

LEGAL CHALLENGES IN WILDLIFE TRAFFICKING AND ITS IMPACT ON ZOOBOTIC SPILLOVER

Manisha Naskar¹, Dr. Amrita Dasgupta²

¹Assistant Professor, Department of Law, Brainware University

Mail Id: naskaradvmanisha@gmail.com

²Assistant Professor, Department of Law, Brainware University

Corresponding Author: Manisha Naskar*

*Mail Id: naskaradvmanisha@gmail.com

DOI: <https://doi.org/10.63001/tbs.2026.v21.i02.pp62-78>

KEYWORDS

[Wildlife trafficking;
Zoonotic spillover;
Illegal wildlife trade;
Public health law;
CITES; One Health;
Transnational organized crime)

Received on: 13-02-2026

Accepted on: 09-03-2026

Published on: 07-04-2026

Abstract

Aims: To critically analyze the interrelationship between wildlife trafficking and zoonotic spillover risk, evaluate the effectiveness of existing legal frameworks at international and national levels, and identify key legal and institutional gaps that hinder the prevention of emerging infectious diseases linked to wildlife trade.

Methodology: A structured search of peer-reviewed articles and policy documents was conducted using Google Scholar, PubMed, and Science Direct, alongside reports from international organizations. Boolean search combinations included terms such as “wildlife trafficking” and “zoonotic spillover,” “illegal wildlife trade” and “public health risk,” and “wildlife trade legislation” and “disease emergence.” A thematic analysis approach was applied to synthesize findings from legal reviews, epidemiological studies, and governance reports. Themes examined included scale and mechanisms of wildlife trafficking, documented pathogen transmission events, strengths and weaknesses of regulatory frameworks, enforcement capacity, and recent One Health initiatives integrating environmental and public health governance.

Results: The review indicates that approximately 6,000 species are affected annually by illegal wildlife trade across more than 160 countries, with an estimated global value of up to US\$20 billion per year. Nearly 70% of emerging infectious diseases in humans are zoonotic in origin, and at least 240 documented pathogen cases between 1990 and 2020 were directly linked to illegal wildlife trade. Mammals constituted the highest proportion of zoonotic hosts. Key legal gaps include inconsistent national penalties, limited enforcement capacity, weak cross-border cooperation, absence of mandatory pathogen screening in trade chains, and fragmented coordination between wildlife and public health authorities. Post-pandemic reforms have strengthened certain national regulations; however, implementation remains uneven and largely conservation-focused rather than health-integrated.

Conclusion: Wildlife trafficking represents both a biodiversity crisis and a significant global health threat. Current legal frameworks inadequately integrate public health considerations into wildlife trade regulation. Strengthening enforcement capacity, harmonizing international penalties, embedding pathogen surveillance within trade controls, and operationalizing One Health principles are essential to reduce future zoonotic spillover risk.

1. Introduction

Wildlife trafficking, broadly defined as the illegal harvesting, transportation, and trade of wild animals and their derivatives (Anagnostou & Doberstein, 2022). It has become one of the fastest growing transnational criminal businesses. The United Nations Office on Drugs and Crime states that it is the fourth-largest illegal business in the globe after drugs, arms, and human trafficking with the annual estimate value of up to US\$20 billion (UNODC, 2025). It is a worldwide trading network, which involves over 160 countries and involves thousands of mammals, birds, reptiles, amphibians, fish, and invertebrates (WTO, 2025). The extent of its reach and the complexity of the organization make it more and more associated with other types of organized crime, including drug trafficking, money laundering, and corruption.

Though the ecological impacts of wildlife trafficking including species extinction and biodiversity have been well known, recent outbreaks of various diseases have brought to the limelight an important, yet under-researched aspect. In this regard, its

significant contributions to the occurrence of zoonotic spillover. According to a recent report, in humans, almost 70% of the emerging infectious diseases have a zoonotic origin (WHO, 2023). A thorough evaluation by Hinsley et al. (2021) that reported on data related to the illegal trade in wildlife between 1990 and 2020 identified 240 cases that were directly related to the pathogen, and this is in addition to the previous data reported (Sarmah et al., 2025). Zoonotic organisms include more than 60 percent of the human pathogens and a vast array of organisms (bacteria, viruses, fungi, protozoa, and parasites) (Rahman et al., 2020). This data highlights the great public-health importance of the unregulated and illegal wildlife trade.

