETTER: KAN. ST. COLL. VETERINARY MED., https://www.vet.k-state.edu/about/news-events-publications/OneHealth/Previous_Issues/Vol11-Iss1/advancing_legislation.html [https://perma.cc/RYQ6-7YYF].

113 PREVENT Pandemics Act, 2023, Pub. L. No. 117-328, § 2235, 136 Stat. 5706 (2022) (codified at 42 U.S.C. § 300hh-37).

114 *Id.*

"A Framework for One Health Coordination and Collaboration Across Federal Agencies."[115] Neither the statute's text nor the request for comment indicates that the wildlife trade is being contemplated, however, and federal One Health coordination was previously centered around "companion animals," "wildlife and zoo animals," "production animals like farmed mink," "environmental issues," and "diagnostics and testing in animals."[116] While these interfaces are often created by the wildlife trade, the focus appears to be predominantly domestic.

In 2023, the GAO released a report on zoonotic diseases and concluded that the United States needed to begin surveilling health risks posed by wildlife.[117] It recommended that the Animal and Plant Health Inspection Service (APHIS) and United States Geological Survey (USGS) "develop and implement a national wildlife disease surveillance system" and that the CDC "comprehensively assess zoonotic disease risks related to imported wildlife."[118] This approach divides zoonotic disease regulation into distinct domestic and international issues and leaves the CDC with full authority over the international component. The GAO included as examples "identifying high priority categories of wildlife and then conducting risk assessments for those particular categories" without further detail.[119]

The CDC nonconcurred with the report, arguing that it "currently regulates the importation of wildlife that it considers 'high-risk' such as bats and nonhuman primates" and "risk assessments alone are not sufficient when developing wildlife importation regulations."[120] The CDC was also perhaps reluctant to play a role it considered redundant due to the Smithsonian Institution launching a project evaluating the risk of imported wildlife.[121] The CDC did, however, endorse an interagency approach that incorporates One Health to "facilitate the identification and mitigation of zoonotic disease risks posed by wildlife to people."[122] The APHIS did not comment, while the USGS concurred in the report.[123] It appears then, that agencies overseeing zoonoses may not reach a consensus on desired measures without specific instructions.

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115 National One Health Framework to Address Zoonotic Diseases and Advance Public Health Preparedness in the United States: A Framework for One Health Coordination and Collaboration Across Federal Agencies, 88 Fed. Reg. 64913 (Sept. 20, 2023).

116 *Federal One Health Coordination*, CTRS. FOR DISEASE CONTROL & PREVENTION (Oct. 30, 2024), https://www.cdc.gov/one-health/php/about/federal-one-health-coordination-1.html [https://perma.cc/653F-2EHP].

117 U.S. GOV'T ACCOUNTABILITY OFF., GAO-23-105238, ZOONOTIC DISEASES: FEDERAL ACTIONS NEEDED TO IMPROVE SURVEILLANCE AND BETTER ASSESS HUMAN HEALTH RISKS POSED BY WILDLIFE 41–42 (2023).

118 *Id.* at 42.

119 *Id.*

120 *Id.* at 51.

121 *See id.* at 41.

122 *Id.* at 51.

123 *Id.* at 52.

B. A New Interagency Regime for Imported Wildlife & Animal Products

The United States's import regime is in alarming need of interventions for monitoring and preventing the spread of zoonotic diseases: The country "imported almost 23 million whole animals, parts, samples and products made from bats, primates and rodents — animals that harbor 75% of known zoonotic viruses — over a recent five-year period"[124] in a manner that has gone almost completely unchecked. While a number of agencies oversee small subsets of imported animals, there is no authority responsible for imported animals generally. Without additional structures, the statutory One Health framework will operate with great inefficiency: A group of agencies led by the CDC will have to implement it in the existing piecemeal, incomplete set of regulations over animal imports. None of the congressional or agency proposals specifically contemplate the wildlife trade. But the reality is that there are deep ties between the trade and zoonoses,[125] the United States makes a significant contribution to the global wildlife trade,[126] and spillover events can occur at multiple points under the surveillance of agencies that lack proper communication channels. The importation of wild animals and animal products simply cannot continue to go unchecked, whether as the result of agency oversight or lack of consensus among relevant agencies.

