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Wildlife Trade, COVID-19, and Other Zoonotic Diseases

Introduction

Coronavirus Disease 2019 (COVID-19) is caused by a novel virus: the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). In March 2020, the World Health Organization (WHO) characterized it as a pandemic; the disease has reportedly spread to more than 180 countries. The origin of the COVID-19 outbreak is not certain, though several studies have identified high genetic similarity between SARS-CoV-2 and coronaviruses found in bat species that are sold in some “wet markets” (markets that sell live animals and perishable goods) in China.

SARS-CoV-2, like most coronaviruses, is zoonotic, meaning it is derived from viruses, bacteria, and other pathogens that are transmitted between animals and humans. Transmission of zoonotic diseases (i.e., *zoonoses*) is reportedly facilitated by activities such as land clearing, close human-animal contact (e.g., in live animal markets), hunting and consuming wild animals, and the wildlife trade. SARS-CoV-2 is one of several zoonotic viruses that are likely linked to this trade, which brings humans and wild animals in close proximity. The trade increases the risk of virus transmission between hosts that might not otherwise interact in nature, leading some scientists to contend that wildlife trade can exacerbate the spread of zoonoses.

COVID-19’s health and economic toll may increase congressional interest in the relationship between wildlife trade and zoonotic diseases. Options for congressional action may include legislation and funding of programs to address zoonotic diseases at their source, increase surveillance of emerging zoonotic diseases, increase oversight of the legal wildlife trade, and increase measures to reduce the illegal wildlife trade.

Zoonotic Diseases and EIDs

Most emerging infectious diseases (EIDs) originate in animals and involve interactions between wildlife, livestock, and people. Changing land-use practices (e.g., land cleared for development) play an increasingly important role in animal-to-human disease transmission. Scientists estimate that approximately 60% of EIDs are zoonotic and that approximately 72% originate from wildlife. Some scientists have identified tropical forests in Southeast Asia, Africa, and areas where land-use practices are altering native ecosystems as hotspots for future emerging zoonotic diseases.

Since 2000, several high-profile zoonotic disease outbreaks have affected humans, such as Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV), Middle East Respiratory Syndrome Coronavirus (MERS-CoV) and Ebola Virus. Scientists assert that these viruses likely originated from wildlife, such as bats, and were transmitted

to humans via intermediary hosts, such as civets, camels, and apes. Humans may have contracted these diseases, in part, through the wildlife trade, according to scientists.

Zoonoses Associated with Wildlife Trade

2019—SARS-CoV-2: Scientists identified the virus in bats and similar versions of the virus in other animals, including pangolins (i.e., scaly anteater). Some scientists hypothesize that pangolins are intermediary hosts for the virus and may have transmitted it to humans. Some pangolin products are legally sold in China; however, a large amount are trafficked.

2002-2003—SARS-CoV: Scientists identified the virus in horseshoe bats, civets, and other animals sold in wildlife markets in China. Civets are thought to have transmitted the virus to humans.

2014-2016 and 2018-2020—Ebola Virus: Ebola in humans can be traced to the handling and consumption of infected wildlife carcasses, especially apes. Bushmeat (meat from wild African animals) trade is linked to Ebola.

2004-2014—Simian Foamy Virus and Herpesvirus: Confiscated illegally imported bushmeat entering the United States showed evidence of zoonotic retroviruses that could transfer to humans.

Wildlife Trade and Trafficking

Trade in wildlife, both legal and illegal, forms a vast economy and has contributed to outbreaks of some zoonotic diseases. Legal and illegal wildlife trade can range from small-scale local bartering to formal commercial-sized national and international markets facilitated by organized criminal groups. Demand for products, such as traditional medicines, pets, food, and decorations, often exceed legal supply, contributing to the illegal trade. Such demand is notably high in East Asia, where rising economic affluence has increased demand for products such as rhino horns and pangolin meat and scales. The illegal wildlife trade, also known as *wildlife trafficking*, is estimated to generate from \$7 billion to more than \$20 billion annually.

Legal but poorly regulated trade in wildlife and human contact with wild animals can increase human exposure to zoonotic diseases. Some studies suggest that wet wildlife markets, which often comprise animals in tightly packed spaces, are potential locations for zoonotic disease transmission. Some scientists assert that humans who frequent open wildlife markets may increase their risk of contracting zoonotic diseases because of their exposure to wild animals. In addition, the markets bring together animals that may carry diseases from different ecosystems into one location, facilitating the spread of disease in a way that may not typically happen in nature. Several entities address the legal and illegal wildlife trade.