Wildlife trafficking creates spill over risk by extracting wildlife out of their ecosystems, transporting them in stressful conditions, mixing species, and exposing them to unhygienic market conditions as well as large amounts of human contact (Tajudeen et al., 2022). Markets and wildlife farming activities, particularly those that are unregulated, leave possibilities of cross-

species viral recombination and amplification of pathogens (Brüssow, 2023). Traded wildlife has been reported to have pathogenic viruses like SARS-CoV-1, SARS-CoV-2, Ebola, Marburg virus, Henipaviruses, and avian influenza (Gryseels et al., 2023). The regulation of wildlife trade is still faced with significant challenges, despite the legal frameworks, such as Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Wyatt, 2021). The current nature of continuation and growth of unlawful wildlife trafficking suggests that the current regulations are still not extensive enough, effective, and enforced (Osorio, 2024). Nevertheless, political systems based on weak legislations, lack of commitments to jurisdiction, inconsistent punishments, corruption, and lack of uniformity in the capacity of states impedes the law in reducing trafficking and hence mitigating the threats of zoonotic diseases.

This current review has focused on analyzing secondary literature concerning the interrelationship between zoonotic spillover risk of wildlife trafficking, legal challenges, and legal frameworks. It also establishes the lapses in implementation, measures the

ability in the legal frameworks and suggests ways of tightening governance to stop future spillover incidents.

2. Method

Databases

In order to identify the scope of literature at the intersection of environmental law, public health, and conservation science, this review has used a number of interdisciplinary research databases. Peer-reviewed academic articles were collected in Google Scholar, PubMed, and ScienceDirect. The institutional sources, such as reports by WHO, UNODC, and WWF, offered the latest information on the wildlife crime and health surveillance. There was also an addition of other government white papers and legal analysis in order to represent national-level legal frameworks.

Search Sentences

The following search sentences were formulated using Boolean operators to narrow and refine the literature selection:

- “Wildlife trafficking” AND “zoonotic spillover”
- “Illegal wildlife trade” AND “public health risk”

- “CITES enforcement challenges” AND “zoonoses”
- “Wildlife trade legislation” AND “disease emergence”
- “One Health” AND “wildlife crime”

Data Analysis

This study employed a comprehensive secondary literature review approach. In this context, the selected academic papers, policy reports, legal reviews, and international documents were examined through thematic analysis. The themes that emerged related to the scale and mechanisms of wildlife trafficking, evidence linking trade to zoonotic spillover, the structure and limitations of legal frameworks, enforcement challenges across jurisdictions, and recent initiatives undertaken by governments and international bodies. Data were synthesized through comparison and contrast to identify areas of consensus, gaps in existing research, and policy shortcomings.

3. Results

3.1 Global Wildlife Trafficking: Scope and Trends

Through increased consumer demand of exotic pets, luxury goods, traditional

medicine and bushmeat, the illegal wildlife trade has steadily increased over the last 30 years. The UN World Wildlife Crime Report points out that approximately 6,000 species are impacted by trafficking every year, and it has complex supply chains all over the world (UNODC, 2020). Here, it involves the hunters, middlemen, transnational smuggling networks, and the consumer markets in Asia, Africa, Europe, and North America. The seizures reported by the customs and the law enforcing agencies are only a part of an overall trade volumes and it is inferred that the actual size of the illegal trafficking of wildlife is even much larger than the reported ones.

A significant portion of the species which are trafficked are found in Southeast Asian, African and Latin American and Indian biodiversity rich areas. These areas are also considered as world hotspots of zoonotic pathogens due to their high wildlife diversity, increasing human-wildlife interactions, and high informal markets. The problem of wildlife trafficking and zoonotic disease emergence hence, cuts across geographical borders, as well as functional lines.