In response to the GAO report on zoonotic diseases, the CDC indicated its willingness to pursue a collaborative effort in its report,[127] but since it did not endorse the specific measures the GAO recommended, the regulatory gap in imported wildlife and animal products persists. The CDC's reluctance toward completely taking on the task of surveilling imported wildlife for zoonotic diseases is well-founded — the agency itself identified a number of reasons in its response, namely (1) the necessity of interagency support in addition to risk assessments to develop wildlife importation regulations, (2) the CDC's insufficient staffing for "conduct[ing] quantitative public health risk assessments for every potential zoonotic disease threat," and (3) the CDC's existing "priorities and ongoing activities."[128] Moreover, many of the imported animals currently regulated by the CDC (a lean list of around a dozen species[129]) were only identified and compiled after serious global

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124 TANYA SANERIB & SARAH UHLEMANN, CTR. FOR BIOLOGICAL DIVERSITY, DEALING IN DISEASE: HOW U.S. WILDLIFE IMPORTS FUEL GLOBAL PANDEMIC RISKS i (2020) (emphasis omitted).

125 *See id.* at 16.

126 *See id.* at 1.

127 *See* U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 117, at 51.

128 *Id.* at 43.

129 *See Bringing an Animal into the U.S.*, CTRS. FOR DISEASE CONTROL & PREVENTION (July 18, 2024), https://www.cdc.gov/importation/bringing-an-animal-into-the-us/ [https://perma.cc/U62T-VFRF].

outbreaks had already occurred.[130] This post hoc regulatory approach suggests that the agency may simply be unequipped to monitor animal-borne diseases that are common among certain species or have yet to spill over into human populations. Thus, it is unlikely that the CDC can comprehensively assess zoonotic disease risks for imported wildlife as the GAO recommended.

However, because public health policy goals demand coordinated action from federal agencies,[131] it is important to consider all available options. Therefore, among the GAO's previously identified mechanisms for interagency collaboration, creating interagency groups and interagency offices[132] pursuant to the CDC's authority under the One Health framework could be a promising option. Most importantly however, there must be an established authority for monitoring and regulating zoonotic diseases among all imported wildlife and products derived therefrom. Presently, the CDC only regulates a small subset of animals and animal products that may be imported into the United States.[133] For fish, the FWS has a body of requirements,[134] the USDA has restrictions on "[l]ive fish, fertilized eggs, and gametes,"[135] and the National Marine Fisheries Service operates its own Seafood Import Monitoring Program.[136] The USDA also regulates the importation of equines,[137] and some small mammals are subject to import restrictions.[138] This means that *some* imported animals are being examined for potential signs of zoonoses, but they are monitored by distinct agencies, and there exists no protocol for agencies to indicate to one another that a certain import may necessitate more rigorous examination. For example, the National Institutes of Health (NIH) has set up domestic research nodes and collaborated internationally to "detect, identify,

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130 *See id.* (explaining that turtles, tortoises, and terrapins came under regulation upon the discovery that they transmitted Salmonella, African rodents in response to mpox, and civets because they carried the SARS virus).

131 Sarah Veale, Assistant Dir., Strategic Issues, GAO, Presentation on Leading Practices for Enhancing and Sustaining Interagency Collaboration at NASEM Workshop on Guiding Cancer Control 2 (Nov. 2019).

132 U.S. GOV'T ACCOUNTABILITY OFF., GAO-23-105520, GOVERNMENT PERFORMANCE MANAGEMENT: LEADING PRACTICES TO ENHANCE INTERAGENCY COLLABORATION AND ADDRESS CROSSCUTTING CHALLENGES 30 fig.3 (2023) (defining interagency groups and interagency offices).

133 *See Bringing an Animal into the U.S.*, *supra* note 129.

134 *See* 50 C.F.R. § 14.1–94 (2023).

135 *Importing Fish, Fertilized Eggs, and Gametes into the United States*, USDA (July 16, 2024), https://www.aphis.usda.gov/live-animal-import/fish-eggs-gametes [https://perma.cc/3TXF-5ZFU].

136 *Seafood Import Monitoring Program*, NOAA FISHERIES (Oct. 11, 2024), https://www.fisheries.noaa.gov/international/international-affairs/seafood-import-monitoring-program [https://perma.cc/6GKK-Q97X].

137 *Importing Horses and Other Equines into the United States*, USDA (Oct. 18, 2024), https://www.aphis.usda.gov/live-animal-import/equine [https://perma.cc/D6FP-T3CH].