Federal Role

Key implementing agencies for U.S. initiatives against wildlife trafficking include the U.S. Fish and Wildlife Service (FWS) as well as the U.S. Department of State (State) and the U.S. Agency for International Development (USAID). FWS has domestic and international law enforcement and investigative responsibilities related to wildlife trafficking, including collaboration with foreign law enforcement entities such as the International Criminal Police Organization (INTERPOL). State and USAID lead a variety of intergovernmental and public diplomacy initiatives related to wildlife trafficking, including contributions to international organizations, nongovernmental partnerships, and bilateral foreign assistance for biodiversity conservation and law enforcement.

Several agencies are responsible for regulating wildlife and wildlife products imported into the United States. The Centers for Disease Control and Prevention (CDC) regulates importation of animals and animal products to prevent the spread of zoonoses. Customs and Border Protection maintains the primary authority to inspect goods imported into the United States and vessels carrying goods into U.S. ports of entry. Declared wildlife goods may be referred to FWS, which has the authority to inspect any wildlife shipments. Through memoranda, each agency may act upon findings within another agency's authority.

International Role

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a multilateral treaty that entered into force in 1975 and regulates the international trade in animals and plants that may be endangered by trade. It has been ratified by 183 nations, including the United States and China. CITES establishes incrementally stringent restrictions on wildlife trade, reflecting its sustainability. Some species associated with zoonoses and wildlife trafficking are listed under CITES, including pangolins. Some international law enforcement organizations that support anti-trafficking operations and criminal justice systems include INTERPOL, the International Consortium on Combating Wildlife Crime, and the United Nations Office on Drugs and Crime.

Addressing Zoonoses and Wildlife Trade

Although different entities largely address infectious disease outbreaks and wildlife trade, some organizations seek to address both issues by working to monitor and reduce human infection. The CDC employs a One Health paradigm in this work, focusing on connections between people, animals, and the environment. The CDC collaborates with the U.S. Department of Agriculture on livestock and poultry health, with the Department of the Interior on monitoring wildlife hosts and zoonotic pathogens, and with international entities to study and monitor emerging zoonotic diseases. USAID specifically addresses zoonotic diseases within its Emerging Pandemic Threats Program (EPTP), which aims to improve global capacity to detect zoonoses with pandemic potential.

Internationally, the World Organization for Animal Health (OIE) analyzes and disseminates information related to

animal disease control. Jointly with WHO and the Food and Agriculture Organization, the OIE operates the Global Early Warning System (GLEWS+), which aims to share data and improve risk assessments related to zoonoses.

Issues for Congress

Funding and oversight approaches are available to Congress to potentially address zoonoses and wildlife trade.

Land Use Change and Development. Factors such as land-use change and deforestation may increase overlap of wildlife and humans, enhancing zoonotic disease transmission. Some stakeholders recommend increasing U.S. foreign assistance to reduce or mitigate land-use change in zoonotic disease hotspots. Others may question the effect of this assistance and suggest that funds are better spent on mitigating zoonotic diseases after their emergence.

International Collaboration. Given the global effect of zoonotic diseases and some observers' criticism of WHO's handling of past zoonotic diseases, some policymakers contend that the United States should strengthen intergovernmental responses and advocate for an international convention that addresses emerging zoonotic diseases. A convention may improve monitoring, research, and coordinated responses significantly more than existing efforts by the OIE and GLEWS+. This might prevent delays in detection and communication among countries, which many argue is important in preventing pandemics. Entry into force for the United States may require Congress to ratify and approve implementing legislation for the convention. Some policymakers may oppose U.S. participation in such a convention if it is not ratified by most countries and lacks enforcement mechanisms.

Wildlife Trade and Trafficking. Some stakeholders contend that Congress should provide greater resources to reduce wildlife trafficking and monitor wildlife imports into the United States. Bills in the 116th Congress aim to increase FWS officers in foreign countries and to increase penalties for trafficking and rewards for whistleblowers. Congress may consider increasing funding for initiatives that address emerging zoonoses in wildlife, such as EPTP, and inspections of wildlife imports, which may prevent the entry of zoonotic diseases into the United States.

Some contend that the United States should incentivize bans on wildlife markets, in part to reduce opportunities for transmission to humans. In their view, Congress could call for international organizations, such as CITES and WHO, to promote this position. Some countries appear to have taken similar steps in response to COVID-19: China has instituted a ban on wildlife trade for food, and Vietnam is reportedly considering a ban on wildlife markets. Some policymakers, however, argue that limits on the wildlife trade risk pushing the trade into the black market or online, where oversight is difficult. They contend that increased monitoring and sanitation of markets, paired with efforts to decrease demand for wildlife products, may be more sustainable.

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