The establishment of online sales of wildlife has served as a complication of regulations.

The online platforms, social media, and encrypted communication channels permit covert transactions and help the traffickers to access the international customers without being noticed by the law-enforcement. The rapidity and anonymity of Internet business establish regulatory loopholes that traditional instruments of law are not meant to fill.

3.2 Zoonotic Spillover Risk Associated with Wildlife Trade

A large amount of literature provides direct correlations between the existence of wildlife trade and the transmission of zoonotic diseases. A systematic review done by Hinsley et al. (2021) identified 240 cases of pathogens associated with illegal trade in wildlife between 1990 and 2020. The highest proportion on the list of zoonotic pathogens was that of mammals, then birds and reptiles. Conversely, Han et al. (2023) have found out that most of the identified viruses, such as coronaviruses, filoviruses, and avian influenza viruses, can not only infect people but also have a history of causing severe outbreaks.

The mechanisms of spillover involve the displacement of wildlife in the natural habitat, thus pilling stress,

immunosuppression, and shedding of the virus (Bhatia et al., 2024). These conditions contribute to viral mutation and recombination, which can contribute to elevated pathogenic power to infect new organisms. There are various prominent diseases that are connected to the wildlife trade. As an example, in 20022003, SARS-CoV-1 was allegedly associated with civet cats being sold in wet markets in Guangdong (Brüssow, 2023). In Central Africa, outbreaks of Ebola have been linked to the handling and consumption of bushmeat of the primates and bats. Likewise, according to the results of the study by Islam et al. (2023), H5N1 and H7N9 avian influenza strains have been associated with live poultry markets in Asia. Nevertheless, it is observed that based on recent related literature, wildlife markets result in the artificialization of ecologies promoting viral diversity and creating viral exchange among species (Aronsson & Holm, 2022; Gass, 2025). The COVID-19 pandemic increased the questioning of wildlife trade even further (D'Cruze et al., 2020). The exact causes of SARS-CoV-2 are controversial, though some reports of SARS-like coronaviruses in trafficked pangolins and bats have been reported, highlighting the possibility of future outbreaks of the disease

due to the presence of the wildlife supply chains (Sallard et al., 2021; Zhang et al., 2020). The pandemic showed the degree to which the global health system is susceptible to the diseases that occurred as a result of wildlife exploitation and the poorly controlled commerce.

3.3 Legal Frameworks Governing Wildlife Trade

3.3.1 CITES: Strengths and Limitations

CITES, initiated in 1975, has continued to be the most extensive global structure managing trade in wildlife (CITES, 2025). accords differing levels of protection on over 38,000 species of plants and animals with some of them having a high degree of commercialization (World Trade Organisation, 2025). Ideally, CITES demands that member states should make sure that trade does not endanger the existence of species and obligates allowing, follow-up and reporting systems. Nevertheless, many works claimed that modern challenges cannot be addressed with the help of CITES, regardless of its scale (Rana & Kumar, 2023). The implementation is through enforcement by national authorities and thus the implementation

levels are very different. Not all the zoonotic species are registered in CITES and thus they are traded freely without health checks or sustainability considerations. Also, CITES does not handle the issue of conservation but rather on the issue of public-health risks; hence, zoonotic disease surveillance is not prevalent in its processes.

3.3.2 National Wildlife Legislation

National wildlife legislation varies significantly across countries. Countries such as the United States have elaborate laws such as the Lacey Act that prohibits commercialization of wildlife that were poached and has powerful enforcement tools (Connelly et al., 2023). Likewise, the Wildlife Protection Law of China, which has been revised in 2020 following the COVID-19 pandemic, increased the restrictions on wildlife consumption and enhanced the control of the population by the government to curb the threats to human health and well-being (Tian et al., 2024). On the other hand, it is possible to mention that many African, South East Asia, and Latin American nations still have to combat outdated legislation, the lack of penalties, limited enforcement capabilities, and high corruption rates (Osorio, 2024). In this way, it leaves

loopholes in regulation that traffickers will use to circumvent supply chains by poor jurisdictions.