138 *See Bringing an Animal into the U.S.*, *supra* note 129; *Bring a Pet Rodent into the United States*, USDA (Aug. 6, 2024), https://www.aphis.usda.gov/pet-travel/another-country-to-us-import/rodents [https://perma.cc/J4TZ-Y2HZ].

understand, and potentially control pathogens in the process of leaping to humans."[139] However, the NIH carries no enforcement power over imported goods.[140]

While existing import restrictions can be augmented to include a monitoring protocol for zoonoses, this would ignore the large regulatory gaps that would persist. There is a significant legal wildlife trade which threatens to spread zoonotic diseases,[141] but which falls outside of the scope of the Endangered Species Act[142] and Lacey Act[143] because traded animals are not endangered or otherwise illegally obtained. The USDA has some regulations on imported live animals, but the restrictions on animal products mostly concern livestock and cover very limited wildlife.[144] The CDC regulates imported animal products only to the extent that the aforementioned list of species, in addition to trophies and bushmeat, could carry diseases.[145] These restrictions are limited in scope and inadequate for preventing the entry of zoonotic disease-carrying agents. Any regime governing zoonoses among imported wildlife cannot continue the practice of allowing agencies to take bites out of a larger body of zoonotic risk while leaving the majority untouched.

One of the key mechanisms that the new regime can offer is a streamlined process for identifying emerging zoonotic risk factors. The GAO previously suggested that the CDC singlehandedly identify high-priority categories of wildlife and conduct risk assessments,[146] but this may be an untenable option. The CDC's nonconcurrence reflects its own low confidence in the endeavor, and as a practical matter, its reliance on merely twenty inspection ports to cover more than 300 ports of entry[147] necessarily creates a funneling effect as opposed to casting a wide net as the GAO suggests.[148] Similarly, the FWS struggles to intercept even the illegal wildlife trade (one of the agency's core objectives), much less take on the additional responsibility of monitoring zoonotic risks.[149] Since U.S. Customs and Border Protection is usually the first line of defense

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[139] Maryn McKenna, *The NIH Launches a Global Hunt for Animal-to-Human Diseases*, WIRED (Sept. 17, 2020, 1:24 PM), https://www.wired.com/story/the-nih-launches-a-global-hunt-for-animal-to-human-diseases/ [https://perma.cc/SQX3-AYUD].

[140] OFF. OF MGMT. ASSESSMENT, NAT. INSTS. OF HEALTH, 1340-1, PERMITS FOR THE IMPORT, TRANSFER, OR EXPORT OF BIOLOGICAL MATERIALS (2019).

[141] *See* Evan A. Eskew et al., *United States Wildlife and Wildlife Product Imports from 2000–2014*, 7 SCI. DATA, Jan. 16, 2020, art. 22, at 1, 3.

[142] 16 U.S.C. §§ 1531–1544.

[143] 16 U.S.C. §§ 3371–3378.

[144] *See Bringing Live Animals and Germplasm into the United States from Another Country (Import)*, USDA (Sept. 13, 2024), https://www.aphis.usda.gov/live-animal-import [https://perma.cc/6FEU-JPFZ].

[145] *See Bringing an Animal into the U.S.*, *supra* note 129.

[146] U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 117, at 42.

[147] *See supra* pp. 829–31.

[148] *See* U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 117, at 42 (recommending that the CDC "comprehensively assess zoonotic disease risks related to imported wildlife").

[149] *See supra* pp. 829–31.

for regulating traded goods,[150] the new regime would create more precise declaration requirements for shipments containing wildlife or animal products. Current declaration requirements are limited to identifying threats to conservation efforts, U.S. plant and animal species,[151] agriculture, livestock, or residents through diseases.[152] For scientific institutions, additional declarations need to be made to CDC inspectors,[153] but there is no general requirement to declare items prone to carrying diseases (such as pathogen-carrying animals imported for commercial purposes) if they do not fall within the aforementioned categories. Since customs is the first federal point of contact for all legally imported goods, a comprehensive prevention strategy needs to begin there.

From there, the CDC can correspond with other agencies to identify which ports may be suitable for either (1) training existing officers on identifying zoonotic risks, (2) staffing more trained personnel, or (3) establishing new inspection points. Importantly, the CDC needs to ensure that designated facilities are equipped with sufficient resources, "such as safety equipment (for example, breathing filters, eye protection, and gloves) and administrative support," which had been identified before as systemic bottlenecks in the FWS.[154] By establishing an inspection system using a combination of new and existing facilities, there can be a timely relay of information to the CDC. Accordingly, the CDC can assess the zoonotic risks of certain imported species based on the information obtained at ports, through the agency's own investigations, and from outside sources (such as the Smithsonian Institution's aforementioned project with which the CDC has assisted in developing[155]).

C. Wildlife-Derived Products

Likewise, products derived from wildlife cannot be ignored in the new import regime. As an illustration, we can look to the bat once again. Bats have been known to host a multitude of diseases, and commercial products make up the second most common purpose for bat imports.[156] The Center for Biological Diversity reported the following:

> Most commercial imports of bats arrive as whole dead bodies, skeletons and skulls . . . the vast majority are encased in acrylic, then sold as paperweights

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150 HILLEL R. SMITH, CONG. RSCH. SERV., LSB10559, U.S. CUSTOMS AND BORDER PROTECTION'S POWERS AND LIMITATIONS: A PRIMER 1 (2021).

151 *What We Do*, *supra* note 96.

152 *Pests and Diseases*, U.S. CUSTOMS & BORDER PROT. (May 15, 2024), https://www.cbp.gov/border-security/protecting-agriculture/pests-and-diseases [https://perma.cc/WMH8-NVF2].

153 *About Us, Import Permit Program (IPP)*, *supra* note 97; *see also* 42 C.F.R. § 71.54 (2010) (outlining import regulations for infectious biological agents, dangerous substances, and vectors of disease).

154 U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 92, at 4.

155 U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 117, at 41.

156 SANERIB & UHLEMANN, *supra* note 124, at 2.

> and other "decorative" items. These are marketed as educational products, steampunk/goth décor and general curios, and are sold to consumers at a range of places — from Amazon and eBay to obscure online sources, as well as trade shows and other domestic vendors.[157]

Deceased animals at risk of carrying pathogens are imported and quickly turned around to vendors to be distributed nationally. Sometimes diseases can be transmitted more subtly: "In August 2007, for example, a drum maker and his child in Connecticut both became ill with anthrax after his home and workplace became contaminated by a goatskin imported from Guinea. Apparently, it carried naturally occurring anthrax spores."[158] These products naturally present zoonotic risks for consumers, but workers employed in animal-product industries are especially susceptible.[159]

Currently, products derived from wildlife are essentially ignored. U.S. Customs and Border Protection requires only that wool and fur products be properly labeled;[160] the APHIS sets inspection and quarantine requirements for "[a]nimal by-products, such as untanned hides, wool, hair, bones, bone meal, blood meal, animal casings, glands, organs, extracts, or secretions of ruminants and swine"; and the FDA regulates by-products with food, drug, or cosmetic purposes.[161] There is a separate set of restrictions for importing biological materials into the United States, but they focus on cellular and genetic materials, toxins and other infectious agents, genetically modified organisms, or diagnostic specimens.[162] Additionally, "[n]atural products, such as vegetables, fruit, nuts, berries, and live or dead animals, fish and birds . . . which are in their natural state or not advanced in any manner further than is necessary for their safe transportation"[163] "are not required to be marked to indicate country of origin, i.e., the country in which they were grown, manufactured, or produced."[164] This means that a novelty bat product can go through customs without issue; if it were improperly encased and created a spillover event, identifying potential origins of the pathogen would involve a time-consuming forensic process.[165] While it is difficult

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157 *Id.*

158 Dina Fine Maron, *"Wet Markets" Likely Launched the Coronavirus. Here's What You Need to Know.*, NAT'L GEOGRAPHIC (Apr. 15, 2020), https://www.nationalgeographic.com/animals/article/coronavirus-linked-to-chinese-wet-markets [https://perma.cc/C4US-8PYR].

159 *See generally* LINDER ET AL., *supra* note 10.

160 U.S. CUSTOMS & BORDER PROT., *supra* note 85, at 127–28.

161 *Id.* at 108.

162 *Importing Biological Materials into the United States*, U.S. CUSTOMS & BORDER PROT. (Aug. 22, 2024), https://www.cbp.gov/border-security/protecting-agriculture/importing-biological-materials-united-states [https://perma.cc/8UTZ-8RPS].

163 U.S. CUSTOMS & BORDER PROT., *supra* note 85, at 99.

164 *Id.* at 97.

165 *See, e.g.*, Marilyn J. Roossinck, *How Virus Detectives Trace the Origins of an Outbreak — And Why It's So Tricky*, THE CONVERSATION (June 7, 2021, 8:34 AM), https://theconversation.com/how-virus-detectives-trace-the-origins-of-an-outbreak-and-why-its-so-tricky-161387 [https://perma.cc/WTD8-TMUY].

to ascertain the precise impact of such products on U.S. consumers because the incubation times of common zoonotic diseases can range from less than one day to two months,[166] this unchecked demand can drive risky high-exposure practices in places where animals are being captured and processed. In this case, a spillover event could easily occur among Indonesian bat hunters and spread globally.[167]

Under the One Health framework, the HHS Secretary is authorized to coordinate with other agencies to address zoonotic diseases and advance public health preparedness. Because the wildlife trade has such deep connections to zoonoses and spillover events, it is imperative for the United States to establish a collaborative network of agencies, including those presently examining imported animals. It must also expand the classifications of imported wildlife and products that are subject to examination and set up regular correspondence with additional agencies, such as the NIH.[168] Rather than granting examination authority to a divided set of actors and relying upon them to accurately and independently anticipate which species may be more prone to zoonotic risk, a centralized authority should be empowered to surveil all imported wildlife and derived products, and by regularly obtaining information about high-risk specimens from other agencies, triage and delegate more rigorous examination to appropriate regulatory bodies.