The main statutory law in India is known as the Wildlife (Protection) Act, 1972, which outlaws hunting, trade, and possession of the protected species and specifies the punishment (India Code, 2025). These primarily involve incarceration (it can be 3-7 years) and penalties in case of violations, especially with Schedule I species (Parihar and Singh Dixit, 2023). Recently, the Act was modified to comply more with the CITES requirements and enhance the protection of the internationally traded species (Rana & Kumar, 2023). Moreover, it also pays attention to the enforcement authority, which is entrusted to such agencies as Wildlife Crime Control Bureau or state forest departments (Vaidyanathan et al., 2024). These laws notwithstanding, there are still challenges in enforcing them in India such as low conviction rates, inadequate forensic capacity and inconsistent application of international trade controls (Parihar and Singh Dixit, 2023). The loopholes in the law and procedures are still used by traffickers, especially in distant border areas and in the sale of exotic species on the Internet, which

affects the attempts to preserve the biodiversity and prevent the risks of disease spreading.

3.3.3 Public-Health Regulations and Wildlife Trade

Wildlife-trade regulations are often independent of the public-health systems. Not many countries demand health certification, testing of pathogen or quarantine of imported wildlife and exports. There have been several calls by the WHO and World Organisation for Animal Health (WOAH) to use integrated surveillance systems (WOAH, 2025). However, institutional and legal processes are still disjointed across the sectors. This division drastically reduces the capacity of states to identify pathogens in traded animals prior to their getting to the markets or end consumers.

3.4 Key Legal Challenges in Combating Wildlife Trafficking

A recurrent finding in the literature is that wildlife trafficking persists largely due to profound legal and institutional weaknesses. The enforcement agencies usually have no specific wildlife-crime units, do not have enough staff, and lack the latest forensic instruments (Harrison, 2023). On the same

note, Duensing et al. (2023) have also pointed out that trafficking networks often involve land borders that are hard to track and that in most countries, customs officials are not well trained to perform specialised duties. This ensures that the rates of seizures are very low. In this regard, most of the trafficked wildlife specimens are intercepted by the authorities. The other urgent problem is the disjointed legal framework in terms of wildlife trading (Clifford Astbury et al., 2024). The obligations of CITES are grounded on a national predetermination, i.e., national penalties, authority to investigate, and control of trade vary significantly across various jurisdictions (Sollund, 2022). Other nations use small fines which are not significant when compared to the gains obtained by traffickers. There are others who have severe sanctions but are unable to identify and punish criminals (Hutchinson et al., 2023). Such inconsistency in the law gives the networks of criminals an opportunity to find loopholes in international enforcement.

Species listing has also been challenged as a process that is slow and political (Hutchinson et al., 2022). There are numerous high-risk species which are not listed under the CITES or are listed in appendices without requiring

zoonotic risk assessment. Brooks et al. (2022) further explain that such a regulatory lag puts emerging pathogens related to new species of trade or with limited surveillance at risk of not being detected. In India, it has been raised that there have been irregularities in CITES permit procedures and that illegally obtained wildlife has been laundered by using falsified paperwork (Verma and Kumar Yadav, 2024). Here, corruption, such as bribing of customs and fudging trade records, also contributes to this weakening of enforcement (Arivazhagan et al., 2025). These loopholes help the traffickers to circumvent the laws, deterrence and the chances of infected wildlife traversing the borders without proper health checks or quarantine measures are high.