CONCLUSION

Currently, the United States is faced with five realities: (1) a continuous stream of emerging zoonotic diseases, (2) an undeniable connection between the wildlife trade and zoonotic risk, (3) an absence of safeguards against zoonotic disease spread, (4) a fractured import regime with respect to wildlife and animal products, and (5) a new law authorizing agencies to take proactive measures against zoonoses. Inaction is simply not an option — zoonoses continue to threaten domestic and global public health, and the United States plays too large of a role in many of its causal factors. In its position as the largest importer of wildlife and derived products, one of the most impactful changes the United States can make is creating a centralized authority through agency collaboration for monitoring and intervening in imported zoonotic risks. This way, the United States can enjoy the immediate benefits of accounting for the millions of animals and products that have been legally imported despite their propensity to carry diseases. Creating such an import regime can also yield the future benefit of diminishing the global demand

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166 *Zoonotic Diseases Fact Sheet*, AM. BIOLOGICAL SAFETY ASS'N ALL. & OCCUPATIONAL SAFETY AND HEALTH ADMIN., https://absa.org/wp-content/uploads/2017/01/ZoonoticFactSheet.pdf [https://perma.cc/A2BS-CTNJ].

167 LINDER ET AL., *supra* note 10, at 9.

168 *See supra* pp. 835–36.

for wildlife and animal products,[169] and it has the potential upstream effects on the supply side of diminishing the unchecked demand that pushes high-risk activities and elevating the level of vigilance exercised before and throughout the export process.

Even though the dangers of zoonoses are still fresh in the public's memory, the United States already appears anxious to move on[170] — the reluctance of citizens, officials, and markets toward complying with existing COVID-preventative recommendations[171] is a dangerous indication of a growing apathy toward prophylactic measures against zoonoses. U.S. officials may succumb to these pressures, which would render the hard-fought One Health framework a dead letter.[172] It is also difficult to ignore the United States's role in its failure to monitor and contain zoonotic disease of U.S. origin. The GAO has already identified the risk of zoonotic diseases spreading among wildlife in the United States,[173] and much of the export control is administered through the same inspection process as imports.[174] This means that in addition to ensuring that zoonotic diseases are not unknowingly among its imports, the United States will eventually have to reckon with its affirmative duty to similarly monitor its exports to prevent outbreaks from spreading overseas. Thus, creating a centralized authority over imported wildlife and wildlife products can be an important step in creating the foundations for a long-awaited, forward-looking global answer to zoonotic diseases.

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169 *See* Patrick McLaughlin et al., *Regulatory Accumulation and Its Costs*, MERCATUS CTR. (May 4, 2016), https://www.mercatus.org/research/policy-briefs/regulatory-accumulation-and-its-costs [https://perma.cc/37SC-XQKP].

170 Fenit Nirappil et al., *Covid Isn't Over, But Even the Most Cautious Americans Are Moving On*, WASH. POST (June 25, 2023, 6:00 AM), https://www.washingtonpost.com/health/2023/06/25/covid-precautions-summer-vaccines-deaths/ [https://perma.cc/D6XY-Q9VY].

171 *See, e.g.*, Shawn Hubler & Adeel Hassan, *California and Oregon Ease Covid Isolation Rules, Breaking with C.D.C.*, N.Y. TIMES (Jan. 21, 2024), https://www.nytimes.com/2024/01/21/us/covid-rules-california-oregon-cdc.html [https://perma.cc/JQ7K-SRMZ].

172 The Council on Foreign Relations has published a special report in which the authors call for the United States to "operationalize" the One Health Framework and, among other things, strengthen its wildlife trade regulations and improve zoonotic disease surveillance. YANZHONG HUANG & REBECCA KATZ, COUNCIL ON FOREIGN RELS., NEGOTIATING GLOBAL HEALTH SECURITY 27–28 (2023).

173 U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 117, at 3–4; *see also* LINDER ET AL., *supra* note 10, at 5.

174 *What We Do*, *supra* note 96.