3.5 Impact of Legal Weaknesses on Zoonotic Spillover

The presence of weak wildlife trade laws is a great way to increase the risk of a zoonotic spillover. Lack of the obligatory veterinary examination, screening of the pathogen and quarantine measures makes it possible to transport the infected animals and infected wildlife products to the other countries without detection (Aguar et al., 2025). In this context, a lack of enforcement in ports,

border checkpoints, and live-animal markets leads to direct human contact with potential species of infection (Esposito et al., 2023). Conversely, viral shedding, mutation and cross-species transmission occur in the high-density market environments. The application of epidemiological modelling proves that the small chances of spillover occurrences may develop into the global outbreaks in case the amplification pathways (urban markets and international travel networks) exist (Silva et al., 2024). In that regard, Brüssow (2023) has revealed that the outbreak of the SARS-CoV-1 was connected to the trading of civet cats in southern China. Poorly controlled bushmeat markets have been linked with recurrent Ebola outbreaks in the Central African region. The unlawful trade in parrots in Brazil has led to human psittacosis. In spite of being not zoonotic, the global amphibian trade has enhanced the spread of chytridiomycosis and it is a demonstration of how poorly controlled trade networks have promoted the spread of pathogens across areas with very high speeds.

3.6 Recent Government and International Initiatives

Following the COVID-19, various governments have come up with new laws to

control wildlife trade. China banned the consumption of land-based wild animals and tightened surveillance of the markets of wild animals. The European Union established new principles on enhancing risk assessment of customs on animal consignments. The United States also gave the U.S. Fish and Wildlife Service more finances to reinforce the policing of the major ports. In its 78 th Standing Committee meeting in the year 2025, CITES pointed to the imperative to deal with the connections between wildlife trade and ZBDs (CITES, 2025). The collaboration between the International Consortium on Combating Wildlife Crime (ICWC) and international training on wildlife-forensics and cooperation across borders was extended. Moreover, suggestions have been made to come up with a protocol of wildlife trafficking under the Conventions of the United Nations Convention against Trafficking Transnational organised Crime (UNTOC) which may help to harmonise the penalties, and enhance cooperation among countries. There has also been progress along the road to the integration of One Health frameworks. Guidance documents were issued by the joint efforts of UNEP, WHO, FAO and WOAHA that associated environmental degradation, wildlife

exploitation and disease emergence (WHO, 2023; WOA, 2025). Furthermore, these guidelines are only partially translated into legal frameworks to be followed.

3.7 Criticisms of Existing Wildlife-Trade Legal Frameworks

Despite recent reforms, it has been argued by many studies that current laws remain insufficient. It has also been argued that CITES has been more concerned with species protection, and not with the risk of disease, and zoonotic threats are not regulated (Sollund, 2022; Vaidyanathan et al., 2024). The national laws often focus on criminalising but not on underlying socio-economic causes. For instance, in case of poverty, there is a need for using traditional medicines or lack of legal livelihood options (Osorio, 2024). The enforcement is focused on the level of sale, instead of focusing on the supply chains as a whole. Some points have, in turn, been brought to the fore by Parihar & Singh Dixit (2023), that enforcement strategies are occasionally skewed against indigenous populations and rural populations and yet fail to emphasise high-profit international syndicates. Alternatively, Clifford Astbury et al. (2024) have opined that total prohibitions can drive the trade to

underground levels, where the health hazards will remain hidden. The key point is that the existing legal frameworks are not well coordinated and are not holistic enough to address complex socio-ecological relations that influence zoonotic spillover.

4. Conclusion

As illustrated in this review, wildlife trafficking is a significant conservation crisis but it is also a significant global public-health threat. It has been established that legal, unregulated or under-regulated wildlife trade preconditions the ecological and epidemiological circumstances in which zoonotic spillover is likely. This kind of trade enhances human-wildlife interaction, destabilises the natural habitats and promotes transmission of pathogens across species boundaries. Legal laxity on the international and national levels is directly associated with the continued existence of large-scale wildlife trafficking. Divided governance, patchy penalties, weak surveillance, capacity to enforce, lag in regulations and corruption are all factors that create loopholes in the fight against trafficking and curb zoonotic threat.

Even though CITES and national wildlife regulations provide valuable regulatory premises, they are poorly placed to regulate the occurrence of diseases. The consideration of public-health is hardly incorporated into trade decisions and the monitoring of pathogen in wildlife supply chains is insignificant or not included. The latest reforms after the COVID-19 pandemic are an indicator of increased awareness of the problems, but the implementation is slow and unequal across the nations.

Therefore, in order to minimise the risk of zoonotic spillover, there is a need to implement extensive legal changes. These are enhanced CITES with built-in public-health measures, harmonizing sanctions using an international framework on wildlife trafficking, incorporation of One Health principles in trade regulation, the creation of scientific methods in species and pathogen detection, and collaboration in law-enforcement by countries across borders. Demand-reduction measures, community-based intervention, and long-term international investment in wildlife-crime enforcement will also be effective to prevent it on a long-term basis. Until these loopholes are sealed the world will continue to be

susceptible to new outbreaks that arise as a result of wildlife trafficking. Bio-diversity conservation and the protection of the health of the people are therefore necessitating the strengthening of legal systems and the increase in global cooperation.

References

- Aguiar, R., Gray, R., Gallo-Cajiao, E., Ruckert, A., Clifford Astbury, C., Labonté, R., ... & Wiktorowicz, M. (2025). Preventing zoonotic spillover through regulatory frameworks governing wildlife trade: A scoping review. *Plos one*, 20(1), e0312012. <https://doi.org/10.1371/journal.pone.0312012>
- Anagnostou, M., & Doberstein, B. (2022). Illegal wildlife trade and other organised crime: A scoping review. *Ambio*, 51(7), 1615-1631. <https://doi.org/10.1007/s13280-021-01675-y>
- Arivazhagan, R. M., Jayakumar, T., & Venkataraman, M. (2025). Transnational wildlife trafficking via airways: a criminological study of Trends, modus operandi, and enforcement challenges at Chennai International Airport. *Journal of Transportation Security*, 18(1), 31. <https://doi.org/10.1007/s12198-025-00319-6>
- Aronsson, A., & Holm, F. (2022). Multispecies entanglements in the virosphere: Rethinking the Anthropocene in light of the 2019 coronavirus outbreak. *The anthropocene review*, 9(1), 24-36. <https://doi.org/10.1177/2053019620979326>
- Bhatia, B., Sonar, S., Khan, S., & Bhattacharya, J. (2024). Pandemic-proofing: intercepting zoonotic spillover events. *Pathogens*, 13(12), 1067. <https://doi.org/10.3390/pathogens13121067>
- Brooks, D. R., Hoberg, E. P., Boeger, W. A., & Trivellone, V. (2022). Emerging infectious disease: an underappreciated area of strategic concern for food security. *Transboundary and Emerging Diseases*, 69(2), 254-267. <https://doi.org/10.1111/tbed.14009>
- Brüssow, H. (2023). Viral infections at the animal–human interface—Learning lessons from the SARS-CoV-2 pandemic. *Microbial Biotechnology*, 16(7), 1397-1411. <https://doi.org/10.1111/1751-7915.14269>

- Brüssow, H. (2023). Viral infections at the animal–human interface—Learning lessons from the SARS-CoV-2 pandemic. *Microbial Biotechnology*, 16(7), 1397-1411. <https://doi.org/10.1111/1751-7915.14269>
- CITES (2025) *What is CITES?*, <https://cites.org/eng/disc/what.php>
- Clifford Astbury, C., Demeshko, A., Gallo-Cajiao, E., McLeod, R., Wiktorowicz, M., Aenishaenslin, C., ... & Penney, T. L. (2024). Governance of the wildlife trade and the prevention of emerging zoonoses: a mixed methods network analysis of transnational organisations, silos, and power dynamics. *Globalization and Health*, 20(1), 49. <https://doi.org/10.1186/s12992-024-01055-7>
- Connelly, P. J., Ross, N., Stringham, O. C., & Eskew, E. A. (2023). United States amphibian imports pose a disease risk to salamanders despite Lacey Act regulations. *Communications Earth & Environment*, 4(1), 351. <https://doi.org/10.1038/s43247-023-01004-z>
- D’Cruze, N., Green, J., Elwin, A., & Schmidt-Burbach, J. (2020). Trading tactics: Time to rethink the global trade in wildlife. *Animals*, 10(12), 2456. <https://doi.org/10.3390/ani10122456>
- Duensing, S., Schleper, M. C., & Busse, C. (2023). Wildlife trafficking as a societal supply chain risk: Removing the parasite without damaging the host?. *Journal of Supply Chain Management*, 59(2), 3-32. <https://doi.org/10.1111/jscm.12297>
- Esposito, M. M., Turku, S., Lehrfield, L., & Shoman, A. (2023). The impact of human activities on zoonotic infection transmissions. *Animals*, 13(10), 1646. <https://doi.org/10.3390/ani13101646>
- Gass, J. D. (2025). Drivers of zoonotic viral spillover: understanding pathways to the next pandemic. *Zoonotic Diseases*, 5(3), 18. <https://doi.org/10.3390/zoonoticdis5030018>

- Gryseels, S., De Bruyn, L., Gyselings, R., Calvignac-Spencer, S., Leendertz, F. H., & Leirs, H. (2021). Risk of human-to-wildlife transmission of SARS-CoV-2. *Mammal Review*, 51(2), 272-292. <https://doi.org/10.1111/mam.12225>
- Han, J. J., Song, H. A., Pierson, S. L., Shen-Gunther, J., & Xia, Q. (2023). Emerging infectious diseases are virulent viruses—Are we prepared? An overview. *Microorganisms*, 11(11), 2618. <https://doi.org/10.3390/microorganisms11112618>
- Harrison, S. (2023). *Developing strategies to improve educational programs for wildlife forensic laboratory careers*. University of Central Oklahoma.
- Hutchinson, A., Camino-Troya, M., & Wyatt, T. (2023). Global scoping of wildlife crime offences, penalties, and statistics. *The Global Journal of Animal Law*, 11(1). <https://journal.fi/gjal/article/view/148769>
- Hutchinson, A., Stephens-Griffin, N., & Wyatt, T. (2022). Speciesism and the wildlife trade: Who gets listed, downlisted and uplisted in cites?. *International Journal for Crime, Justice and Social Democracy*, 11(2), 191-209. <https://search.informit.org/doi/abs/10.3316/informit.479197087254705>
- India Code (2025) *THE WILD LIFE (PROTECTION) ACT, 1972*, https://www.indiacode.nic.in/bitstream/123456789/6198/1/the_wild_life_%28protection%29_act%2C_1972.pdf
- Islam, A., Islam, S., Flora, M. S., Amin, E., Woodard, K., Webb, A., ... & El Zowalaty, M. E. (2023). Epidemiology and molecular characterization of avian influenza A viruses H5N1 and H3N8 subtypes in poultry farms and live bird markets in Bangladesh. *Scientific reports*, 13(1), 7912. <https://doi.org/10.1038/s41598-023-33814-8>
- Osorio, C. P. (2024). Battling the illegal wildlife trade through regulatory

- finance: the southeast asian context. *Journal of Academics Stand Against Poverty*, 5(1), 44-74. <https://doi.org/10.5281/zenodo.11536683>
- Parihar, S., & Singh Dixit, P. (2023). Legal Paradigms for Biodiversity Protection: Wildlife Conservation in Indian National Parks and Sanctuaries. *Available at SSRN 5711052*. <https://dx.doi.org/10.2139/ssrn.5711052>
- Rahman, M. T., Sobur, M. A., Islam, M. S., Ievy, S., Hossain, M. J., El Zowalaty, M. E., ... & Ashour, H. M. (2020). Zoonotic diseases: etiology, impact, and control. *Microorganisms*, 8(9), 1405. <https://doi.org/10.3390/microorganisms8091405>
- Rana, A. K., & Kumar, N. (2023). Current wildlife crime (Indian scenario): major challenges and prevention approaches. *Biodiversity and conservation*, 32(5), 1473-1491. <https://doi.org/10.1007/s10531-023-02577-z>
- Sallard, E., Halloy, J., Casane, D., Decroly, E., & Van Helden, J. (2021). Tracing the origins of SARS-COV-2 in coronavirus phylogenies: a review. *Environmental chemistry letters*, 19(2), 769-785. <https://doi.org/10.1051/medsci/2020123>
- Sarmah, D., Gurung, N., Saini, P., Devi, M. P., Mohapatra, P., Pramanik, K., ... & B, R. (2025). Advances in orchid conservation: biotechnology applications and global trade dynamics. *Frontiers in Conservation Science*, 6, 1653827. <https://doi.org/10.3389/fcosc.2025.1653827>
- Silva, M., Viana, C. M., Betco, I., Nogueira, P., Roquette, R., & Rocha, J. (2024). Spatiotemporal dynamics of epidemiology diseases: mobility based risk and short-term prediction modeling of COVID-19. *Frontiers in Public Health*, 12, 1359167. <https://doi.org/10.3389/fpubh.2024.1359167>
- Sollund, R. (2022). Wildlife trade and law enforcement: A proposal for a

- remodeling of CITES incorporating species justice, ecojustice, and environmental justice. *International Journal of Offender Therapy and Comparative Criminology*, 66(9), 1017-1035.
<https://doi.org/10.1177/0306624X221099492>
- Tajudeen, Y. A., Oladunjoye, I. O., Bajinka, O., & Oladipo, H. J. (2022). Zoonotic spillover in an era of rapid deforestation of tropical areas and unprecedented wildlife trafficking: into the wild. *Challenges*, 13(2), 41.
<https://doi.org/10.3390/challe13020041>
- Tian, M., Potter, G. R., & Phelps, J. (2024). Tracing seven decades of Chinese wildlife legislation from 1950 to the COVID-19 pandemic era. *Biological Conservation*, 299, 110817.
<https://doi.org/10.1016/j.biocon.2024.110817>
- UNODC (2025) *wildlife trafficking*,
<https://www.unodc.org/unodc/en/ppc/p/wildlife-trafficking.html>
- Vaidyanathan, T., Foster, S. J., Ramkumar, B., & Vincent, A. C. (2024). A practical approach to meeting national obligations for sustainable trade under CITES. *Conservation Biology*, 38(5), e14337.
<https://doi.org/10.1111/cobi.14337>
- Verma, G., & Kumar Yadav, D. R. (2024). Through the Government's Lens: Nature's Cry—India's Battle against Illegal Wildlife Trade. *Available at SSRN* 4810616.
<https://dx.doi.org/10.2139/ssrn.4810616>
- WHO (2023) *One Health*,
<https://www.who.int/news-room/fact-sheets/detail/one-health>
- WOAH (2025) *Wildlife Health - WOA - World Organisation for Animal*,
<https://www.woah.org/en/what-we-do/animal-health-and-welfare/wildlife-health/>
- World Trade Organization (2025) *Convention on International Trade in Endangered Species*,
https://www.wto.org/english/res_e/booksp_e/int_exp_regs_part1_1_e.pdf
- WTO (2025) *World Trade Report 2018*,
https://www.wto.org/english/res_e/p

ublications_e/world_trade_report18_e.pdf

Wyatt, T. (2021). Canada and the convention on international trade in endangered species of wild fauna and flora (CITES): lessons learned on implementation and compliance. *Liverpool Law Review*, 42(2), 143-159. <https://doi.org/10.1007/s10991-020-09267-8>

Zhang, T., Wu, Q., & Zhang, Z. (2020). Probable pangolin origin of SARS-CoV-2 associated with the COVID-19 outbreak. *Current biology*, 30(7), 1346-1351. [https://www.cell.com/current-biology/fulltext/S0960-9822\(20\)30360-2?dgcid=raven_jbs_aip_email&fbclid=IwAR0T4GZgiK09QmwS6vHN5VSHGqturjG14s0iGaElowVmCrQ1C9N-fxHwTjc](https://www.cell.com/current-biology/fulltext/S0960-9822(20)30360-2?dgcid=raven_jbs_aip_email&fbclid=IwAR0T4GZgiK09QmwS6vHN5VSHGqturjG14s0iGaElowVmCrQ1C9N-fxHwTjc)